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Best Practices for Student Success on the ACT

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by

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Declaration of Originality

I do hereby declare and attest to the fact that this is an original study based solely upon my own scholarly work at Lindenwood University and that I have not submitted it for any other college or university course or degree.

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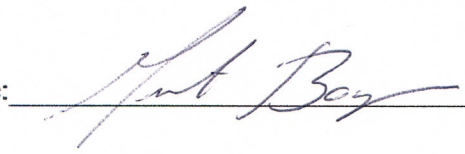
Signature:  Date: 11-27-12

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Abstract

Large achievement gaps have been found in ACT scores between high schools throughout the same state and in comparisons between states. In Missouri, four public high schools have consistently scored four points higher than the Missouri average for years 2007-2011. States, such as Nebraska, Minnesota, and Iowa, have shown consistent above average scores as compared to states with similar participation numbers throughout the nation. Schmoker (2006) believed that due to the existing culture of schools and school leadership, learning from others' successes is often discouraged; therefore, this study was conducted in an attempt to discover the best practices used in high-achieving high schools and states that obtain high student achievement on the ACT. Educational leaders within the top 5% of high schools in Missouri, based on a five-year (2007-2011) average of ACT scores, were surveyed to determine successful teaching strategies and programs educators in these schools are implementing. Leaders from consistently successful states (having higher than average ACT scores with a high percentage of participation) took part in a survey to extrapolate further characteristics regarding high achievement. Furthermore, the trends and the approaches that contribute to student success in states that require the ACT were examined through interview responses. While the study did not reveal any new best practices, the findings supported many best practices already in existence, and most importantly, showed the necessity for the development of a learning culture that emphasizes success and achievement.

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Chapter One: Introduction

Background of the Study

With the continual drive for student success measured through standardized testing, college admission tests may provide a solution to the future needs of state education departments. Due to the requirements of No Child Left Behind (NCLB), high school students must be assessed by each state in the areas of language arts and mathematics (Paige, 2002). Approximately 10% of states now administer the ACT, previously known as the American College Test, to high school students to meet this NCLB mandate (ACT, 2007). In 2006, Maine began administering the Scholastic Aptitude Test (SAT) as part of its state assessment tool and continues to be the only state to currently use this particular college admissions test (Maine Education Association, 2011; Quimby, 2006). The Missouri Department of Elementary and Secondary Education [MODESE], which now uses an End-of-Course (EOC) exam to address the assessment requirements of NCLB, once considered using the ACT as part of its national testing regime.

There are numerous views why state agencies may consider the use of the ACT or SAT as opposed to their state developed assessment test. For example, states are spending millions of dollars in developing, distributing, and scoring their assessments (Robelen, 2009). Research also shows students can significantly drop in achievement due to the pressures of over-testing (Amerein & Berliner, 2002). Teach-to-test instructional methods, which are often a criticism of state standardized testing (Amerein & Berliner, 2003), would be alleviated due to the research that suggests tutoring students, in an attempt to achieve higher success on the ACT, has little effect on increasing

composite scores (Zwick, 2007). States are given the opportunity to create their own assessments, resulting in vast differences in difficultly (Cronin, J., Dahlin, M., Adkins, D., & Kingsbury, G., 2007). In previous years, Maine saw double-digit increases in the percentage of students applying for in-state universities since using the SAT in the state testing regime (Tice, 2006).

The ACT, which is used mainly throughout the Midwest regions of the United States (Honawar & Klein, 2006), has been described as the best tool for determining how prepared students are when they enter post-secondary education (Magloire, Martz, & Silver, 2009). All colleges in the United States now accept the ACT as part of their entrance program (Marklein, 2007). Each student's score from the English, mathematics, reading, and science portions of the ACT is averaged to obtain an overall composite score.

The 2011 national composite average score was 21.1, while the average for Missouri was 21.6 (ACT, 2011a). Correspondingly, the ACT can be used as an indicator of readiness for four-year educational institutions. Benchmark scores in English (18), Math (22), Reading (21), and Science (24), have been established to indicate the minimum score needed to have a 50% chance of obtaining a B or higher in the corresponding credit-bearing college course or a 75% chance of obtaining a C or higher (ACT, 2011a). In 2011, 26% of Missouri students who took the ACT met all four benchmark scores, while 25% of students nationally met all benchmarks (ACT, 2011a).

The resulting composite scores and benchmarks that predict readiness can be affected by differing approaches to the test. Williams and Noble (2005) concluded that effective teaching and learning at all grade levels may lead to increased ACT scores;

therefore, identifying factors that affect ACT success must be determined to aid in furthering achievement on the test. Two key factors that aid in increased success on the ACT include the individual classroom teacher (Marzano, 2001) and the instructional program the student completes (Sawyer, 2008).

Marzano (2001) asserted that even in schools that are deemed ineffective, good teachers can generate quality learning in their classrooms. After analyzing the achievement scores of more than 100,000 students, Sanders and his colleagues (as cited in Marzano, 2001) found the most important factor affecting student learning is the teacher. The presence of qualified teachers further aids in the development of setting realistic program expectations (Williams & Noble, 2005). Challenging course rigor throughout a student's high school duration (Sawyer, 2008) and the participation in advanced and honor classes (Williams & Noble, 2005) have been shown to improve ACT success.

Research, such as Marzano's (2001), depicts teachers who instruct using best practices. The term, *best practice*, has been generically used to describe what works in a particular environment. Whitehurst, Assistant Secretary for Educational Research and Improvement at the U.S. Department of Education, defined best practice as "the integration of professional wisdom with the best available empirical evidence in making decisions about how to deliver instruction" (Connecticut State Education Resource Center, 2009, para. 5). Zemelman, Daniels, and Hyde (2005) posed best practices must begin with a solid understanding of curricular pedagogy and the classroom activities in which students are effectively engaged; therefore, it is essential to use data and research in the determination of effective teaching strategy and style.

Conceptual Framework

In this study, best practices, related to increased ACT achievement, were determined from the successes of other schools, districts, and state education departments; therefore, the appropriate lens to examine this study was through the conceptual framework of Schmoker. Schmoker (2006) believed the culture of schools and school leadership discourages learning from others' successes, and these practices are not readily shared in the educational community. Schmoker (2006) found the more closely teachers implement these practices, the less critical they are of standards and testing.

Attitudes can suffer when teachers are misinformed and presented with a distorted view about testing and the testing process (Schmoker, 2006). Wiggins (as cited in Schmoker, 2006) believed that the problem lies not with testing, but the lack of ability to become more results-focused and data-driven. Moreover, Schmoker (2006) commented:

> In all the hustle of fanfare of planning, of rolling out new programs, of working to meet accreditation requirements,…[it is] our failure to take full advantage of an invaluable resource that would have a direct impact on achieving a guaranteed and viable curriculum. (p. 16)

Establishing best practices will better equip teachers and educational leaders with aligned curriculum and programs in this hectic educational era (Schmoker, 2006).

Statement of the Problem

Despite education reforms calling for high standards in learning for all students, vast achievement gaps in ACT achievement are present in high schools across the United States. The ACT, which is tied to college acceptance, scholarships, placement, and in

some states, federal testing, is an important test for all educational entities, not just federally mandated assessment scores. Advanced course participation and repeated test taking have been identified as two practices in increasing individual ACT success, but school and state practices, which aid in better achievement, must also be shared and exchanged with one another to invoke improvement in success on the ACT (Dole, 2004; Hodges, 1996). As more states learn about the benefits of using the ACT as part of their testing program and better understand methods to implement, which aid in higher success, more states may look at using this test to meet NCLB mandates.

There are several issues related to introducing the ACT into a state's testing program. First, a large majority of students are already taking the ACT as part of their requirements for entrance into post-secondary education. In 2011, 49% of the entire United States graduating senior class, equaling 1.62 million, took the ACT (Strauss, 2011). The question could be raised: Why not use a test that meets federal requirements which a large number of high school graduates are already taking?

There is also a large discrepancy between state assessments throughout the nation. A representation of state achievement could be inaccurate based on the fact that students do not take the same test throughout the United States. Moreover, while much effort is spent on preparing students for annual state-wide assessments, there have been questions about teaching-to-the-test (Wiggins & McTighe, 2005), test corruption (Edmonson, 2003; Pedulla, J., Abrams, G., Madaus, G., Russell, M., Ramos, M., & Miao, J., 2003), score inflation (Jacobs & Levitt, 2002), and the cost of producing and grading thousands of tests given by each state (Rebarber & McFarland, 2002).

Attempting to address these problems, schools, state departments of education, and legislators may find answers from Colorado, Illinois, Michigan, Kentucky, and Wyoming. These states use the ACT either in conjunction with other tests or independently to determine if students are meeting Adequate Yearly Progress (AYP) goals (ACT, 2007). Currently, Missouri uses the EOC exam as the state high school assessment to comply with the NCLB mandate. If Missouri or other states consider following the path of states using the ACT, the best practices found to lead to successful implementation and achievement are limited.

Purpose of the Study

In this study, a compilation of best practices used in high-achieving high schools and states that obtain high student achievement on the ACT were collected. Educational leaders within the top 5% of high schools in Missouri, based on a five-year average of ACT scores, were surveyed to help determine successful teaching strategies and programs educators in these schools are implementing. Leaders from consistently successful states (having higher than average ACT scores with a high percentage of participation) took part in a survey to extrapolate further characteristics regarding high achievement. Furthermore, the trends and the approaches that contribute to student success in states that require the ACT were examined through interview responses. With the combination of the data collected, best practices were determined to prepare all educators and students for better success on the ACT.

Research Questions

The following research questions guided this study:

1. What best practices are used in Missouri high schools with the best

performance on the ACT?

2. What best practices are implemented by states, such as Nebraska, Minnesota, and Iowa, which have consistently higher than average ACT composite scores?

3. How have ACT scores changed in high schools across the nation where graduating seniors are required to take the test?

4. What are the perceptions of school leaders in states where graduates are required to take the ACT?

Significance of the Study

The goal of education, in general, is all students will be given opportunity for high achievement; therefore, the identification of best practices will aid in the creation and development of future curricula and programs needed for pedagogy success. If increased achievement transpires, students would be eligible for scholarship opportunities for post-secondary education and have the aptitude to perform at the college level. Higher achievement scores would have a significant impact on the school, including perceptions about the educational staff, educational leaders, school board members, and educational stakeholders. Furthermore, state departments of education would benefit in achieving true accountability measures tied to NCLB without placing students at risk of over-testing and preventing them from being subjected to a teach-to-test curriculum.

Definition of Key Terms

The following key terms are defined:

ACT. Group test designed to assess students' general educational development and their ability to complete college-level work (ACT, 2009b).

Adequate Yearly Progress (AYP). A statewide accountability system mandated by the NCLB Act of 2001 which requires each state to ensure all schools and districts meet standard benchmarks (MODESE, 2010).

Best practice. For the purpose of this study, best practice is defined as research-based and data-driven strategies, programs, or policies used to create reportable and recordable high student achievement (Honey & Mandiach, 2008).

End-of-Course (EOC) exam. State mandated high school exams in Missouri which assess course expectations from the subject areas of Algebra I, English II, Biology, and Government. These exams meet assessment standards required by NCLB in which student performance is reported using four achievement levels: Advanced, Proficient, Basic, and Below Basic (MODESE, 2009c).

High-achieving schools. For the purpose of this study, high-achieving schools include the top 5% of Missouri high schools based on a five-year average of ACT scores between 2007-2011.

Limitations

In response to the research questions posed in this study, the identification of teaching strategies and district programs within Missouri were limited to the public high schools in the state. Quantitative data were collected from the MODESE through accessible data reported by each school district. Additional quantitative and qualitative information were dependent upon the accuracy of responses from school district representatives.

To investigate national averages and the programs in place that yield high achievement, data were collected from the state departments of education and state

officials within those departments. The reliability of data and research collected was dependent upon the state departments' research and the responses provided by state officials through the interview process.

Information obtained through the survey and interview questions may not reflect the general attitudes and beliefs of all administrators and stakeholders. The responses revealed the participants' feelings at a particular time and may not provide information pertaining to past problems or benefits of the testing programs. Moreover, the survey and interview questions were constructed in an attempt to exclude bias, but could exclude subject matter that could help in the development of best practice formation.

Summary

As more states adopt the ACT for accountability measures, best practices for high achievement must be established, presented, and used. These practices may yield positive results in narrowing the drastic achievements gaps that are found throughout schools (MODESE, 2010) The results may also aid in an overall upward shift of ACT averages in states that currently show consistently lower achievement but comparable participation numbers (ACT, 2011a).

Research findings, such as Marzano's, (2001), which links the teacher and instructional programs to high levels of learning, are consistent with Schmoker's (2006) results: schools are performing an inadequate job of sharing what works in high-achieving schools. Until high-achieving high schools and state departments share what is working within their educational setting, the achievement gaps may continue to increase. Once the instructional and educational program differences are identified that aid in decreasing achievement gaps, students will have better opportunities to prepare for the

ACT. The use of the ACT has shown positive results in states that have mandated participation; therefore, if Missouri and other states initiate a similar mandate, it is important to understand the best practices in obtaining high student achievement on the ACT.

A review of relevant literature surrounding ACT use as part of a state testing program, the need for best practice formation, and current best practices used for ACT success were discussed in Chapter Two. In Chapter Three, the methodology utilized in this study was discussed. The data were reported in Chapter Four. In Chapter Five, the conclusions and recommendations were presented.

Chapter Two: Literature Review

In the abundance of literature about college admissions testing and its counterpart, the standardized tests, most writings explore or investigate the adverse attributes of such test. Despite the numerous negative criticisms towards standardized testing as a whole, these tests, with college admission testing included, continue to be an educational measuring stick for students. Not only do schools in the states of Wyoming, Kentucky, Colorado, Illinois, Michigan, and Maine currently require a college admissions test for their high school graduates, more states, such as North Carolina, are looking at adding this testing regime in their state assessment practices.

The North Carolina State Board of Education reasoned that adding the ACT college admissions test would help determine the effectiveness of education in a particular school and help identify students in need of extra help to become better prepared for college work (Bonner, 2010). Michigan added the ACT to its state testing program in hopes of increasing the number of Michigan students who obtain a bachelor degree (Martineau, 2008). While problems with college admissions tests, as with all standardized testing, continue to be researched and scrutinized, these tests will remain a staple to monitor educational performance and growth. Furthermore, if more states add standardized testing measurements, such as the ACT, these states need to be aware of best practices for high achievement on these tests.

There are currently large differences in achievement levels on the ACT when comparing states across the United States with equal participation rates. Minnesota, Nebraska, and Iowa had 2010 average composite scores above 22, with participation rates between 59% and 72% (ACT, 2010). The states of Alabama, Arkansas, and New Mexico

averaged nearly two full points below (composite scores between 20.1 and 20.3) with similar participation rates (ACT, 2010). While these gaps between states with equal participation rates annually occur, there are also gaps in ACT achievement levels between high schools within the same state.

It is imperative that educators learn from state departments and school districts that consistently produce high achieving ACT scores. As simple as it may sound to learn from others' successes, Schmoker (2006) determined that the current culture of schools and school leadership discourages learning from others' accomplishments and achievements, and instructional methods are not readily shared in the educational community. The lack of awareness allows teachers to indulge in a misinformed rejection of testing; however, the more closely teachers become aware of high achieving practices, the less critical they are of standards and testing (Schmoker, 2006). Wiggins (as cited in Schmoker, 2006) determined, "the problem is not with [the] test per se but the failure…to be results-focused and data driven" (p. 13).

Current research and information derived from using result-focused, data driven methods have been determined and used in the education field. Though student demographics (Shankin, 2012) and socioeconomic status of students have been shown to play a role in academic achievement (Barry, 2006), the largest factors are the practices of the teachers (National Commission on Teaching & America's Future, 2004). Marzano (2001) agreed with other researchers, such as Sanders, who concluded that the most important factor affecting student learning is the teacher. Sawyer (2008) reported those teachers who present a challenging course rigor and have a strong subject knowledge

base to effectively teach honor and advanced courses, generate learning at all levels and thus, students have an increased opportunity for better success on the ACT.

To become familiar with relevant background information, the need for development of best practices was investigated in this chapter, followed by the presentation of existing best practices for ACT success. College admissions testing and the history of the ACT were reviewed. NCLB standards and in what way states currently use the ACT to fulfill their necessary state testing requirements, were examined. The contrasting views of current standardized testing were also revealed.

The Need for Development of Best Practices

In the past, teachers were not regarded as of highest importance to student success. Emphasis was placed upon the socio-economic levels or the quality of home life in predicting the achievement level of the student. Research has shown that if the teacher is ineffective, students will show inadequate progress regarding their academic achievement when taught by this teacher (Marzano, 2001).

Despite past and present scrutiny of the classroom teacher, highly-qualified educators are important in the overall educational process. Moreover, the common theme for school improvement includes the attitude and skill of the classroom teacher, a shift in the idea or approach that occurred in past history (Marzano, 2001). To have students achieve and meet the pressures of high-stakes testing and rigorous course work, teachers must have a high standard of quality. Unfortunately, many of this nation's classrooms are filled with inexperienced, unqualified teachers (Almy & Theokas, 2010).

In one study, empirical evidence was presented showing a significant correlation between teacher quality and student achievement, stronger than the correlation that exists

between students' socio-economic status, other background characteristics, and achievement (Wenglinsky, 2002). Consequently, it is essential for school districts to have the tools in place to aid all teachers. According to research, qualified teachers have similar characteristics, such as a strong verbal ability, a high content of subject knowledge, and ability to produce high levels of pupil achievement (Ehrenberg & Brewer, 1994).

Best Practice Formation

In their book, *Thirteen Principles of Best Practice*, authors Zemelman, Daniels, and Hyde (2005) determined that to work toward the goal of *best practice*, two directions must be taken. The first is to set aside time and build classroom structures that support more student directed activity, while second, is to make teacher-directed activities less predominant and more effective (Zemelman et al., 2005). When teachers use practical strategies to manage both of these modes of instruction, the curricular improvements they desire begin to take hold (Zemelman et al., 2005).

The formation of a best practice in dealing with ACT achievement must be determined by research or data that depicts positive ACT achievement outcomes. Best practices can be found in the strategies and methods that pertain to the participation, preparation, college entrance, and achievement results from the test. The following strategies and methods found in research have shown positive outcomes or trends in achievement on the ACT. Kowarski (2010) found only 15 % of students who had taken the three basic mathematics courses in high school (Algebra I, II, and Geometry) met college-readiness benchmarks. In contrast, 40% of those who had also taken trigonometry passed the benchmark (Kowarski, 2010). Likewise, the National

Assessment for Educational Progress (NAEP) scores are higher for graduates who completed the most challenging mathematics and science courses (Nord, Hicks, Hoover, Jones, Lin, Lyons, & Perkins, 2011). The importance of course rigor and an advanced course track have continually shown positive progress towards increasing ACT success.

In response to indicators that suggest the reading, writing, mathematics, and science skills of America's young adults are insufficient to maintain its economic strength, a 2008 ACT report suggested a strategy to improve this fall-out: encourage students to take more rigorous college-preparatory courses and to earn higher grades in these courses (Sawyer, 2008). The percentage of high school students who completed a standard academic curriculum increased from 31% to 51% between 1990 and 2005, and the overall GPA increased from 2.68 in 1990 to 2.98 in 2005 (Shettle, Roey, Mordica, Perkins, Nord, & Teodorovic, 2007). As a result of fewer students participating in advanced courses, the average NAEP Reading score of 12th grade students declined from 292 to 286, from a maximum score of 500, between 1992 and 2005 (Grigg, Donahue, & Dion, 2007).

Another aid in the success of ACT achievement is student participation in pretesting strategies. The ACT Corporation offers the EXPLORE, which is usually taken by students in the 8th grade, and the PLAN, which is usually taken by students in the 10th grade. A special program called EPAS is also available for school-wide participation in which all students take the EXPLORE, PLAN, and the ACT in conjunction with added education materials (ACT, 2011b).

The use of the EXPLORE has proven beneficial because it aids as a predictor for ACT performance. A study found that the academic skill students achieve by grade 8

strongly forecasts the academic skills they will have when they graduate from high school (Sawyer, 2008). Furthermore, students who begin high school with stronger academic skills will likely take more challenging courses, earn higher grades, and achieve higher test scores later in their academic programs (Sawyer, 2008).

In a 2005 study, schools that consistently administered the PLAN to all sophomores had average composite scores on the ACT higher than the national average of 20.8 (ACT, 2006b). The use of the PLAN was associated with an ACT mathematics score increase of .58 to .63 compared to schools that did not administer the PLAN. Schools administering the PLAN also had a 5% increase in meeting the ACT mathematics college-readiness benchmark and a 3% increase in meeting the science benchmark. Furthermore, schools that required all sophomores to take the PLAN showed 9-11% higher student enrollment in core coursework.

There are other practices that research suggests can aid in higher ACT scores. For instance, a student who takes the test again will score .7 to .8 points higher than the initial test (Sawyer, 2008). While the benefit of participating in prep classes have been debated, Enos (2012), CEO and co-founder of PrepNow Tutoring, promises a score increase guarantee for students who participate in his ACT tutoring program. Likewise, McClanahan and Wicks (2008) suggested intrinsic motivators given to students may aid in overall academic performance.

College Admissions Test

Nearly 3 million high school students take the SAT or ACT college admission exams each year (Atkinson & Geiser, 2009). As compared to fewer than 1,000 students who took the first admissions exam in 1901 (Atkinson & Geiser, 2009), college

admissions testing has seen extraordinary growth over the past century. Though college admission exams are not the best indicator for college success (College Entrance Examination Board, 2001), they are used congruently with high school class rank, high school GPA, number of subject area courses taken, and to determine college and university acceptance. While little data are available on outcomes of student achievement levels when administered college admissions tests as part of the NCLB requirement, research concerning students benefits, college success predictability, and admission exam problems have been found.

Student benefits. Students who have already completed the first step in the college admissions process are more likely to continue and complete the application process. Literature indicates that most students are successful in this application process. Hoover (2008) found that 80% of first-year students were successful in gaining admittance to their top college choice. Also, Hoover (2008) concluded that while educational pressures have increased, acceptance rates have changed little since the 1980s. Furthermore, Hoxby (2009) supported this finding; only 5% of colleges have become more selective in their admittance, while most colleges have not become more selective over the past 50 years.

Research has shown that even when colleges do not require college admissions exams, those students who still submit their scores increase their chance of being accepted as compared to those students who do not submit exam scores (Zwick, 2007). Further benefits specifically attributed to the ACT as compared to the SAT are: the ACT appears to be less coachable than the SAT, the ACT places less of a premium on test-taking skills and more on content mastery, and the ACT has developed a useful

diagnostic component to assist students to stay on track for college (Atkinson & Geiser, 2009).

College success predictability. The purpose of the college admissions test is to determine the chance of success an incoming student will have in post-secondary education. There is much debate on the reliability of such a test as an indicator of college academic success. While research indicates there are better predictors of college success than a college admission test, two studies, including a 1990 Dartmouth study and a 1994 Ramist study, indicated that SAT scores tended to be more relevant in predicting grades in individual courses than a student's high school GPA (Zwick, 2007).

Though these studies have shown applicable predictability from admission exams, some colleges have recently sided with research that nullifies college admissions and predictability of success in college. As a result, some post-secondary institutions have abandoned the college admissions exam altogether and now focus on student interviews, as well as other academic indicators in the admissions process. Wake Forest University removed the requirement of standardized test scores, and instead, conduct a personal interview of the student (Walker & Cox, 2008).

Many colleges recognized research, such as Brown's (1999), which concluded that focus on exam outcomes for admission purposes identifies only those students who perform better on tests, not necessarily those who are smarter and more committed to the institution. Furthermore, using a college admissions test does not take into account the conduciveness of learning found in the university environment (Astin, 1993; Tinto, 1994). Nevertheless, even in colleges that do not require admission test scores, there may be some benefit of submitting the scores. Of all applicants of Bates, a college located in

Maine that does not require college admission scores, 75% of applicants still submitted college admission scores (Zwick, 2007). Of those applicants who submitted scores, 35% were accepted as compared to only 20% of applicants who did not submit scores (Zwick, 2007).

Admission exam problems. Atkinson and Geiser (2009) described the two most popular college admissions tests, the SAT and ACT, as norm-referenced tests (NRT). A NRT is used to classify students (Bond, 1996) and fails to assess curriculum mastery (Atkinson & Geiser, 2009). According to FairTest (2007), self-labeled as the National Center for Fair and Open Testing, NRTs can be biased, only measure a limited part of the subject matter, can be misleading, and overall, cause more damage than good to the educational process.

College admission exams have been criticized because the scores, solely, do not reflect the diversity of the students taking the exam. First, in most states, only college-bound students or a select group of students take these tests, which do not show a true representation of the overall population. Second, Santelices and Wilson's (2010) research indicated questions in the verbal section of the SAT are viewed differently by Black students. Consequently, Black students score nearly 100 points less on the SAT than White students (College Board, 2009).

Gender biases have been debated with the use of college admissions tests. Males have consistently outperformed females on college admissions exams (ACT, 2005). Male and female differences are a result of nearly 56% of test takers being female (ACT, 2005). Some argue that research shows a timed, multiple-choice format favors males over females (FairTest, 2007). Furthermore, guessing, a risk males are more likely to take, is

rewarded, and multiple-choice items do not allow for shades of meaning, which tend to work against the typical female thinking style (FairTest, 2007)

The Use of the ACT

The ACT expounds that it is designed to assess students' general educational development and their ability to complete college-level work (ACT, 2010). Though not for its intended use, when compared to many of the nation's state level NCLB mandated assessments, there are many similarities between the goals and standards of the ACT and state testing assessments. The mandatory state assessment for high school students in Missouri is the EOC exam. The purposes of Missouri's EOC exams include measuring and reflecting student mastery toward post-secondary readiness and identifying students' strengths and weaknesses (MODESE, 2009b). Correspondingly, the ACT focuses on college and career readiness as "the acquisition of the knowledge and skills a student needs to enroll and succeed in credit-bearing, first-year courses at a postsecondary institution without the need for remediation" (ACT, 2011, para 5). As more states discover these similarities, the ACT may continue to become increasingly popular in the replacement of mandatory state assessments.

The ACT program was developed in 1959 (Equityedu, 2009) in response to United States political and demographic developments inspiring major changes in attitudes about, and approaches to, higher education (ACT, 2009b). In creating the ACT, its designers wanted to serve two purposes; to help students decide the best college to attend and to provide assistance to colleges in the admissions process by giving foresight in predicting the success of students in a postsecondary setting (ACT, 2009b). Since its development, the ACT has evolved through the years. Though the popularity of the test

has increased, it is more widely used in the midwest and southeast regions of the United States (Equityedu, 2009).

Approximately 1.42 million graduates, a 9% increase from 2007 of 1.3 million, took the exam in 2008 (Cech, 2008). This equates to approximately 43% of all 2008 high school graduates taking the test (Cech, 2008). According to Colby, a spokesman for ACT, his company has heavily promoted the use of the test in states outside the company's more popular regions (Farrell, 2006). Apparently the approach is working, as the number of test takers in several states outside of the midwest region rose by double-digit percentages (Farrell, 2006). The most significant was New Jersey's increase of 33% more graduates taking the exam, followed by Connecticut (26%) (Farrell, 2006).

One reason attributed to the increased popularity of the ACT may be the decreased popularity of the SAT. The SAT has received various criticisms in the effectiveness and fairness of its assessment (Equityedu, 2009). When asked about the validity of the SAT assessment in a Frontline interview, president and founder of the Princeton Review, John Kartzman, believed that the SAT is very vague and overall, lacks to measure anything besides basic math and reading skills (Frontline, 2009). In the book, *Cracking the ACT,* authors Magloire, Martz, and Silver (2009), determined that the ACT exam questions are less ambiguous and more knowledge-based than those on the SAT.

Also included in the rise of ACT popularity were the recent scoring problems on the SAT test. College Board, the company that produces the SAT, notified colleges that scores of 4,000 students who took the exam on the 2006 October test date were misreported (Arenson, 2006). These scoring errors, which were apparently caused by moisture absorbed by the answer sheets, were not reported for five months after the test

was taken (FairTest, 2011). The Chronicle of Higher Education labeled the entire episode as a debacle in a front page headline (Farrell & Walters, 2006).

The most significant jump for the increased numbers taking the ACT may be due to new testing mandates placed by revised state testing programs. While Maine is the only state using the SAT in conjunction to its state testing plan (College Board, 2008), Illinois, Colorado, Kentucky, Wyoming, and Michigan are currently administering the ACT to all students before they graduate, resulting in more than a dozen states either using or considering using the ACT in their testing program (ACT, 2006a). With the possibility of more states requiring graduating seniors to take the test, the ACT may surpass the SAT as the most popular college admissions test.

State Usage of the ACT

Colorado and Illinois have been at the forefront of states using the ACT as part of their statewide assessment program (ACT, 2006a). While not all states are currently taking advantage of using the national exam as part of its NCLB requirements, some state education departments feel as though there are many other benefits to adding the college entrance exam as part of their mandatory high school assessment program. In 2003, two years after incorporating the ACT exam into Illinois' Prairie State Achievement Program (PSAE), some benefits surfaced. The ACT composite scores rose from 20.1 to 20.3, a score comparable to averages from other states not requiring full participation (Illinois State Board of Education, 2006). When Maine implemented a college entrance exam as part of its testing program, enrollment in its state university increased significantly (Tice, 2006).

As a result of successes due to implementing college entrance exams into state assessments, a pilot program championed by Arizona State Representative, Rich Crandall, was established to test 15,000 Arizona high school juniors with hopes that the testing regiment would encourage graduates to pursue a path to higher education (Inside NAU, 2009). Arizona, which ranked last in the percentage of students taking a college entrance exam (ACT, 2008), provide students the ACT exam free-of-charge (Inside NAU, 2009). According to Arizona education officials, there are many benefits to providing the test free-of-charge to high school students. North Carolina education officials made the move to mandate all high school juniors take the ACT for many of the same reasons that interested Arizona officials (Appalachian State University [ASU], 2012). The North Carolina Department of Public Instruction aids in assessing students to measure academic preparedness and college readiness (ASU, 2012)

John Haeger, the president of Northern Arizona University, determined that removing the financial and emotional barriers in deciding whether to take the ACT in high school is one more positive step in providing a clear pathway to postsecondary education opportunities for the next generation (Inside NAU, 2009). Haeger also agreed that students view taking the test as a step that will start the college admissions process (Inside NAU, 2009). Arizona is not the only state currently looking at creating programs to find the benefits of statewide testing. In 2006, the ACT company reported that more than a dozen states, other than Colorado and Illinois, were considering adopting the ACT as part of their statewide assessments at the eleventh or twelfth grade level (ACT, 2006a).

Since ACT's 2006 report, there have been several states that have followed the lead of Colorado and Illinois, two of the first states to implement the ACT into the testing

program. In 2007, Michigan replaced its Educational Assessment Program, which had been used since 1978, with the Michigan Merit Examination (MME) (Keller, 2007). The MME mandated the ACT college-entrance exam be given to all high school juniors (Olson, 2006).

On December 2, 2008, Martineau, director of Michigan's Educational Assessment and Accountability Office, presented several reasons why the change took place. Martineau (2008) related that the ACT is used as one component to help achieve their goal to double the 25% of adults in Michigan who have a bachelor's degree or higher. Martineau (2008) cited other benefits, including coursework rigor; free college entrance examination for all students; doubling the submission of ACT score reports to Michigan universities; and the fact that students partook in exams from a proven, high quality testing program. Despite the numerous benefits of the new program for meeting Michigan's postsecondary goals, officials not only look at college entrance as a large part of the program's benefits but also the alignment of the ACT to their AYP standards.

Currently, the nation may be going through one of the most significant movements in the educational system with the development of the Common Core State Standards (ACT, 2011b). All but seven states have adopted the nationally developed Common Core Standards. These standards have been developed to provide a consistent, clear understanding of what students are expected to learn, while being relevant to the real world and reflecting on knowledge and skills that young people need for success in college and careers (Omear & Schlosser, 2010). The Common Core Standards initiative has adopted the ACT definition of college and career readiness to include the acquisition

of the knowledge and skills a student needs to enroll in college without the need for remediation (ACT, 2011b).

In the development of the Common Core framework, standards from high-performing countries and states were identified, academic research on learning progressions was reviewed, and ACT's longitudinal research identifying knowledge and skills that are essential for success in postsecondary education and workforce training were considered (ACT, 2011b). The ACT company reported that because ACT played a central role in providing research to support the development of the Common Core Standards, it should be no surprise that the majority of the standards will be assessed by ACT's College and Career Readiness System (ACT, 2011b).

Though the Common Core State Standards are thoroughly addressed by the ACT Course Standards, when comparing the Common Core State Standards to ACT's College Readiness Standards, there are several similarities, as well. For instance, in reading, all of the Anchor Standards of the Common Core State Standards are addressed by the ACT College Readiness Standards (ACT, 2011b). The Common Core Standards for grades 9-12 are met through the use of the PLAN and the ACT (ACT, 2011b). All the Common Core State Standards for language are met, but the ACT College Readiness Standards only partially address Common Core State Standards in writing and do not address any standards in speaking and listening (ACT, 2011b). The ACT College Readiness Standards thoroughly address all six conceptual categories of the Common Core State Standards for mathematical content (ACT, 2011b). Because of the visions of the two programs for preparation for college and career, ACT's College Readiness Standards and

the Common Core State Standards align well and are consistent multiple points in time throughout a student's educational process.

No Child Left Behind

The introduction of the phrase, *school accountability*, has yielded a new era in American education, high-stakes testing. This new era came about from the educational reform associated with the NCLB Act. The NCLB Act was enacted in 2001 and required all public schools to obtain an Adequate Yearly Progress (AYP) accreditation to receive federal funding (MODESE, 2009). Despite the controversy of the national program, it has also brought much change and reform to education in the public school system. NCLB's definition of AYP is based on several factors within the school district. One area in which schools must meet the requirements of AYP is through the demonstration of high student achievement. As 2014 nears, all students, regardless of socio-economic and demographic status, must meet the proficiency standard on state testing assessments (MODESE, 2009).

Participation in the ACT is established and regulated by each state board of education. Though Missouri is not using the ACT as its current state assessment, the idea has been debated in previous years. States, such as Michigan and Illinois, use the ACT in accordance to NCLB requirements that mandate all high schools to assess their students' achievement in communication arts and math at least one time. State participation in the ACT may also help to inform policymaking, school improvement, and student college readiness.

With current NCLB requirements and mandated state report cards, it is important that many states perform well on the ACT even if not directly used for state assessment

purposes. During the 4th Missouri School Improvement Program (MSIP) cycle, district performance determined the accreditation level of a school district. Different performance standards were evaluated using status and progress measures to determine if a standard was met. One of the 14 standards is ACT achievement. Status measurements are determined from the district's level of achievement based upon a five-year average of performance data. Progress measurements are used in the evaluation of the ACT by measuring the district's improvement over a five-year period. A Missouri school district earns points by having a high ACT five-year average and by showing improvement from year to year. ACT achievement, as well as the status and progress scores for the remaining standards, are contained in the Annual Performance Report (APR).

The problem with the current state evaluation of ACT scores is it provides no incentive for schools to encourage all graduates to take the exam. Most teachers know which students will score at or above the national average on the exam; therefore, many school officials would be against the voluntary testing of all graduates because of the drop they may see in their schools' ACT scores. When the national level of students taking the ACT increased 9% in 2008 as compared to 2007, scores dropped. In response to the decrease in scores, Schmeiser, the president and chief operating officer of the education division of ACT, reported that the drop of scores was not surprising since there was an increased number of test-takers (Cech, 2008). Though ACT scores are not evaluated as a whole for a district, when scores are posted by the state and easily accessible to the public, many administrators and school officials do not want a low ACT score, which might occur if all students affiliated with their school take the test.

The Continued Debate Over Standardized Testing

Though it may seem that the current trend to successfully measure educational achievement is through the use of standardized testing, there are many opponents of these methods and tests. Amerein and Berliner (2002) viewed 18 different states that tied severe consequences to the students' performance on high stakes standardized tests. They concluded, in all but one state analysis, achievement remained at the same level or declined previous to the implementation of the high stakes testing policy (Amerein & Berliner, 2002).

Further investigation into the problems of high stakes testing shows evidence that the material covered on these exams does not transfer to other situations (Johnson, Johnson, Farenga, & Ness, 2008). There is no evidence that the quality of the educational experience, the engagement of students, or learning have changed in the current accountability era (Johnson et al., 2008). Even in the pre-accountability era, Bigge and Shermis (1982) pointed out in his book, *Learning Theories for Teachers*, that the transfer of learning is the cornerstone of education, and the total sequence of education and life events are changed if a student is not learning.

There are several reasons why standardized testing methods are criticized. More than 280 colleges and universities have made college entrance exams optional (Manzo, 2008) in their admissions process. These colleges and universities agree that the transfer of learning, the major function of schooling, is not adequately assessed by the use of these tests (Johnson et al., 2008). In the past, the ACT has attempted to combat skeptics by basing the test on the belief that school achievement is not just what students can recall but the application of subject material to new situations (Comras, 1993). This is

demonstrated by measuring students' skills and knowledge to new material, as well as their current understanding (Comras, 1993). Regardless of test content, there are other factors that lead to the criticism of these tests.

This idea of high-stakes testing on standardized testing came from the increase of intelligence testing that started during World War I in the United States when the Army gave soldiers IQ tests to determine who would be a soldier and who would be an officer (Nichols, 2012). Current standardized tests used today are tied to consequences given to the student, based on his/her performance on the exam. Consequences are set up to provide motivation for students to perform at a high level. The consequences can be negative or positive. In Alabama, such as in many other states, standardized tests must be passed to satisfy the requirements needed for completion of school (Alabama State Department of Education, 2007). In Missouri, the consequence of a student scoring a 31 or above on the ACT qualifies him or her for the Bright Flight Scholarship, which provides a $1,500 scholarship each post-secondary semester (Missouri Department of Higher Education, 2009). Regardless of the type of consequence, standardized tests are used to extrinsically motivate students in their educational achievement.

High stakes testing not only places pressure on students, but also educators and those represented by the achievement scores. When scores continue to be of great importance, schools and teachers will go to extreme measures to ensure that the test scores yield favorable results (Jones, Jones, & Hargrove, 2003). Nine percent of Tennessee teachers surveyed said they had witnessed one or more of the following test improprieties: weak students being excluded from test, teachers wandering in the classroom pointing out wrong answers to students, counselors erasing stray marks,

discipline suspensions for various infractions of students who were academically at the borderline just before the test, eliminating monitors in testing classrooms, and leaving teachers to do what it takes to get higher scores (Edmonson, 2003). In one instance in which suspicions of cheating had been raised, the class was retested with an outcome that showed a decline of a full year's grade-equivalent in scores (Jacob & Levitt, 2002). On another national survey, about 10 % of the teachers admitted to providing hints about the answers during test administration, about 10 % of the teachers pointed out mismarked items by students, about 15 % of the teachers provided more time for the test than was allowed, about 5 % of the teachers engaged in instruction during the test, and 1.5 % of the teachers actually admitted they changed students' answers on the test (Nichols & Berliner, 2005).

Unfortunately, the unethical attempts to raise achievement levels have not just been conducted by classroom teachers but to entire state departments. When two-thirds of tenth graders failed the statewide math regents exam in 2003, New York created a new scoring system that enabled most of those students to pass (Johnson et al., 2008). While states are mandated to assess student achievement, they have the freedom to determine the students' proficiency level. States, such as Delaware, Idaho, North Carolina, Oregon, and South Dakota, had vast differences in their state percentage proficient levels, as compared to the NAEP percentage of proficient levels on reading tests (Stoneberg, 2007). In addition, a recent Government Accountably Office report indicated several gaps in security policies, including the lack of statistical analysis of test results to detect indications of cheating (Robelen, 2009).

With negative aspects of standardized testing continually being brought into the spotlight, public perception of these tests is declining. In a Gallup/Phi Delta Kappa Poll of the public's attitudes toward the public schools, 82 % of the respondents reported they were concerned a great deal or a fair amount that high stakes testing in English and math means less emphasis on art, music, history, and other subjects (Rose & Gallup 2005). Furthermore, budgetary issues concerning the cost of the numerous state exams are increasingly being investigated. The federal government accountability office, in 2004, estimated that testing requirements caused states to spend more than $5 billion (Olson, 2004). While nearly every state is spending more on mandated assessments than in 2002, the year NCLB was introduced, 19 states indicated they reduced their testing budgets, and 10 other states expected to eliminate or reduce testing budgets in the future (Robelen, 2009).

The International Reading Association (IRA) determined high-stakes testing carries substantial consequences for both good and poor assessment performance (IRA, 2011). The American Educational Research Association (2000) reported high-stakes tests not only carry serious consequences for students, but educators, as well. These high-stakes tests can take many forms and can be used throughout a student's educational experience. Many high-stakes tests used today in the educational field include state testing that is tied to NCLB standards and requirements; EOC exams, which play a large role in a student's grade in a particular class or can determine if a student passes the course; high school graduation exams, which determine if a student has sufficient knowledge to graduate from high school; and various other tests that can produce consequences for performance. Tests, such as high school graduation exams, which were

produced to make graduating and receiving a diploma valuable (Center on Educational Policy, 2002), are based on several assumptions that have little research to substantiate their effectiveness (Marchant & Paulson, 2005). As cited in Marchant and Paulson (2005), Kane proposed high-stakes testing, such as high school graduation tests, are based on several underlying assumptions:

- A core set of desired outcomes of high school education can be identified.
- A high level of student achievement on demanding content is an important goal for high schools.
- Student achievement will improve if student are required to pass a high school graduation test based on demanding content.
- A secondary assumption is that the adoption of the high school graduation test will not have a major negative impact on other indicators of achievement, such as graduation rates, achievement in content areas not on the test, and involvement in extracurricular activities. (p. 2)

In Marchant and Paulson's study (2005), results indicated that graduation rates, as well as scores on college admissions tests, may be negatively influenced. The reason college admissions exams, in particular the SAT, are negatively affected includes teachers, in an attempt to improve student scores, teaching-to-the-test (Smith, 1991), thereby inhibiting the transfer of educational material to be applied on the SAT, which is viewed as a reasoning test (Marchant & Paulson, 2005). These high-stakes exams may, furthermore, discourage teachers from using strategies that promote inquiry and active learning (Wideen et al., 1997). According to Wong-Kam (2001), teachers spend additional time in test preparation learning how to read test questions, determining the

best strategy to answer multiple-choice questions, and aligning educational material towards the test questions. Consequently, Marchant and Paulson's (2005) study indicated that high-stakes testing can have an effect on college admissions scores, which can, in turn, indicate that students are not entering post-secondary education prepared (Bettinger & Long, 2008).

Nichols, Glass, and Berliner (2006) based their study on the effects of high-stakes testing on the intended outcome of student achievement from past research that has mixed results, which indicated there is no consistent evidence that high-stakes testing had an effect on increased achievement. Their study concluded, based on NAEP scores, 8th grade math scores may show an increase under the influence of high-stakes testing (Nichols et al., 2006). They further indicated there is evidence students are excluded from NAEP at higher rates during post-testing, which raises questions for any researcher about the validity of academic *gain* scores, and the results from such testing pressure could lead to a higher dropout rate (Nichols et al., 2006).

With little research indicating the positive outcomes high-stakes testing is supposed to achieve, why are the tests still being used throughout the education system? According to Kohn (2000), the parties that continue interest in high-stakes testing include those who want traditional *back-to-basics* instruction, those who are against public schools and for privatization, those who want to profit from the manufacturing and scoring of tests, and those who want to get ahead politically by *raising the bar* with their call for higher standards.

Summary

Effective education is a result of various teaching methods and programs (National Commission on Teaching & America's Future, 2004), which supports the need for a defined plan of action for students, teachers, and school districts for better ACT achievement. Many of today's teachers are inexperienced and some unqualified (Almy & Theokas, 2010), which makes it even more important that best practices for ACT achievement are identified. Research-driven best practices have been determined for better ACT success (Sawyer, 2008). Some of these best practices include increasing course rigor or taking more advanced courses. Another best practice includes participating in the EXPLORE and the PLAN, which are given prior to the ACT (Sawyer, 2008).

The question remains whether schools are taking advantage of proven best practices and to what extent they are implementing the practices into their instructional plans. It is also questionable whether high-achieving school districts and/or state departments are willing to share their methods of success with others (Schmoker, 2006). The education process may be simplified if successful parties are willing to aid in the betterment of education for all students. The formation of researched best practices will provide educators with the ability to enhance ACT success while continually striving for overall educational excellence.

While Colorado and Illinois have been lead states in ACT usage in conjunction with NCLB mandates, more than a dozen more states have used or explored the idea to use the ACT as part of state tests (ACT, 2006a). With a large number of students already preparing and participating on the test, many state departments believe there are benefits

in using the college admissions test. Michigan initiated their new testing program with a goal of increasing the number of adults with bachelor's degrees (Martineau, 2008). While the overall purpose of a college admissions test is to determine a student's chance of success in college, and as more benefits for using the ACT as part of a testing program arise, it may become more readily used throughout the United States (Bonner, 2010)

In Chapter Three, the methodology utilized in this study was detailed. The quantitative and qualitative data were presented in Chapter Four. A discussion of the findings, conclusions, and recommendations were reported in Chapter Five.

Chapter Three: Methodology

Appropriate measures must be taken to ensure students and educators are prepared for the ACT. All students should be afforded the opportunity for a fair and equitable education; there should be no differences in the pursuit of academic achievement. Despite financial and student demographic issues, which arise in the debate over the fairness of education, it has been concluded that quality teaching and instructional programs effect student learning (Schmoker, 2006). If these teaching characteristics can be determined, along with the identification and compilation of successful instructional programs, which are used in high-achieving high schools, then all students can be given their deserved opportunity to achieve on the ACT.

While the goal of the scientific method is to solve a problem or better understand an observed event, data collection is the key element to reach this goal (Miller & Levine, 2010). There are several ways to collect information; however, using the scientific method to shape this study ensures that data are accurate, reliable, and repeatable (Fraenkel & Wallen, 2009). Through the scientific method, determinations can be made which might add to the discovery of best practices used for high ACT achievement. This study examined instructional methods and strategies high-achieving schools are implementing in order to compile best practices resulting in high academic success on the ACT. Through quantitative and qualitative analysis, best practices were found to assist those in need of high ACT achievement.

Research Questions

The following questions guided this study:

1. What best practices are used in Missouri high schools with the best

performance on the ACT?

2. What best practices are implemented by states such as Nebraska, Minnesota, and Iowa, which have consistently higher than average ACT composite scores?

3. How have ACT scores changed in high schools across the nation where graduating seniors are required to take the test?

4. What are the perceptions of school leaders in states where graduates are required to take the ACT?

Research Design

To effectively determine best practices resulting in high ACT achievement, a mixed methods design, including both quantitative and qualitative data, was utilized. All data collected from educational leaders represented publicly-funded high schools in Missouri and the United States.

Quantitative methods. Quantitative statistics were derived from several sources containing secondary data for use in this study. A majority of secondary data was collected from the MODESE via the Internet and through the ACT website. Secondary data were also obtained through various state departments.

Additionally, quantitative data were derived from surveys of educational leaders representing their school or state (see Appendices A and B). Those individuals surveyed represented high-achieving schools in Missouri and high-achieving states. The survey was constructed in the form of direct answer, multiple choice, and likert-scale analyses. The data were compiled to determine perceptions regarding the best strategies, methods, and ideas for academic achievement on the ACT.

Qualitative methods. Though the majority of information collected was quantitative, portions of the data were drawn from qualitative methods. This qualitative portion consisted of interviews (see Appendix C) with state education leaders representing those states that require all graduates to take the ACT. The interview process, which is best used to gain a clear determination of the quality of information being received (Trochim, 2006), was conducted to gain knowledge of attitudes and beliefs about the state testing programs in states that mandate the participation of the ACT for all graduates.

Population and Sample

To address research question one, the target population was educational leaders representing the top 5% of Missouri's public high schools based on a five-year span of average ACT scores. Data collected from the MODESE were used to average the 2006-2011 ACT scores. Upon identifying the top 5%, a purposive sampling of educational representatives, specified as any building principal, counselor, or curriculum director who had knowledge of the teaching or instructional processes and programs within the school, were surveyed. Purposive sampling was selected to acquire the best information from individuals who were believed to be knowledgeable on the subject matter (Patten, 2004)

To address research question two, the population included educational leaders from the top achieving states across the United States based on a five-year average of ACT scores with high participation rates (60%-80%). Again, through sampling, educational leaders, who represented their state, were surveyed. The results of these surveys were used to gain a better understanding and knowledge of instructional programs, curriculum, and legislation within that high-achieving state. Furthermore,

attitudes towards testing programs and specific methods and practices that these states are utilizing were determined.

To address research questions three and four, Michigan and Illinois were selected for investigation due to the availability of data to identify scoring trends before and after mandating the ACT as the state assessment. To respond to question three, a sample was selected that consisted of high school graduates' average ACT scores in all public high schools in Michigan and Illinois. These scores determined if the ACT scoring trends concurred with data that have shown as the number of students who take the ACT increase, the average scores decline (Next Student, 2008). The identification of scoring trends were determined in order to assist in the data relating to question four. Educational representatives from these states were surveyed to identify perceived successes, changes in approach, and overall attitudes of the state testing program.

Instruments

Survey questions for the quantitative portion were created with the purpose of ascertaining information about ACT success. Surveys were administered to educational leaders representing schools or states that have been continually successful on the ACT. Many of the questions were constructed in a likert-scale form. The likert-scale form of survey question was chosen because it allows participants to express judgments about programs or methods, instead of only selecting specific answers from a list of multiple choices (Trochim, 2006).

The survey served to determine the importance a school leader places on a practice or idea for higher ACT achievement. The survey was field-tested by multiple Missouri public school certified, experienced, and current high school guidance

counselors, administrators, and a curriculum director to ensure clarity. It was agreed that the survey would be effective in determining results for finding successful practices within Missouri's high schools and successful state departments of education that could lead to advanced ACT scores. Secondary data from the ACT Corporation and state departments of education were collected in order to discover the trend in pre-requirement and post-requirement scores on the ACT. Data were collected from state average ACT scores prior to and after these states past legislation to mandate all graduating seniors to take the ACT.

An interview was also conducted with state education leaders of Michigan and Illinois. The questions for the qualitative portion of the study were created with the purpose of obtaining information from representatives regarding current ACT scoring trends within their school or state and the attitudes of school officials and leaders on the ACT testing program. The interview questions were created to gain specific knowledge of NCLB assessments in the states of Michigan and Illinois. The interviews were conducted to examine the similarities in methods used for state testing program; the educational changes since the new testing program has been implemented; and the attitudes of students, teachers, and legislators about the assessment program. Responses were also examined to gain a better understanding of current scoring trends for each state.

Each participant completing a survey or interview was provided a letter of introduction (see Appendix D), a letter of informed consent (see Appendix E), and specifically for the interviewees, an advance copy of the questions prior to the interview by electronic means.

Data Collection

Initial information leading to the determination of high-achieving high schools in Missouri was determined by examining data from the Data System Management link on the MODESE website. Information from the ACT Corporation was used to identify high-achieving states on the ACT throughout the United States. The ACT Corporation data led to recognition of those states that have used the ACT in their national testing program. Upon determination of high-achieving high schools within Missouri, overall high-achieving states on ACT in the United States, and determination of states that have implemented the ACT into their testing program, quantitative measures in the form of surveys and qualitative measures in the form of interviews were obtained.

The high school principal from high-achieving schools was the first to be presented the survey opportunity. The principal made the determination to pass along the survey to the appropriate representative who could best answer the related questions. The survey was conducted with the use of SurveyMonkey and communication occurred via electronic mail. Similarly, educational leaders from state department of education were identified from high-achieving states and presented the opportunity to participate in the survey. This survey was conducted through the use of SurveyMonkey, as well. The qualitative portion included an interview of state educational leaders from Michigan and Illinois, two of the first states to require the ACT implementation into their testing program. The interviews were conducted via telephone.

Data Analysis

Analysis of the quantitative information from the surveys was compiled and organized to find similarities between high-achieving high schools in Missouri and

between high-achieving states. Descriptive statistics from the survey results indicated a summary of methods, programs, attitudes, and practices that these high schools and states are using. Survey responses were scrutinized to determine similarities in practices, attitudes, or programs. The frequencies of answers for each question were tallied and included in data tables to better compare and contrast a thorough review of responses. The interview responses were similarly analyzed to determine if similar answers appear or common themes exist between states that are currently using the ACT in their state testing programs.

Ethical Considerations

Before initiating the study, approval from the Lindenwood Institutional Review Board was obtained (see Appendix G). All information collected remained secure and confidential. Discretion and appropriateness were adhered to when communicating with interviewees, through the distribution of surveys, and during data collection.

Summary

This mixed design was guided by the research questions with the purpose of discovering best practices for ACT achievement. The research questions, in part, focused on practices that particular districts were implementing to achieve high scores and what state departments were doing to continually attain high scores. The study addressed current trends of ACT scores in those states where all graduating seniors take the test, explored current educational attitudes, and examined methods that these states are implementing. Through the use of surveys and interviews, successful practices were found by analyzing the frequency of responses and by comparing and contrasting interview responses.

In Chapter Four, the qualitative and quantitative data collected from surveys and interviews were addressed. Demographic data from high-achieving schools were presented, along with the survey responses from high-achieving school respondents. Next, surveys responses from education leaders from high-achieving states were discussed, followed by the collection of past scoring trends of those states that have incorporated the ACT into their testing programs. Chapter Four concluded with the dialog of the interviews of educational leaders from Michigan and Illinois. Discussions and conclusions on survey and interview data were provided in Chapter Five.

Chapter Four: Presentation of Data

Achievement gaps on ACT performance are present in today's schools. While much effort is spent on meeting state objectives and expectations, ACT performance, which may have a greater impact on a student's educational future, may be overlooked in working to improve scores in those schools which produce below-average scores. These achievement gaps are also found between states, with many mid-western states, such as Minnesota, Iowa, Nebraska, Wisconsin, and Utah annually generating scores well above the national average, while other states with similar participation rates are below the national average.

Various states have tried to meet the challenges of current state testing measures by including the ACT as part of their testing program. States have included the college admissions test to address issues, such as over-testing, attempts to increase college applications, administering a test that many students already take for the college admissions process, and conducting a test which means something for the student. The ACT scores in many of these states show yearly increases, which may indicate these state departments are instrumental in better preparing students for the test or placing programs within schools to provide better understanding of concepts and objects of the test.

Identifying best practices for ACT success is necessary to close achievement gaps and to provide equal and fair education opportunities to all students. By finding programs within high-achieving schools and states that continually produce high ACT scores and by looking how states use the ACT as part of their state testing program, more information will be available for schools with less successful scores. The achievement gaps may narrow, and many more students will be provided educational opportunities in their future.

Study Design

The purpose of this study was to determine the best practices used in school districts and states with high achieving ACT scores. A mixed-methods design was used to identify the practices and programs in high-achieving schools and states, and obtain the perceptions of educational leaders, surrounding the ACT, in states that have implemented the ACT into their state testing regimen. In this study, quantitative secondary data were obtained from state education departments to collect demographic information about the school district and states reported data. Two online surveys were conducted; one to either a building principal, counselor, or curriculum director in a high-achieving high school in Missouri and the second to state education leaders in high-achieving states. Qualitative data were obtained from interviews with state leaders from Michigan and Illinois.

Research questions. The following research questions were considered throughout the study:

1. What best practices are used in Missouri high schools with the best performance on the ACT?
2. What best practices are implemented by states such as Nebraska, Minnesota, and Iowa, which have consistently higher than average ACT composite scores?
3. How have ACT scores changed in high schools across the nation where graduating seniors are required to take the test?
4. What are the perceptions of school leaders in states where graduates are required to take the ACT?

High School Demographic Information

The top 5% of Missouri's highest performing high schools, based on a five-year average (2007-2011), were classified as high-achieving high schools (HAHS) for this study. The total HAHS for this study equaled 27. Data collected from the MODESE were found for each of the HAHS, and surveys were sent electronically to a school leader in each school. Second and third mailings were conducted to encourage participation. School leaders from 15 of the HAHS participated in the survey, equaling a 56% participation rate.

Demographic data from the HAHS were analyzed and presented in tables. The data included a five-year average of ACT scores, student participation percentage, the percent of students entering a four-year college, attendance rates, graduation and dropout rates, free and reduced price meal percentages, enrollment totals, and staff information. The data from the high-achieving high schools were compared with an overall average of Missouri's 570 high schools.

For years, 2007-2011 (see Table 5), the mean score for the HAHS was 23.8, or 2.2 higher than the Missouri mean score (21.6). The top high-achieving high school (25.9) had a five-year mean score 4.3 points higher than the Missouri mean. Of the 27 schools, 12 fell within +/- 0.5 of the HAHS mean. HAHS 1 had the highest average score in combination with the highest average of students entering four-year colleges. Only two schools (HAHS 9 and HAHS 19), fell below the Missouri mean for students entering four-year colleges. Nineteen high schools had participation rates on the ACT higher than the Missouri mean, 7 high schools were lower than the Missouri mean, while one school was equal to the Missouri mean. HAHS 9, which also had the lowest

percentage of students entering four-year colleges, also had the lowest participation rate (50.7%).

Table 1

Five-Year Mean of ACT, Participation, and College Entrance

Data Source	ACT Score	Participation Percentage	Students Entering Four-Year College
Missouri (*M*)	21.6	71.0%	38.7%
HAHS (*M*)	23.8	77.3%	61.3%
HAHS 1	25.9	104.7%	95.7%
HAHS 2	25.8	84.7%	84.6%
HAHS 3	25.4	88.5%	85.7%
HAHS 4	24.8	87.7%	71.7%
HAHS 5	24.8	87.3%	80.6%
HAHS 6	24.4	89.0%	79.0%
HAHS 7	24.2	84.8%	63.7%
HAHS 8	24.2	80.9%	64.6%
HAHS 9	23.9	50.7%	35.6%
HAHS 10	23.9	80.0%	57.8%
HAHS 11	23.7	83.3%	72.9%
HAHS 12	23.6	76.7%	64.2%
HAHS 13	23.5	73.0%	58.9%
HAHS 14	23.5	87.1%	72.2%
HAHS 15	23.4	77.7%	50.4%
HAHS 16	23.4	71.0%	50.0%
HAHS 17	23.3	72.5%	53.2%
HAHS 18	23.3	65.3%	52.2%
HAHS 19	23.2	61.2%	38.5%
HAHS 20	23.2	62.6%	46.7%
HAHS 21	23.1	64.9%	54.9%
HAHS 22	23.1	73.4%	49.6%
HAHS 23	23.1	69.0%	44.5%
HAHS 24	23.1	66.2%	50.4%
HAHS 25	22.9	87.5%	54.5%
HAHS 26	22.9	80.7%	54.2%
HAHS 27	22.9	77.1%	68.3%

Note: Secondary data derived from the MODESE (2011) for years 2007-2011.

As shown in Table 2, the school mean attendance rate (93.9%) was lower than the Missouri attendance rate mean (94.1%). Only five schools' (HAHS 1, 15, 16, 24, 25) attendance rates were higher than the Missouri mean. The HAHS mean graduating percentage (92.8%) was 6.9% higher than the Missouri mean (85.9%). HAHS 9 had the lowest graduation percentage (73.34%) and fell below the Missouri mean. The HAHS mean dropout percentage was 1.9%, which was lower than the Missouri mean of 3.7%. Of the 27 HAHS, seven realized a five-year average drop-out rate of 1.0% or less (HAHS 1, 2, 3, 4, 6, 24, 25). The highest dropout percentage was 7.1% (HAHS 9) while HAHS 24 averaged 0.3%.

Table 2

Five-Year Mean of Attendance, Graduation, and Dropouts

Data Source	Attendance Rate	Graduation Percentage	Dropout Percentage
Missouri (*M*)	94.1%	85.9%	3.7%
HAHS (*M*)	93.9%	92.8%	1.9%
HAHS 1	96.1%	98.1%	0.8%
HAHS 2	92.6%	97.2%	0.6%
HAHS 3	93.8%	98.2%	0.5%
HAHS 4	94.0%	97.7%	0.6%
HAHS 5	94.1%	95.9%	1.1%
HAHS 6	94.0%	95.0%	1.0%
HAHS 7	93.9%	94.1%	1.2%
HAHS 8	93.7%	91.4%	2.5%
HAHS 9	91.1%	73.3%	7.1%
HAHS 10	94.1%	93.2%	1.5%
HAHS 11	92.6%	94.7%	1.1%
HAHS 12	93.0%	94.9%	1.1%
HAHS 13	93.7%	94.2%	1.2%
HAHS 14	94.0%	91.8%	1.6%
HAHS 15	95.3%	95.3%	1.4%
HAHS 16	94.5%	92.4%	1.8%
HAHS 17	93.0%	88.7%	2.8%
HAHS 18	93.0%	92.4%	2.0%
HAHS 19	93.0%	89.6%	2.6%
HAHS 20	93.8%	90.8%	3.1%
HAHS 21	92.7%	87.4%	4.3%
HAHS 22	93.2%	87.6%	3.2%
HAHS 23	93.8%	87.6%	3.2%
HAHS 24	96.9%	98.9%	0.3%
HAHS 25	97.1%	96.6%	0.8%
HAHS 26	93.7%	93.7%	1.5%
HAHS 27	93.6%	94.3%	1.4%

Note: Secondary data derived from the MODESE (2011) for years 2007-2011.

The average enrollment for HAHS (1,370.3), as shown on Table 3, was 913.7 and higher than the Missouri high school mean (456.6). The largest high school in the high achieving high school group was HAHS 7 with an enrollment of 2,183.6 students. HAHS 25 had the lowest enrollment with 111.4 students. Only three high-achieving high schools had enrollments of less than 300, while 21 had enrollments over 1000, and 4 had enrollments over 2,000.

The Free and Reduced Price Meal mean for high-achieving high schools was 18.5%. The Missouri mean was 42.9%, an increase of over 24 percentage points as compared to high-achieving high schools. The school district that had the highest ACT mean score, HAHS 1, had one of the highest Free and Reduced Price Meal averages (34.5%). HAHS 9, which had a Free and Reduced Price Meal average of 51.0%, was the only high school with a rate higher than HAHS 1. Only one HAHS (2) had a Free and Reduced Price Meal percentage under 10%, with 13 total schools reporting under 15%. Of the top 10 high-achieving high schools in ACT scores, eight had rates of at least 28.6% below the Missouri Free and Reduced Price Meal mean.

Table 3

Five-Year Mean of Enrollment and Free and Reduced Price Meal

Data Source	Total Enrollment	Free and Reduced Price Meal
Missouri (*M*)	456.6	42.9%
HAHS (*M*)	1370.3	18.5%
HAHS 1	306.6	34.5%
HAHS 2	1189.8	7.4%
HAHS 3	857.6	11.6%
HAHS 4	2062.8	11.2%
HAHS 5	1304.2	13.6%
HAHS 6	1369.0	13.5%
HAHS 7	2183.6	12.6%
HAHS 8	1738.2	14.3%
HAHS 9	1551.2	51.0%
HAHS 10	1757.2	10.9%
HAHS 11	1456.8	17.4%
HAHS 12	1697.6	14.6%
HAHS 13	1380.8	19.6%
HAHS 14	1967.0	15.6%
HAHS 15	1951.2	12.3%
HAHS 16	2021.2	11.5%
HAHS 17	1614.8	16.5%
HAHS 18	1543.4	14.5%
HAHS 19	813.4	31.3%
HAHS 20	1030.6	31.9%
HAHS 21	2077.6	28.5%
HAHS 22	1470.6	20.0%
HAHS 23	1791.2	13.0%
HAHS 24	115.0	21.6%
HAHS 25	111.4	19.2%
HAHS 26	1371.8	15.3%
HAHS 27	263.2	16.6%

Note: Secondary data derived from the MODESE (2011) for years 2007-2011.

As shown in Table 4, the data shift from student characteristics to staff characteristics in high-achieving school districts. High-achieving high schools had 16.1% more staff members with a Master's Degree or higher as compared to Missouri's high schools. A 61% difference existed between the highest high-achieving high school (HAHS 3, 87.4%) and the lowest high-achieving high school (HAHS 25, 26.2%). Only three high-achieving schools fell below the Missouri average in this category.

The average years of experience of teachers who taught at high-achieving high schools was more than a full year as compared with Missouri's high schools. The highest average years of experience within the high-achieving high schools was HAHS 24 with 15.7 years, although it was 2nd lowest in percentage of staff with a Master's degree or higher (36.4%). HAHS 26 had the lowest average years of experience of teachers (11.4%) with only three other high-achieving schools with percentages less than the Missouri mean.

As research may indicate that smaller classroom size would increase academic achievement (Toppo, 2008), high-achieving high schools had ratios higher than rest of Missouri's high schools. High-achieving high schools had 1.4 more students per classroom teacher (19.2) than the Missouri mean of 17.8. HAHS 9 had 26 students per classroom teacher, which is 8 students above Missouri's mean ratio. HAHS 3 had the lowest ratio with only 11.2 students per classroom teacher.

Table 4

Five-Year Mean of Staff with Master's Degree, Years of Experience, Student/Teacher Ratio

Data Source	Staff with Master's Degree or Higher	Average Years of Experience of Teachers	Students per Classroom Teacher
Missouri (*M*)	52.3%	12.4	17.8
HAHS (*M*)	68.4%	13.7	19.2
HAHS 1	57.7%	14.0	16.0
HAHS 2	64.9%	14.2	14.0
HAHS 3	87.4%	15.3	11.2
HAHS 4	70.4%	11.6	20.8
HAHS 5	76.1%	14.7	18.0
HAHS 6	76.0%	15.0	19.0
HAHS 7	70.1%	11.9	21.4
HAHS 8	60.7%	12.1	24.6
HAHS 9	65.3%	14.2	26.0
HAHS 10	75.3%	12.5	20.0
HAHS 11	69.9%	11.7	18.6
HAHS 12	87.5%	13.2	18.6
HAHS 13	78.2%	15.1	18.6
HAHS 14	72.7%	14.4	19.2
HAHS 15	77.5%	11.6	21.0
HAHS 16	61.0%	14.1	19.8
HAHS 17	79.4%	12.9	20.2
HAHS 18	82.9%	14.2	19.6
HAHS 19	50.0%	13.8	23.8
HAHS 20	59.1%	14.9	23.8
HAHS 21	67.2%	14.0	22.8
HAHS 22	71.2%	13.1	25.0
HAHS 23	68.2%	14.1	19.2
HAHS 24	36.4%	15.7	13.4
HAHS 25	26.2%	15.0	14.4
HAHS 26	73.2%	11.4	19.2
HAHS 27	81.5%	14.4	11.8

Note: Secondary data derived from the MODESE (2011) for years 2007-2011.

Staff salary of high-achieving high schools, as shown in Table 5, was over $8,000.00 more than the Missouri mean. A variance of $33,690.8 was found between the highest staff salary in HAHS 27 with $66,592.0 and the lowest staff salary school, HAHS 25, with $32,901.20. There were five high-achieving high schools with a staff salary mean over $60,000.00. The only three high-achieving high schools with staff salary mean below $40,000.00 were also the only high-achieving high schools with salaries below the Missouri mean. A greater salary gap was found between administrators of high-achieving high schools and Missouri's high schools. Nearly $11,000.00 separated the two groups.

Table 5

Five-Year Mean of Staff and Administration Salary

High-Achieving High School (HAHS)	Staff Salary	Administration Salary
Missouri (*M*)	$44,732.20	$79,724.40
HAHS (*M*)	$52,816.79	$90,627.74
HAHS 1	$49,248.40	$85,035.80
HAHS 2	$61,347.00	$97,419.80
HAHS 3	$66,552.40	$102,673.60
HAHS 4	$51,708.60	$92,366.00
HAHS 5	$60,079.80	$99,963.20
HAHS 6	$58,988.00	$107,304.00
HAHS 7	$52,248.20	$94,260.20
HAHS 8	$47,364.00	$84,695.00
HAHS 9	$45,508.40	$77,915.20
HAHS 10	$53,763.80	$92,058.20
HAHS 11	$55,189.80	$97,398.20
HAHS 12	$61,210.60	$108,773.40
HAHS 13	$59,417.00	$97,969.40
HAHS 14	$57,167.40	$105,407.80
HAHS 15	$52,873.80	$100,999.40
HAHS 16	$52,129.00	$84,217.00
HAHS 17	$56,970.00	$93,950.20
HAHS 18	$59,031.00	$91,252.20
HAHS 19	$37,416.60	$65,390.80
HAHS 20	$50,523.40	$87,898.20
HAHS 21	$50,079.60	$94,790.00
HAHS 22	$44,876.00	$78,882.40
HAHS 23	$52,306.00	$88,430.40
HAHS 24	$38,159.20	$70,402.00
HAHS 25	$32,901.20	$51,782.80
HAHS 26	$5,2402.20	$90,085.40
HAHS 27	$66,592.00	$105,628.60

Note: Secondary data derived from the MODESE (2011) for years 2007-2011.

Analysis of Quantitative Data

To address research question one (What best practices are used in Missouri high schools with the best performance on the ACT?), an online survey was developed for school leaders to determine best practices for ACT success by investigating programs in place, how these programs are conducted, and the attitudes of the school leaders regarding ACT performance. The participants were given two weeks to complete the online survey. Responses from each question were tabulated and displayed in tables corresponding to each of the 33-item survey questions/statements.

Survey question 1. What percent of the eight grade student population participate in the EXPLORE? Over half (60%) of the respondents of high-achieving Missouri high schools indicated 100% of incoming freshmen had participated in the EXPLORE. The EXPLORE is a key part of the EPAS system which has shown to be a positive indicator of increased ACT performance (ACT, 2006b). Only one respondent indicated incoming freshmen did not participate in the EXPLORE, and 33.3% indicated a majority of incoming freshman participated in the EXPLORE.

Table 6

Participation in the EXPLORE

Answer Options	Response Rate	Response Count
0%	6.7%	1
1-49%	0.0%	0
50-99%	33.3%	5
100%	60.0%	9

Survey question 2. How are the results of the EXPLORE used for individual students? The ACT Corporation (2006b) strongly suggests that results from the EXPLORE be used to help shape a student's educational plan. As shown in Table **7,** 92.9% of respondents indicated the EXPLORE results were given to students, given to parents, and discussed with students. While only 35.7% of the respondents indicated results of the EXPLORE were used to influence the students' academic schedule their freshman year, 64.3% respondents reported that the results did influence the students' academic four-year plan. Four responses (28.6%) indicated that the EXPLORE was used to influence curriculum taught in the classroom. Nine responses (64.3%) indicated that the EXPLORE was used to show weaknesses or strengths in the academics of the student, and six responses (42.9%) indicated that the EXPLORE was also used to provide career planning for each student.

Table 7

Using the EXPLORE Results

Answer Options	Response Rate	Response Count
Results are given to students	92.9%	13
Results discussed with students	92.9%	13
Results are given to parents	92.9%	13
Results are discussed with parents	50.0%	7
Results are used for student's following year academic schedule	35.7%	5
Results are used to help student create four-year plan	64.3%	9
Results are used to check curriculum	28.6%	4
Results are used for student career planning	42.9%	6
Results are used to indicate areas of weakness or strength	64.3%	9
Results are used to better prepare for ACT	42.9%	6

Survey question 3. Who pays for the EXPLORE? All but one respondent (13) indicated that the school is responsible for the cost of the EXPLORE. There were no high-achieving schools that expected the students to cover the cost of the EXPLORE. One high-achieving school respondent indicated that the students and school share the cost the responsibility for the cost of the test.

Survey question 4. What percent of the tenth grade student population participate in the PLAN? As shown in Table 8, A higher percentage of high-achieving schools indicated that all of their students participate in the PLAN (73.3%) than the

EXPLORE (60.0%). Every high-achieving school indicated that they administer the PLAN to at least a portion of their students. The PLAN, also part of the EPAS, is a proven element of the ACT preparation process to increase achievement (ACT, 2006b).

Table 8

Participation on the PLAN

Answer Options	Response Rate	Response Count
0%	0.0%	0
1-49%	0.0%	0
50-99%	26.7%	4
100%	73.3%	11

Survey question 5. How are the results of the PLAN used for individual students? A larger population of students have been shown to enroll in advanced courses when the PLAN results were used to help develop four-year plans (ACT, 2006b). It would appear that usage of the PLAN has a higher impact on ACT preparedness than that of the EXPLORE. While all but one respondent directly gave the results back to the students, as compared with the EXPLORE, a higher percentage of respondents indicated that they used the PLAN to better prepare for the ACT, to identifying students' weaknesses and strengths, and help students in career planning (see Table 8). There was also a noticeable difference in using the PLAN to check curriculum as compared to the EXPLORE. This may be, in part, due to the PLAN being given to high school students instead of the EXPLORE being administered to eighth graders.

Table 9
Using the PLAN results

Answer Options	Response Rate	Response Count
Results are given to students	93.3%	14
Results discussed with students	86.7%	13
Results are given to parents	86.7%	13
Results are discussed with parents	53.3%	8
Results are used for student's following year academic schedule	40.0%	6
Results are used to help student create four-year plan	53.3%	8
Results are used to check curriculum	40.0%	6
Results are used for student career planning	66.7%	10
Results are used to indicate areas of weakness or strength	80.0%	12
Results are used to better prepare for ACT	80.0%	12

Survey question 6. Who pays for the PLAN? All but one high-achieving high school were responsible for the cost of the PLAN. One respondent indicated that both the student and school shared the expense of the PLAN. All respondents indicated that their school was responsible in covering some or all of the expense.

Survey question 7. What form of ACT preparation does your school offer? A variety of ACT preparation activities was found within high-achieving schools. In almost equal response counts, as shown in Table 10, four respondents indicated that their high-achieving school offered daily ACT prep class during regular school hours. A one

or two session workshop and weekly ACT study sessions were indicated as the high-achieving schools' mode of preparation.

Table 10

ACT Preparation in High-Achieving Schools

Answer Options	Response Rate	Response Count
One or two session ACT workshop for students	33.3%	4
Weekly ACT study sessions	33.3%	4
Daily class offered outside of regular school hours	25.0%	3
Daily class offered during school hours	33.3%	4
Other (see *Note*)		3

Note. Other responses: Two month study session after school beginning in January; ACT prep class, outside of school hours, two to three meetings per week, total of 24 hours of instruction; ACT prep period for 11th grade students.

Survey question 8. How many hours of ACT preparation provided by your school can a student participate in prior to taking the ACT the first time? A majority of respondents (86.7%) indicated that students in their school participated in 10 or more hours of ACT preparation (see Table 11). Two respondents indicated that their students were offered between 1 and 4 hours of ACT preparation. All respondents indicated their students participated in ACT preparation.

Table 11

Hours of ACT Preparation Provided to Students

Answer Options	Response Rate	Response Count
0 hours	0.0%	0
1-4 hours	13.3%	2
5-9 hours	0.0%	0
10 or more hours	86.7%	13

Survey question 9. What percent of students taking the ACT for the first time participate in ACT preparation workshops or classes? Eight respondents of high-achieving schools indicated that between 1-49% of students participated in ACT preparation workshops or classes (see Table 12). Seven respondents indicated that between 50-99% of students participated in these classes.

Table 12

ACT Preparation for Participation

Answer Options	Response Rate	Response Count
0 %	0.0%	0
1-49%	53.3%	8
50-99%	46.7%	7
100%	0.0%	0

Survey question 10. How long has your school participated in an ACT class or workshop? Every high-achieving school had some form of ACT class or workshop available for students. Equal response counts were indicated by respondents for the length of participation in ACT classes or workshops. Five responses were made in each

category, except 0 years, including participating in ACT classes or workshops during the last 1-3 years, 4-7 years, and for 8 years or more (see Table 13).

Table 13

ACT Workshop Existence in High-Achieving School

Answer Options	Response Rate	Response Count
0 years	0.0%	0
1-3 years	33.3%	5
4-7 years	33.3%	5
8 or more years	33.3%	5

Survey question 11. How is the class or workshop conducted? A majority of respondents indicated within their ACT class or workshop, students were assigned some concepts, but most of the activities came from assigned practice test questions. As shown in Table 14, 46.2% of respondents indicated that the class was formatted by giving students practice test questions in a timed setting. A timed setting is the best approach in giving practice ACT questions (Sawyer, 2008). Three respondents indicated that students were assigned concepts of ACT objectives with only minimal time spent on practice questions. One respondent indicated that the class was self-paced as students worked through practice test questions. One respondent noted that a tutor uses previous ACT tests to teach test-taking skills.

Table 14

ACT Workshop Style

Answer Options	Response Rate	Response Count
Self-paced, students work through practice test	7.7%	1
Students are assigned practice test questions in a timed setting	46.2%	6
Students are assigned some concepts and a majority of practice test questions	69.2%	9
Students are assigned concepts of ACT objectives with only minimal time spent on practice questions	23.1%	3
Other (see *Note*)		1

Note. Tutor teaches test-taking skills using previous ACT tests.

Survey question 12. How does the ACT preparation fit into a student's academic record? A majority of ACT preparation classes or workshops within high achieving schools were conducted through voluntary student participation. As shown in Table 15, 20% of respondents indicated ACT preparation was conducted within their high-achieving school on a voluntary basis, but students did pay for instruction. Two respondents indicated that students who participated in the ACT preparation within their school were awarded high school credit for participation in class. One respondent included that their high-achieving school offered two options. One option was a free class taught during the school day in which students were awarded credit. The other option was an after-school course that is paid for by the student and is not for credit.

Table 15

Significance of ACT Preparation

Answer Options	Response Rate	Response Count
Students participate voluntarily	66.7%	10
Students participate voluntarily but pay for the preparation	20.0%	3
Students are awarded high school credit for participating in class	13.3%	2
Other (see *Note*)		1

Note. We offer two options: One is free for students, taught during the school day, and students are awarded credit. The other option is an after school course, paid for by the student, and is not for any credit.

Survey question 13. How are teachers selected to teach an ACT workshop or class? If Marzano (2001) indicated that the teacher is the most important factor in student achievement, then it is vitally important that a qualified teacher teach the class. Three of the respondents indicated the ACT workshop or class was not conducted by any teacher or staff member within the school but by outside tutors or contracted services (see Table 16). A majority of high-achieving schools uses teachers who have voluntarily created a preparation class for students who want extra help. Four respondents reported a teacher was selected because the class best fits his or her schedule. The remaining three respondents indicated the teacher was selected because he or she is most qualified to teach the class.

Table 16

Teacher Selection Process for ACT Workshop

Answer Options	Response Rate	Response Count
Teacher has voluntarily created class for students who want extra help	41.7%	5
Teacher has been selected because it best fits his or her schedule	33.3%	4
Teacher has been selected because he or she is most qualified to teach class	25.0%	3
Other (see *Note*)		3

Note. Outside individual works with the student; We use an outside expert; Contracted service with tutor.

Survey question 14. How does the teacher instruct the ACT prep workshop or class? A majority of the instruction that occurs in prep workshops or classes were developed through the use of a specific ACT preparation curriculum. As shown in Table 17, five respondents indicated that the class is instructed in a manner in which the teacher works through practice problems and test questions from all subject areas. The other two answer options both received 4 responses, and included: the teacher focuses on problems that student feel they need extra help on, and the teacher focuses on a particular subject matter that he/she is qualified in. One other response was reported, which indicated the outside source responsible for teaching the class uses their own developed curriculum for the four different subject areas.

Table 17

Teacher Instruction on ACT Workshop

Answer Options	Response Rate	Response Count
Teacher works on problems that students feel they need extra help on	26.7%	4
Teacher only works on particular subject matter that they are qualified in	26.7%	4
Teacher works through practice problems and test questions from all subject areas	33.3%	5
Teacher uses a specific ACT preparation curriculum	60.0%	9
Other (see *Note*)		1

Note. Outside expert has developed his/her own curriculum for the different subject areas.

Survey question 15. Does your school offer incentives for ACT success? As shown in Table 18, only 26.7% of high-achieving school districts use incentives for ACT success. This may be in part to research that indicates the use of extrinsic motivation has been tied to many negative outcomes, such as less flexible thinking (McGraw & McCullers, 1979), lower creativity (Amablile, 1983), anxiety (Ryan & Connell, 1989), and increased likelihood of dropping out of school (Vallerand & Bissonnette, 1992). No monetary awards were given, only notification of ACT success. One respondent indicated that their students who earn Bright Flight status were recognized.

Table 18

Incentives for ACT Success

Answer Options	Response Rate	Response Count
Notification of ACT success	26.7%	4
Monetary award	0.0%	0
No reward	73.3%	11
Other (see *Note*)		1

Note. We recognize students who earn Bright Flight status.

Survey question 16. Does your school offer incentives for taking advanced curriculum courses? Despite the low rate of high achieving-schools offering incentives for ACT success, most high achieving schools do offer incentives for taking advanced curriculum courses. As shown in Table 19, 80% indicated that weighted grades were given for advanced classes, 33.3% of respondents reported that being enrolled in advanced classes entitle students to valedictorian privileges, and 13.5% of respondents indicated that advanced curriculum courses entitle students in their school special advanced or college diplomas. One respondent indicated that duel-credit classes were also an incentive for advanced curriculum courses.

Table 19

Incentives for Advanced Course Participation

Answer Options	Response Rate	Response Count
Weighted grades for advanced classes	80.0%	12
Advanced or college diploma	13.3%	2
Valedictorian privileges	33.3%	5
No special rewards are given	6.7%	1
Other (see *Note*)		1

Note. Duel Credit Classes.

Survey question 17. What is the most important characteristic to obtain high-achieving ACT scores? The most important characteristic, as shown in Table 20, in obtaining high-achieving ACT scores was enrollment in advanced courses (46.7%), followed closely by student motivation (40.0%). Contradictory of Marzano (2001) and his colleagues research, teacher effectiveness was not viewed as the most important characteristic. ACT preparation classes, which received one response, was noted as the most important characteristic in ACT achievement.

Table 20

Most Important Characteristic (HAHS Perspective)

Answer Options	Response Rate	Response Count
Teacher effectiveness	6.7%	1
ACT preparation classes	6.7%	1
Enrollment in advanced courses	46.7%	7
Student motivation	40.0%	6

Survey question 18. What is the second most important characteristic to obtain high achieving ACT scores? The second most important characteristic in obtaining high-achieving ACT scores was student motivation (40%), followed closely by students enrollment in advanced courses (33.3%). As shown in Table 21, 20% of respondents indicated that teacher effectiveness was the second most important characteristic for high achievement. ACT preparation classes received one response as the second most important characteristic, which may support the beliefs of Atkinson and Geiser, (2009) as the ACT being viewed as a less-coachable test.

Table 21

Second Most Important Characteristic (HAHS Perspective)

Answer Options	Response Rate	Response Count
Teacher effectiveness	20.0%	3
ACT preparation classes	6.7%	1
Enrollment in advanced courses	33.3%	5
Student motivation	40.0%	6

Survey question 19. What is the third most important characteristic to obtain high-achieving ACT score? Enrollment in advanced courses and student motivation accounted for the first and second important characteristics is high achievement, teacher effectiveness accounted for 60% of responses for the third most important characteristic for ACT success. Marzano's (2001) research, which found that the teacher is the most important aspect of student learning, was not supported by these respondents of high-achieving schools.

Table 22

Third Most Important Characteristic (HAHS Perspective)

Answer Options	Response Rate	Response Count
Teacher effectiveness	60.0%	9
ACT preparation classes	13.3%	2
Enrollment in advanced courses	6.7%	1
Student motivation	20.0%	3

Survey question 20. How much training do your teachers participate in for ACT Test? Despite high-achieving schools maintaining above average ACT scores in at least the last five years, 40% of respondents reported that their teachers do not participate in professional development targeted toward ACT success. As shown in Table 22, three responses indicated that teachers in their high-achieving schools received 1-3 hours of professional development, two respondents indicated that their teachers received 4-6 hours of ACT professional development, and four respondents reported that more than 6 hours of professional development was spent on preparing student for the ACT.

Table 23

ACT Professional Development in High-Achieving Schools

Answer Options	Response Rate	Response Count
0 hours	40.0%	6
1-3 hours	20.0%	3
4-6 hours	13.3%	2
More than 6 hours	26.7%	4

Survey question 21. The EXPLORE is a necessary component for ACT success in your school. More than half (53.4%) of respondents indicated that they feel

the EXPLORE is a necessary component for ACT success in their school. Three respondents reported that the EXPLORE is not a necessary component for ACT success. The remaining respondents indicated that they did not agree or disagree with the statement of the EXPLORE being a necessary component for ACT success in their school.

Table 24

The EXPLORE is a Necessary Component

Answer Options	Response Rate	Response Count
Strongly disagree	0.0%	0
Disagree	20.0%	3
Neither agree or disagree	26.7%	4
Agree	46.7%	7
Strongly agree	6.7%	1

Survey question 22. The EXPLORE is used to make educational decisions about a student's academic plan. A majority of school leaders (73.4%) in high-achieving schools reported that the EXPLORE is used to make educational decisions about students' academic plans. While one respondent strongly agreed with the statement, one respondent disagreed with the EXPLORE being used to make educational decisions about a student's academic plan, and another respondent strongly disagreed. A total of two respondents neither agreed nor disagreed to the statement.

Table 25

EXPLORE Aids in Educational Decisions

Answer Options	Response Rate	Response Count
Strongly disagree	6.7%	1
Disagree	6.7%	1
Neither agree nor disagree	13.3%	2
Agree	66.7%	10
Strongly agree	6.7%	1

Survey question 23. The PLAN is a necessary component for ACT success in your school. As compared with the EXPLORE, the PLAN had a stronger support as being a necessary component for ACT success. As shown in Table 26, 88% of respondents either agreed or strongly agreed with the statement that the PLAN is a necessary component for ACT success. As compared with the EXPLORE, only 46.7% of respondents agreed and only 6.7% strongly agreed. There were no respondents who disagreed that the PLAN is a necessary component, and only two respondents indicated they neither agreed nor disagreed with the statement.

Table 26

PLAN is Necessary Component

Answer Options	Response Rate	Response Count
Strongly disagree	0.0%	0
Disagree	0.0%	0
Neither agree nor disagree	13.3%	2
Agree	66.7%	10
Strongly agree	20.0%	3

Survey question 24. The PLAN is used to make educational decisions about a student's academic plan. The PLAN, as compared to the EXPLORE, is more widely supported based from the comparison of responses on similar questions about the two tests. As shown in Table 27, more than 90% of respondents either agreed or strongly agreed with the statement that the PLAN is used in their high-achieving school to make education decisions about a student's academic plan. A total of 13 respondents indicated that they agreed with the statement, and one respondent strongly agreed with the statement. The EXPLORE had only the support of 63.4% of respondents either agreeing or strongly agreeing with the statement that the EXPLORE is used to make education decisions about a student's academic plan.

Table 27

PLAN aids in Educational Decisions

Answer Options	Response Rate	Response Count
Strongly disagree	0.0%	0
Disagree	0.0%	0
Neither agree nor disagree	6.7%	1
Agree	86.7%	13
Strongly agree	6.7%	1

Survey question 25. The ACT is used to make educational decisions about a student's academic plan. Respondents indicated the PLAN was more widely used in determining students' academic plans than the ACT. As shown in Table 28, of the 15 respondents, 8 (53.3%) agreed the ACT is used to make educational decisions about a student's academic plan, while 13.3% of respondents indicated that they strongly agreed

with the statement. Similarly, 13.3% of respondents indicated that they disagreed with the statement, and the remaining 20% neither agreed nor disagreed.

Table 28

ACT Aids in Educational Decisions

Answer Options	Response Rate	Response Count
Strongly disagree	0.0%	0
Disagree	13.3%	2
Neither agree nor disagree	20.0%	3
Agree	53.3%	8
Strongly agree	13.3%	2

Survey question 26. It is important that students take the ACT multiple times. As shown on Table 29, 80% of respondents either agreed or strongly agreed that it is important that students take the ACT multiple times. Six respondents (40%) agreed with the statement, and 6 respondents (40%) strongly agreed with the statement. Only one respondent disagreed with the statement, and two neither agreed or disagreed with the statement.

Table 29

Importance of Taking ACT Multiple Times

Answer Options	Response Rate	Response Count
Strongly disagree	0.0%	0
Disagree	6.7%	1
Neither agree nor disagree	13.3%	2
Agree	40.0%	6
Strongly agree	40.0%	6

Survey question 27. Our school encourages students to take the ACT regardless if students plan on attending college or not. With research indicating that as more students take an assessment the success rate will decline (Cech, 2008), a majority of high-achieving school leaders (53.5%) responded that their school encourages students to take the ACT regardless if the students plan on attending college or not. A total of 40% of respondents agreed with the statement, and 13.3% strongly agreed. Another 13.3% of respondents disagreed with the statement. The remaining 33.3% neither agreed or disagreed that their school encouraged all students to take the ACT.

Table 30

School Encourages All Students to Take ACT

Answer Options	Response Rate	Response Count
Strongly disagree	0.0%	0
Disagree	13.3%	2
Neither agree nor disagree	33.3%	5
Agree	40.0%	6
Strongly agree	13.3%	2

Survey question 28. Our school encourages students to take the ACT multiple times. According to ACT research (2012), retaking the ACT multiple times increases the chance of higher achievement. High achieving schools feel this is important with 70% of respondents indicating that they either agreed or strongly agreed that their school did encourage students to take the ACT multiple times. Only one respondent disagreed with the statement.

Table 31

School Encourages Students to Retake ACT

Answer Options	Response Rate	Response Count
Strongly disagree	0.0%	0
Disagree	6.7%	1
Neither agree nor disagree	13.3%	2
Agree	46.7%	7
Strongly agree	33.3%	5

Survey question 29. It is important to administer the ACT at your school.

Respondents felt very strongly about the statement that it is important to administer the ACT within their school. As shown on Table 32, more than 50% of high-achieving schools leaders strongly agreed with administering the ACT at their school. Another 33.3% agreed with the statement, while none disagreed or strongly disagreed with the statement. There were two respondents who neither agreed or disagreed with the statement.

Table 32

Importance of Administering ACT at own School

Answer Options	Response Rate	Response Count
Strongly disagree	0.0%	0
Disagree	0.0%	0
Neither agree nor disagree	13.3%	2
Agree	33.3%	5
Strongly agree	53.3%	8

Survey question 30. It is important to administer an ACT prep class or workshop for your students. All respondents from high-achieving schools either agreed or strongly agreed it is important to administer an ACT prep class or workshop for their students. A majority of the respondents (60%) only agreed, which may correspond with the importance placed on the ACT prep class or workshop as shown by the responses in what school leaders felt the first, second, and third most important characteristics in ACT success were. According to respondent information, the presence of an ACT prep class or workshop would be placed behind student enrollment in advanced curriculum courses, student motivation, and teacher effectiveness.

Table 33

Importance of Providing ACT Prep Class or Workshop

Answer Options	Response Rate	Response Count
Strongly disagree	0.0%	0
Disagree	0.0%	0
Neither agree nor disagree	0.0%	0
Agree	60.0%	9
Strongly agree	40.0%	6

Survey question 31. It is important to have students enrolled in advanced courses for ACT success. As data show advanced course offerings is a major factor in increased ACT achievement (Dole, 2004), it is no surprise that only one respondent indicated that he or she neither agreed or disagreed that it is important to have students enrolled in advanced courses for ACT success. The other respondents reported that they strongly agreed (66.7%) and agreed (26.7%) with the statement. As indicated by the

most important factor in ACT success, students enrolled in advanced courses was reported as the most important factor for ACT success.

Table 34

Importance of Students Enrolling in Advanced Courses

Answer Options	Response Rate	Response Count
Strongly disagree	0.0%	0
Disagree	0.0%	0
Neither agree nor disagree	6.7%	1
Agree	26.7%	4
Strongly agree	66.7%	10

Survey question 32. Teacher effectiveness is the most important factor in the determination of ACT success. Though Marzano's (2001) research notes the teacher as the most important factor in academic success, a majority of high-achieving school leaders do not agree that teacher effectiveness is the most important factor in the determination of ACT success. As shown in Table 35, 53.3% shared this attitude, while 26.7% agreed that teacher effectiveness is most important. The remaining 20% neither agreed nor disagreed with the statement.

Table 35

Teacher Effectiveness is the Most Important Factor

Answer Options	Response Rate	Response Count
Strongly disagree	0.0%	0
Disagree	53.3%	8
Neither agree nor disagree	20.0%	3
Agree	26.7%	4
Strongly agree	0.0%	0

Survey question 33. ACT results are used to make educational decisions within your school. A total of 86.7% of respondents reported they agreed or strongly agreed with the belief that ACT results shape or impact educational decisions. This may coincide with research which suggests schools will specifically teach-to-the-test of any repeatable, high-impact assessment (Amrein & Berliner, 2003). Only one respondent disagreed with the statement, and one respondent neither agreed or disagreed with the statement.

Table 36

ACT Results Used in School

Answer Options	Response Rate	Response Count
Strongly disagree	0.0%	0
Disagree	6.7%	1
Neither agree nor disagree	6.7%	1
Agree	60.0%	9
Strongly agree	26.7%	4

Research question 2. What best practices are implemented by states such as Nebraska, Minnesota, and Iowa, which have consistently higher than average ACT composite scores?

Survey question 1. Your state values the ACT as a test that measures academic ability. A majority of state officials from high-achieving states disagreed or strongly disagreed with the statement that the ACT is valued in their state to measure academic ability, as shown on Table 39. Only one respondent agreed with the statement.

Table 37

State Values ACT

Answer Options	Response Rate	Response Count
Strongly disagree	16.7%	1
Disagree	50.0%	3
Neither agree nor disagree	16.7%	1
Agree	16.7%	1
Strongly agree	00.0%	0

Survey question 2. Your state uses ACT scores to measure success for a high school. Since the majority of respondents believed that the ACT is not valued as a test that measures academic ability, then it is not surprising that the majority of respondents also disagreed or strongly disagreed with the belief that ACT scores measure the success of a high school, as shown in Table 40. While 33.3% of the respondents neither agreed or disagreed, only one respondent believed that their state used ACT scores to measure success for high schools. Ultimately, states which mandate all graduates to participate in

the test and use the ACT to meet the national NCLB accountability requirement should strongly agree with this statement.

Table 38

State Uses ACT Scores to Measure High School Success

Answer Options	Response Rate	Response Count
Strongly disagree	16.7%	1
Disagree	33.3%	2
Neither agree nor disagree	33.3%	2
Agree	16.7%	1
Strongly agree	00.0%	0

Survey question 3. Your state encourages participation on the ACT regardless if the student is college bound. As shown in Table 41, respondents felt strongly about their state encouraging participation of the ACT, regardless if the student is college bound. To meet the criteria for high-achieving state, participation rates had to be a minimum of 65%. With data that suggest that increasing participants on a test would lead to decreased scores (Cech, 2008), it may be perceived that some schools or states may not have similar views on the statement. There were no responses that disagreed with the statement. Four respondents agreed that their high-achieving state encouraged students to retake the ACT for better achievement, while two respondents neither agreed nor disagreed.

Table 39

State Encourages ACT Participation for all Students

Answer Options	Response Rate	Response Count
Strongly disagree	00.0%	0
Disagree	00.0%	0
Neither agree nor disagree	33.3%	2
Agree	50.0%	3
Strongly agree	16.7%	1

Survey question 4. Your state encourages students to retake the ACT for better achievement. A majority of respondents (66.7%) indicated that they neither agreed nor disagree with this statement. As shown in Table 40, the remaining 33.3% of respondents agreed with the statement, and no respondents disagreed with the fact their state encourages all students to take the ACT.

Table 40

State Encourages Students to Retake the ACT

Answer Options	Response Rate	Response Count
Strongly disagree	00.0%	0
Disagree	00.0%	0
Neither agree nor disagree	66.7%	4
Agree	33.3%	2
Strongly agree	00.0%	0

Survey question 5. ACT scores are high because high school graduation requirements are more stringent than other states. While one high-achieving state leader, as shown on Table 43, strongly disagreed with the statement that ACT scores

were high due to stringent graduation requirements, two respondents agreed with the statement. Contrasting feelings existed by leaders when expressing beliefs that ACT scores were high due to more rigorous college admissions standards. As shown on Table 6, two respondents disagreed or strongly disagreed with that statement, whereas only one respondent agreed.

Table 41

High Achievement Due to Stringent High School Requirements

Answer Options	Response Rate	Response Count
Strongly disagree	16.7%	1
Disagree	00.0%	0
Neither agree nor disagree	50.0%	3
Agree	33.3%	2
Strongly agree	00.0%	0

Survey question 6. ACT scores are high because college standards are higher in your state. As shown in Table 42, three respondents indicated they neither agreed nor disagreed with the statement, one respondent strongly disagreed, and one respondent disagreed with the statement. The remaining agreed that their state ACT scores may be higher due to higher college standards in their state.

Table 42

High Achievement Due to High College Standards

Answer Options	Response Rate	Response Count
Strongly disagree	16.7%	1
Disagree	16.7%	1
Neither agree nor disagree	50.0%	3
Agree	16.7%	1
Strongly agree	00.0%	0

Survey question 7. ACT scores are high because state's college acceptance rates are lower than surrounding state colleges. As shown in Table 45, 66.6% of respondents either disagreed or strongly disagreed with the belief that more stringent college admissions lead to increased ACT scores. The two remaining respondents neither agreed nor disagreed, resulting with no responses indicating college admission acceptance had an effect on ACT scores.

Table 43

High Achievement Due to College Acceptance Lower

Answer Options	Response Rate	Response Count
Strongly disagree	33.3%	2
Disagree	33.3%	2
Neither agree nor disagree	33.3%	2
Agree	00.0%	0
Strongly agree	00.0%	0

Survey question 8. Students are made known of the ACT and its importance before high school. Contrasting views were present between state respondents towards communicating the importance of the ACT at a young age. As shown in Table 44, two respondents disagreed and one strongly disagreed that students were made known of the ACT and its importance before high school. One respondent agreed and one respondent strongly agreed with this statement. The remaining respondent indicated that he/she neither agreed nor disagreed with the statement.

Table 44

Students Understand Importance of ACT

Answer Options	Response Rate	Response Count
Strongly disagree	16.7%	1
Disagree	33.3%	2
Neither agree nor disagree	16.7%	1
Agree	16.7%	1
Strongly agree	16.7%	1

Survey question 9. Students in most schools participate in the EXPLORE and the PLAN prior to taking the ACT. Similar views existed regarding the ACT pretest, the EXPLORE and the PLAN. As shown on Table 47, 50% of respondents either disagreed or strongly disagreed that students in most schools participate in the EXPLORE and the PLAN prior to taking the ACT. Two respondents indicated they believed most students do participate in these assessments before the ACT. One respondent from a high-achieving state did not agree or disagree with the statement.

Table 45

Most Students Participate in the EXPLORE and the PLAN

Answer Options	Response Rate	Response Count
Strongly disagree	16.7%	1
Disagree	33.3%	2
Neither agree nor disagree	16.7%	1
Agree	33.3%	2
Strongly agree	00.0%	0

Survey question 10. Student demographics play a large role in the determination of ACT success. Half of respondents did not agree or disagree that student demographics played a large role in the determination of ACT success. The remaining responses included two (33.3%) who agreed that demographics do play a role, while one respondent strongly disagreed that success is affected by demographics.

Table 46

Student Demographics Determine ACT Success

Answer Options	Response Rate	Response Count
Strongly disagree	16.7%	1
Disagree	00.0%	0
Neither agree nor disagree	50.0%	3
Agree	33.3%	2
Strongly agree	00.0%	0

Survey question 11. Student socio-economic status plays a large role in the determination of ACT success. Strong beliefs existed when asked if student socio-economic status plays a role in ACT success. While 50% neither agreed or disagreed that

socio-economic status has a part in ACT success, as shown in Table 11, the remaining 50% either agreed or strongly agreed that it does affect ACT success.

Table 47

Student Socio-economic Status Determines ACT Success

Answer Options	Response Rate	Response Count
Strongly disagree	00.0%	0
Disagree	00.0%	0
Neither agree nor disagree	50.0%	3
Agree	33.3%	2
Strongly agree	16.7%	1

Survey question 12. Besides scholarships and college acceptance, incentives are offered to student for high ACT scores. As shown in Table 50, 50% of respondents disagreed that incentives were offered to students for high ACT scores, while 50% neither agreed or disagreed. There were no responses indicating any respondent agreed or strongly agreed that their state offered incentives for high ACT scores.

Table 48

Incentives Offered for High ACT Scores

Answer Options	Response Rate	Response Count
Strongly disagree	00.0%	0
Disagree	50.0%	3
Neither agree nor disagree	50.0%	3
Agree	00.0%	0
Strongly agree	00.0%	0

Survey question 13. The ACT is used to make educational decisions about a student's academic plan in your state. Respondents showed mixed opinions when indicating their feelings on ACT being used to make education decisions about a student's academic plan. As shown in Table 49, each answer option was indicated one time with the exception of agree which was indicated twice. Overall, 50% of respondents agreed or strongly agreed with the fact that the ACT is used to make educational decisions, while only 33.3% of respondents indicated that they disagreed or strongly disagreed. The remaining respondent neither agreed nor disagreed.

Table 49

ACT Used to Make Educational Decisions

Answer Options	Response Rate	Response Count
		4
Strongly disagree	16.7%	1
Disagree	16.7%	1
Neither agree nor disagree	16.7%	1
Agree	33.3%	2
Strongly agree	16.7%	1

Survey question 14. High school credit can be earned at a majority of your high schools for students enrolling in an ACT preparatory class. Only one respondent agreed high school credit could be earned in most high schools in their state. On the contrary, only one respondent disagreed with the same statement. The remaining 66.6% of responses neither agreed nor disagreed with the statement.

Table 50

ACT Prep Class for High School Credit

Answer Options	Response Rate	Response Count
Strongly disagree	00.0%	0
Disagree	16.7%	1
Neither agree nor disagree	66.6%	4
Agree	16.7%	1
Strongly agree	00.0%	0

Survey question 15. Incentives are offered for students enrolling and completing advanced courses. A majority of respondents agreed with the fact of students receiving incentives for enrolling in advanced courses. As shown in Table 51, only 33.3% of respondents indicated they either disagreed or strongly disagreed with the statement. The remaining neither agreed nor disagreed with the statement.

Table 51

Incentives for Advanced Courses

Answer Options	Response Rate	Response Count
Strongly disagree	16.7%	1
Disagree	16.7%	1
Neither agree nor disagree	16.7%	1
Agree	50.0%	3
Strongly agree	00.0%	0

Survey question 16. High schools are rewarded for overall high-achieving ACT scores. Respondents strongly disagreed with the fact that high schools were rewarded for ACT achievement. As shown in Table 52, 50% of respondents disagreed with the statement, while 16.7% of respondents strongly disagreed with the statement. There were none who agreed or strongly agreed with the statement.

Table 52

High Schools Rewarded for High-achieving Scores

Answer Options	Response Rate	Response Count
Strongly disagree	16.7%	1
Disagree	50.0%	3
Neither agree nor disagree	33.3%	2
Agree	00.0%	0
Strongly agree	00.0%	0

Survey question 17. Most high schools offer weighted or adjusted GPA advanced courses to encourage students to participate in advanced courses. Weighted courses were offered in three of the six states as indicated from the response count for this statement. As shown in Table 53, 33.3% of respondents agreed with the statement, and 16.7% of respondents strongly agreed. Only one respondent each indicated they disagreed or strongly disagreed that weighted or adjusted GPA be rewarded for advanced course offerings.

Table 53

Weighted or Adjusted GPA Advanced Courses

Answer Options	Response Rate	Response Count
Strongly disagree	16.7%	1
Disagree	16.7%	1
Neither agree nor disagree	16.7%	1
Agree	33.3%	2
Strongly agree	16.7%	1

Survey question 18. High school administrators in your state feel that ACT results are important. While one respondent indicated strong disagreement, as shown on Table 54, the majority of respondents indicated they either agreed (33.3%) or strongly agreed (16.7%) with the fact that building administrators value the ACT results. There were two respondents that neither agreed nor disagreed with the statement.

Table 54

Administrators Value ACT Results

Answer Options	Response Rate	Response Count
Strongly disagree	16.7%	1
Disagree	00.0%	0
Neither agree nor disagree	33.3%	2
Agree	33.3%	2
Strongly agree	16.7%	1

Survey question 19. High school administrators feel that ACT results are equally important to NCLB state testing results. While a majority of administrators valued the ACT result, as shown by survey question 18, responses showed they do not

value ACT results as much as NCLB state testing results. A total of 66.6% of the respondents indicated they disagreed with the statement. Half of these responses indicated they strongly disagreed with the statement. There were no responses that indicated building administrators valued ACT results as much as NCLB testing results.

Table 55

Administrators View ACT Results Equal to NCLB Results

Answer Options	Response Rate	Response Count
Strongly disagree	33.3%	2
Disagree	33.3%	2
Neither agree nor disagree	33.3%	2
Agree	00.0%	0
Strongly agree	00.0%	0

Survey question 20. High school teachers in your state feel that ACT results are important. As compared with survey question 18, building level teachers in high-achieving states feel that ACT results were more important than administrators in those same states. A total of 66.7% of teachers agreed or strongly agreed with the statement, as shown on Table 58. Only one respondent strongly disagreed with the statement, which is similar to survey question 18.

Table 56

Teachers Value ACT Results

Answer Options	Response Rate	Response Count
Strongly disagree	16.7%	1
Disagree	00.0%	0
Neither agree nor disagree	16.7%	1
Agree	50.0%	3
Strongly agree	16.7%	1

Survey question 21. High school teachers feel that ACT results are equally important to NCLB state testing results. Teachers within the high-achieving states also have a higher regard for ACT results when compared to NCLB state testing than administrators. As indicated on survey question 19, no respondents agreed with the statement of administrators valuing ACT results the same as NCLB state testing results. As shown in table 21, 33.3% of respondents indicated that teachers value ACT results equally to NCLB state testing results. Only 33.3% of responses indicated that teachers disagreed or strongly disagreed, as compared to administrators' concerns, which indicated 66.7% disagreed or strongly disagreed with the statement.

Table 57

Teachers View ACT Results Equal to NCLB Results

Answer Options	Response Rate	Response Count
Strongly disagree	16.7%	1
Disagree	16.7%	1
Neither agree nor disagree	33.3%	2
Agree	33.3%	2
Strongly agree	00.0%	0

Survey question 22. A majority of teachers are provided professional development to gain better achievement on the ACT. As shown in Table 58, a majority disagreed that teachers were provided professional development, while another 33.3% strongly disagreed professional development was provided for increased ACT success. None of the respondents believed professional development was taking place in their state, specifically for ACT success.

Table 58

ACT Professional Development Provided

Answer Options	Response Rate	Response Count
Strongly disagree	33.3%	2
Disagree	50.0%	3
Neither agree nor disagree	16.7%	1
Agree	00.0%	0
Strongly agree	00.0%	0

Survey question 23. What is the most important characteristic to obtain high-achieving ACT scores? Respondents indicated the most important characteristic for ACT success lies within the student. As shown on table 61, one-half of respondents indicated student motivation was the most important factor for high achievement. Followed closely behind student motivation, 33.3% of respondents indicated enrollment in advanced courses was the most important factor. Only one indicated teacher effectiveness as the most important characteristic for ACT success.

Table 59

Most Important Characteristic (State Perspective)

Answer Options	Response Rate	Response Count
Teacher effectiveness	16.7%	1
ACT preparation classes	00.0%	0
Enrollment in advanced courses	33.3%	2
Student motivation	50.0%	3

Survey question 24. What is the second most important characteristic to obtain high-achieving ACT scores? Mixed results were found when determining the second most important characteristic of ACT success. Teacher effectiveness, enrollment in advanced courses, and student motivation each had two responses. ACT preparation classes did not receive any responses as the second most important characteristic or the most important characteristics, as shown by survey question 23.

Table 60

Second Most Important Characteristic (State Perspective)

Answer Options	Response Rate	Response Count
Teacher effectiveness	33.3%	2
ACT preparation classes	00.0%	0
Enrollment in advanced courses	33.3%	2
Student motivation	33.3%	2

Survey question 25. What is the third most important characteristic to obtain high-achieving ACT scores? The third most important characteristic was teacher effectiveness, as indicated by 50.0% of the respondents. The remaining characteristics as shown on table 63, each received one response. Based on survey questions 23, 24, and 25, ACT preparation classes only received one response for importance in ACT success.

Table 61

Third Most Important Characteristic (State Perspective)

Answer Options	Response Rate	Response Count
Teacher effectiveness	50.0%	3
ACT preparation classes	16.7%	1
Enrollment in advanced courses	16.7%	1
Student motivation	16.7%	1

Research question 3. How have ACT scores changed in high schools across the nation where graduating seniors are required to take the test?

Illinois' ACT scores dropped 1.5 points following the implementation of their new testing program in which all or nearly all graduates participated in the ACT,

followed closely by Colorado with a drop of 1.4 points. In Colorado, 37% more students participated on the ACT in 2002 than 2001. In Illinois, there was a 28% increase between 2001 and 2002, and in Michigan, 30% more students took the ACT in 2008, its implementation year. The scores shown in Table 64 have yet to reach performance levels when students voluntarily participated in the test. Within the 100% era, each state has made steady progress with Colorado increasing their ACT state average 0.6 points, Illinois increasing 0.8 points and Michigan increasing its scores by 0.4 points. Colorado and Illinois have 100% participation rates for 10 years. Michigan followed behind Colorado and Illinois testing all graduates for the past four years. After Colorado's fourth year involved in testing all graduates, their composite score average had only increased by 0.1 point and Illinois had increased 0.2 points. After all graduates participated in ACT state testing, it appeared that scoring trends accelerated in each state as compared when ACT participation was voluntary.

Table 62

Scoring Trends of Colorado, Illinois, and Michigan

	Colorado		Illinois		Michigan	
Year	Participation	ACT Score	Participation	ACT Score	Participation	ACT Score
2011	100%	20.7	100%	20.9	100%	20.0
2010	100%	20.6	100%	20.7	100%	19.7
2009	100%	20.8	97%	20.8	100%	19.6
2008	100%	20.5	98%	20.7	100%	19.6
2007	100%	20.4	100%	20.5	70%	21.5
2006	100%	20.3	100%	20.5	67%	21.5
2005	100%	20.2	100%	20.3	69%	21.4
2004	100%	20.3	99%	20.3	68%	21.4
2003	100%	20.1	100%	20.2	69%	21.3
2002	99%	20.1	99%	20.1		
2001	62%	21.5	71%	21.6		
2000	64%	21.5	72%	21.5		
1999	62%	21.5	67%	21.4		
1998	63%	21.6	69%	21.4		

Note: Secondary data derived from the http:/www.act.org (2011).

Tennessee, Louisiana, and Mississippi, as shown on Table 65, exhibited less drastic point drops the year obtaining 100% participation but also show much greater participation rates leading up to that point. Louisiana's ACT scoring trend has remained steady throughout the implementation process. In 2008, when 88% of Louisiana students scored on average 20.3, only 0.1 point difference exist in 2011, with 100% of graduates participating, scoring 20.2. Tennessee had a more significant drop of 1 point between 2009, when participation was at 92%, and 2010, when participation was at 100%. As

shown in Table 63, Tennessee was the only state to show a decline in scores after the first year of implementation. Colorado showed its first decline in scores four years after implementation, while Illinois was in its 9th year before their scores dropped. While Tennessee's current scores are still well below their scores during voluntary participation, both Louisiana and Mississippi show scores that were similar to averages before mandatory participation.

Table 63

Scoring Trends of Tennessee, Louisiana, and Mississippi

	Tennessee		Louisiana		Mississippi	
Year	Participation	ACT Score	Participation	ACT Score	Participation	ACT Score
2011	100%	19.5	100%	20.2	100%	18.7
2010	100%	19.6	98%	20.1	96%	18.8
2009	92%	20.6	89%	20.1	93%	18.9
2008	88%	20.7	88%	20.3	92%	18.9
2007	96%	20.7	79%	20.1	96%	18.9
2006	93%	20.7	74%	20.1	93%	18.8
2005	92%	20.5	85%	19.8	94%	18.7

Note: Secondary data derived from the http:/www.act.org (2011).

As shown in Table 66, Wyoming and Kentucky have both implemented mandatory ACT testing for all or nearly all graduates since 2009. Much like Illinois, as shown in Table 64, Kentucky's score dropped 1.5 points in the first year of the new program. Wyoming, which had a higher percentage of participation than Kentucky, had a decrease of one point upon their implementation of all graduates participating on the test. Wyoming exhibits the most significant achievement gains in the first three years of any 100% participation testing state by raising the state average by 0.3 points.

Table 64

Scoring Trends of Wyoming and Kentucky

	Wyoming		Kentucky	
Year	Participation	ACT Score	Participation	ACT Score
2011	100%	20.3	100%	19.6
2010	100%	20.0	100%	19.4
2009	99%	20.0	100%	19.4
2008	80%	21.1	72%	20.9
2007	78%	21.5	77%	20.7
2006	71%	21.6	76%	20.6
2005	69%	21.4	76%	20.4
2004	70%	21.4	75%	20.3

Note: Secondary data derived from the http:/www.act.org (2011).

Data Analysis of Qualitative Data

Research question 4. What are the perceptions of school leaders in states where graduates are required to take the ACT?

Interviews with educational representatives from Michigan and Illinois were conducted to gather insights and perceptions on their current testing program. The interview questions were created to find instructional, procedural, and attitude paradigms throughout the state towards using the ACT as part of the state test. Illinois was an instrumental state in using the ACT as part of its state testing platform. Michigan later began administering the ACT to all graduates with the creation of the Michigan Merit Exam (Keller, 2007). Both states have shown consistent increases in ACT performance since introducing their new state testing programs.

Participants (referred to by pseudonyms) included state department representatives (SDR1 and SDR2) who were in positions dealing directly with state testing and assessment. The interviews were conducted via telephone at a requested time by the participant. One hour was allotted for each interview session. Prior to the start of the interview, participants were sent a letter of informed consent and the interview questions via electronic mail. After allowing each participant to review the interview terms, the participant accepted the terms of the interview by agreeing to complete the interview. The interviews were recorded on a digital recording device and then transcribed verbatim to capture the verbal data accurately. Transcripts were sent to participants by electronic mail to review for accuracy.

There were several over-arching themes that emerged throughout the interview process. In support of Sawyer's (2008) research suggesting challenging course rigor throughout a student's high school duration aids in higher ACT achievement, both participants emphasized the belief that course rigor aided in their increased ACT achievement levels. Moreover, Schmoker's (2006) distrust in the education system, regarding wasting time on developing and planning new programs instead of focusing on viable curriculum and expectations, was expressed by both participants.

While both participants conveyed that students, teachers, administrators, and state officials initially had concerns about using the ACT as part of their state testing regime, both also agreed that the concerns have now shifted and are viewed as a positive implementation. SDR1 attempted to explain her initial perception to the current attitude:

> There was concern by the state officials about the cost of including ACT as part of the Michigan Merit Exam Program. I think it's clear that the concerns about

> that perception has now shifted, that it is money well spent, particularly in light of the national account emphasis on states' insurance, students are ready to succeed in their freshman college classes.

SDR2 agreed, stating, "At first I believed that it was a very difficult sell, just like anything else that is new, you are going to have a lot of apprehension from teachers, from students, from parents, from just about everybody." Similarly to SDR1 attitude shift, SDR2 explained that as their state is increasing achievement and experience with the test, "a lot of the teachers, a lot of the administrators, a lot of the students are seeing the benefits."

SDR1 further explained that teachers and administrators were very concerned about test security and the logistical requirements with the test being administered outside an ACT test center: "They have really stringent requirements that surround the receipt and storage of testing materials and very extensive standard procedures have to be used by all schools." SDR1 further explained with current training and the incorporation of uniform standard requirements, most teachers and administrators have positive attitudes towards the testing regime. SDR1 believed the students in this particular state were appreciative of the opportunity to get to participate in a free ACT, and the underlying benefit is:

> The students who haven't necessarily considered themselves college material or college-bound or on a college-bound track were surprised with their ACT scores and didn't start thinking of post high school [or] about community college as something they are confident to do.

Both SDR1 and SDR2 believed that at this point, state testing within their state is, overall, viewed positively.

Contrary to data that find test achievement dropping as more students become involved in the testing (Next Student, 2008), when asked what they attribute to rising scores in their state despite the fact that all graduates take the test, similar responses were voiced. SDR1 indicated that the creation and implementation of high school content expectations have a large role in better preparing students in their state. SDR1 commented on the new state standards:

> Higher standards and expectations aligned to our college and career readiness content, as those have become incorporated into the classroom, and schools have made an effort to connect and relate course content to the standards, which I think causes students do better on the ACT.

SDR2 agreed by explaining that their state has equipped teachers with high standards and objectives needed for high achievement. SDR2 further indicated, "all of that leads to higher course rigor…if you have students that are having a lot of expectations to do well and those classes are very rigorous…I think that you're going to see that increase ACT scores."

SDR1 also disputed researchers, such as Amerein and Berliner (2003), who believed that test scores increase by teaching-to-the-test: "We really try and encourage schools to take a broader view and don't focus on individual test questions, per se, but look at the underlying skills, knowledge, and abilities that students would need to perform on a given test." While SDR1 believed that success comes from content knowledge, she also explained that test preparation materials are also used:

> Teachers are also using ACT test preparation materials to help acquaint students with the format and content of the test… the teachers can look at the questions, work with their students, and identify the instructional sequence and emphasize what students are going to be tested on, so they can ensure students have been taught the content by and large that's tested in March. Those things contribute to gains and increases in test scores.

To sum up the main reason that these two states have increasing ACT scores, both respondents emphasized the high content expectations and goals established in their state. SDR1 explained, "The use by schools and teachers of the state's High School Content Expectations to inform curriculum instruction ends up with the students being better prepared." SDR2 reported that her state, "has done a great job of establishing very high goals and standards for our students and for our teachers." Both reiterated course rigor as the driving force behind ACT achievement.

SDR1 mentioned that role of the state department of education in her state in obtaining increasing ACT scores has been the creation of the high school content expectation, and that they continue to pay attention to the overall alignment of instructional and curriculum. SDR1 reported:

> We look at not just at 11th grade or in high school, but we start analyzing this and looking at this at the elementary school level and then making sure that there's that connection and progression of content expectations in elementary, middle school, and then culminating in the high school content expectations.

SDR2 responded similarly by suggesting that, "from the state department, I think that it is important that they set those standards high." In contrast to SDR1, SDR2 reported that

the autonomy that the state department of education provides schools in allowing them to still have control over their own standards has aided in the development of increased course rigor.

SDR1 also suggested that looking at testing performance had been a positive part of the state involvement: "We monitor the performance of students and schools and give direct feedback to schools." SDR1 further explained that the purpose of this involvement is to, "highlight where there are gaps between highest and lowest performing students within the school, and the expectation is that schools will work close that gap." SDR1 concluded by stating:

> So we're not just looking at overall increases and scores because sometimes your higher performing students will carry a school, but within that you still have sub-populations that are struggling. It is not helpful to say, oh good job, you're improving each year, but instead you need to dig deeper and look at how are your different groups performing, and do you have a gap that needs to be closed between your higher and lower achieving students.

The respondents again had similar responses when asked what the schools' responsibilities were in increasing ACT scores. SDR1 believed that the schools were teaching more effectively, not just towards the ACT, but "more importantly preparing students to handle college courses, meet employer requirements on the job, and to ultimately function as informed citizens in society." SDR2 concurred by adding, "Our schools have done a lot of work with depth of knowledge, increasing the depth of knowledge in our instruction, and making sure students are understanding what they are learning and apply that to every aspect of their education." SDR2 further explained:

> I think that each school really needs to evaluate their curriculum and make sure that everything that they are doing, whether it be for the core classes or for some of the fringe classes, is to really evaluate the curriculum, align the standards to where the students are getting the most out of everything they are doing.

SDR1 agreed by stating, "We feel that schools are accomplishing these goals when curriculum and instruction are aligned to high school content expectations."

While both representatives believed alignment of curriculum, content expectations, and course rigor played vital roles in not just ACT achievement but in overall education achievement, research has found that students who have access to the EXPLORE and the PLAN have indicated positive results in the participation of these test (ACT, 2006b). When asked what role does preparation specifically for ACT test play in high-achieving scores, SDR1 stated:

> Using the EXPLORE and the PLAN at the lower grades allows schools to identify earlier the content where student performance is low and where students are in need of remediation years before they take the ACT, and then in conjunction with that it allows them to make overall improvements in instruction and curriculum.

SDR2 took a different approach to the question by indicating that their preparation was driven by data analysis. SDR2 explained, "In taking the scores that we have gotten, finding out what we have done in the past, has helped our students in scoring a little bit higher." SDR2 further explained:

> We're able to take that information and better prepare our students that are going to be taking it so we hope to see better test scores. That is why the scores are continually rising, because we are looking at that and trying to prepare our

> students to be successful in the future. The data, both past and present, is really pushing towards having higher scores and students that are achieving both at the high school level with this test, and hopefully, as statistics will show at the college level.

When asked if higher achievement exist from more stringent education requirements, SDR1's response coincided with Marzano's (2001) belief that the teacher is the most important part of the education achievement by indicating that the state superintendent is putting pressure on state institutions of higher learning to better prepare teachers. SDR1 stated, "He (state superintendent) is very serious about reducing those funding levels to institutions where the teachers coming out of them and …. are failing or not considered effective. "

SDR2 believed that his state provides a high quality of education for each student, but with an overall national theme to increase student expectations, as seen with the development of the Common Core Standards, "I think it is hard to say that we are any more stringent than anyone else, but I think that the results speak for themselves."

In response to being asked what were the biggest changes that have occurred in the education process from before and after all students began taking the ACT, both respondents explained that a greater emphasis has been placed on preparing students for higher expectations. SDR1 included that, "the emphasis of basic skills attainments and in raising the bar, raising the level of expectations to college and career readiness [has helped] in preparing students in that way." SDR2 believed that his state has become much more educationally minded in stating:

> I think that we're more educationally minded in everything that we do. All of our decisions since the inception of the ACT program have been to increase student achievement. It is not about test scores to make a district look good. It is about, really, making sure that students understand what they are learning and being able to apply what they are learning whether it is a standardized test like the ACT or anything in life

SDR1 also mentioned the rise in cost of their new assessment, emphasizing the belief that it is money well spent due to the fact that the testing program has, "elevated the expectations of students, parents, and teachers in terms of how kids should be prepared to coming out of high school."

Summary

The mixed-study design utilized for this study provided sound quantitative results depicting the methods and beliefs associated with high ACT achievement. The qualitative component yielded information from current educational leaders who represented states that have already implemented the ACT into their NCLB testing requirements. This information was obtained through the use of interviews and served to examine the different perspectives, attitudes, and methods that educators have in those states that mandate all graduates to take the ACT.

To gain a better understanding in identifying the cause of high achievement in schools throughout Missouri and in those states which exhibit consistent high achievement, surveys were administered to educational leaders in their area. The survey yielded information on current programs in place, instructional goals, and the beliefs of administrators and educational leaders. The interviews conducted in the qualitative

portion of the study yielded information that could not easily be found through systematic data collection. Personal beliefs and attributes toward the state testing methods were found through the interview process.

Current research existed which presented some best practices for higher ACT success. More investigating must occur to discover if high achievement is a result of using these best practices or if other methods prove to be effective. In Chapter Five, options for future study and potential explanations for the results were addressed.

Chapter Five: Discussion and Conclusions

W. L. Bateman once quoted, "If you keep on doing what you've always done, you'll keep on getting what you've always got" (Bateman, 2012). This quote is becoming increasingly fitting for both the high-achieving school districts and those that are deemed to be less than adequate. The high achieving schools have a plan in place and continually strive for progress by increasing expectations, developing increased course rigor, and viewing the ACT as an important educational assessment. The school that continually struggles to obtain ACT success may be failing to take advantage of, as Schmoker (2006) indicated, the viable curriculum.

Despite education reforms calling for high standards in learning for all students, vast achievement gaps in ACT achievement are present in high schools across the United States. The ACT, which is tied to college acceptance, scholarships, placement, and in some states, federal testing, is an important test for all educational entities, not just federally mandated assessment scores. Advanced course participation and repeated test taking have been identified as two practices in increasing individual ACT success, but school and state practices which aid in better achievement must also be shared and exchanged with one another to invoke improvement in success on the ACT (Dole, 2004; Hodges, 1996). As more states learn about the benefits of using the ACT as part of their testing program and better understand research-based methods to implement, achievement gaps may cease to exist and more states may look at using this test to meet NCLB mandates.

There were several issues related to introducing the ACT into a state's testing program. First, a large majority of students are already taking the ACT as part of their

requirements for entrance into post-secondary education. In 2011, 49% of the entire United States graduating senior class, equaling 1.62 million, took the ACT (Strauss, 2011). The question could be raised: Why not use a test that meets federal requirements which a large number of high school graduates were already taking?

There is also a large discrepancy between state assessments throughout the nation. A representation of state achievement could be inaccurate based on the fact that students do not take the same test throughout the United States. Moreover, while much effort is spent on preparing students for annual state-wide assessments, there have been questions about teaching-to-the-test (Wiggins & McTighe, 2005), test corruption (Edmonson, 2003; Pedulla, J., Abrams, G., Madaus, G., Russell, M., Ramos, M., & Miao, J., 2003), score inflation (Jacobs & Levitt, 2002), and the cost of producing and grading thousands of tests given by each state (Rebarber & McFarland, 2002).

Attempting to address these problems, schools, state departments of education, and legislators may find answers from Colorado, Illinois, Michigan, Kentucky, and Wyoming. These states use the ACT either in conjunction with other tests or independently to determine if students are meeting Adequate Yearly Progress (AYP) goals (ACT Press Release, 2007). Currently, Missouri uses the EOC exam as the state high school assessment to comply with the NCLB mandate. If Missouri or other states consider following the path of states using the ACT, the resources available for successful implementation and achievement are limited.

Initial information leading to the determination of high-achieving high schools in Missouri was determined by examining data from the Data System Management link on the MODESE website. Information from the ACT Corporation was used to identify

high-achieving states on the ACT throughout the United States. The ACT Corporation data led to recognition of those states that have used the ACT in their national testing program. Upon determination of high-achieving high schools within Missouri, overall high-achieving states on ACT in the United States, and determination of states that have implemented the ACT into their testing program, quantitative measures in the form of surveys and qualitative measures in the form of interviews were conducted.

The high school principal from high-achieving schools was presented the survey opportunity. The principal made the determination to pass along the survey to the appropriate representative who could best answer the related questions. The survey was conducted via electronic mail. Similarly, educational leaders from state department of education were found from high-achieving states and presented the opportunity to participate in the survey. This survey was conducted through the use of electronic mail, as well. The qualitative portion included an interview of state educational leaders from Michigan and Illinois, two of the first states to require the ACT implementation into their testing program. The interviews were conducted via telephone.

In this study, a compilation of best practices used in high-achieving high schools and states that obtain high student achievement on the ACT were collected. Educational leaders within the top 5% of high schools in Missouri, based on a five-year average of ACT scores, were surveyed to help determine successful teaching strategies and programs educators in these schools are implementing. Leaders from consistently successful states (having higher than average ACT scores with a high percentage of participation) took part in a survey to extrapolate further characteristics regarding high achievement. Furthermore, the trends and the approaches that contribute to student

success in states that require the ACT were examined through interview responses. With the combination of the data collected, best practices were determined to prepare all educators and students for better success on the ACT.

This mixed study, including the methodology, identifying the setting and participants, and analyzing data, were guided by the research questions with the purpose of discovering best practices for ACT achievement. The research questions, in part, focused on practices that particular districts are implementing to achieve high scores and what state departments are doing to continually attain high average scores. The study also addressed current trends of ACT scores in those states where all graduating seniors take the test and evaluated current educational attitudes and methods that these states are implementing. Through the use of surveys and interviews, successful practices were found by analyzing the frequency of responses and through comparing and contrasting interview responses.

Discussion of Findings

Research question 1. What best practices are used in Missouri high schools with the best performance on the ACT?

Demographic data of high-achieving school districts indicated that significant differences in students' characteristics abound. While there was only a 6% higher participation rate on the ACT among the high-achieving schools, as compared to the state average, nearly 23% more graduating seniors entered a four-year college in those high-achieving schools. Although high-achieving schools had attendance rate averages lower than the Missouri average, their graduation rate was nearly 7% higher and dropout rate nearly 2% lower.

One of the most contrasting characteristics found between the high-achieving schools average and the Missouri average was the number of students eligible for Free or Reduced Price Meals. Among high-achieving schools, only 18.5% of students enrolled met this classification. Among Missouri schools, as a whole, 42.9% of students were eligible for Free or Reduced Price Meals, almost a 25% difference. According to Barry (2006), socioeconomic statuses of students have been shown to play a large role in academic achievement. Furthermore, teachers in schools with high numbers of students with poor socioeconomic backgrounds usually are less experienced and not qualified (Almay & Theokas, 2010).

When looking at staff characteristics within high-achieving schools, many areas only showed minimal differences. For instance, high-achieving schools have only a slight higher average years-of-experience of teachers than compared to the Missouri average. The average students-per-classroom-teacher was only marginally higher in high-achieving schools across Missouri. The major differences were found between high-achieving schools and Missouri schools are staff with advanced degrees and staff salary. In high-achieving schools, 68.4% of teachers had a Master's degree or higher as compared to only 52.3% among Missouri schools. Furthermore, teachers within high-achieving schools had an average salary over $8,000 higher than the Missouri teacher salary mean, and administrators' average salary within the high-achieving schools was almost $11,000 higher.

Data from survey indicated there were common practices found that high achieving schools regularly performed. High-achieving schools value the EXPLORE and the PLAN tests. A majority of high-achieving school respondents indicated that both

tests were necessary components of ACT success. These beliefs could be further strengthened because nearly all of high-achieving schools require students to take the two tests and pay for the test fee. One difference that existed between high-achieving schools and many lower achieving schools in Missouri was the indication that high-achieving schools use the results of these test to indicate areas of strengths and weaknesses for the students and to create or adjust a four-year plan for each student. When the EXPLORE and the PLAN results shape a student's four-year plan, there was a greater chance students took advanced courses in high school, which, in return, related to better preparedness for the ACT, Similarly, student strengths and weaknesses would indicate what classes a student would need to take in order to increase ACT scores. All but one respondent from a high-achieving school indicated that the PLAN results are directly used to better prepare students for the ACT.

Another practice found in high-achieving schools was their student preparation for the ACT. Almost 90% of high-achieving school respondents indicated that their students are provided at least 10 hours of preparation prior to taking the ACT for the first time. Furthermore, every high-achieving school respondent indicated that every student had some form of ACT preparation prior to taking the test. This can further be supported by the fact that all high-achieving schools have had ACT workshops in place for at least one year. Most of these workshops were conducted with the use of specific ACT preparation curriculum, by students not only being assigned practices test questions but by being assigned some concepts, as well. In many of these workshops, students participate voluntarily, although, some schools were offering ACT preparatory classes during the school day in which students can receive credit for the class.

As many of these practices indicate the importance that the high-achieving schools place on preparing students for the ACT test, many high-achieving schools do not strive towards specific ACT success. While most high-achieving schools do not offer incentives for ACT success, the only incentives that were indicated were through notification of success and non-monetary awards. Most high-achieving schools spend no more than six hours on training teachers for ACT success, while almost half of teachers in high-achieving schools do not spend any training specifically for ACT success. When asked to indicate the most important factors for ACT success, enrollment in advanced classes was first, second was student motivation, and third was teacher effectiveness. ACT preparation classes were not indicated to be very important in terms of ACT success.

Indications from the likert-scale portion of the survey indicated that not only are there similar practices found within high-achieving schools but also similar beliefs. Only two respondents indicated that they disagreed with the belief that the ACT is used to make educational decisions about a student's academic plan. This would indicate that nearly all high-achieving schools encourage students to enroll in advanced classes to prepare them for ACT success. Nearly all respondents either agreed or strongly agreed that students should take the ACT multiple times. Research indicates that students have a better chance to increase their score upon taking the ACT multiple times (ACT, 2012). Furthermore, a high majority of respondents also believed that it is important that students take the ACT regardless if they are planning on attending college.

Some responses indicated a stronger belief regarding the ACT than others. The views that showed the greatest agreement included: the importance of administering the

ACT at your school, the importance of administering an ACT preparatory class or workshop for your students, and the importance of students being enrolled in advanced courses. Respondents felt very strongly about conducting these measures within their high-achieving schools. In response to Schmoker's (2006) belief that the teacher is the most important factor in the education process, a majority of the respondents indicated that they disagreed that teacher effectiveness is the most important factor in the determination of ACT success. Enrollment in advanced courses was most important to a majority of respondents. This supports the view of Kowarski (2010), who found that college-readiness benchmarks were only met by 15% of students who had taken just three basic math courses. Nord and colleagues (2011) also agreed, presenting data which showed NAEP scores being higher for graduates who completed the most challenging mathematics and science courses.

Research question 2. What best practices are implemented by Nebraska, Minnesota, Wisconsin, Iowa, Utah, and Kansas?

Data from survey indicated several mixed views to ACT success. The respondents participating in this survey included educational leaders within the state education department who had knowledge of the current ACT scores, curriculum, and instruction within the state. Most of the entire survey was constructed in likert-scale form in order to best obtain the perceptions of respondents within those high achieving states. The major theme that existed by investigating the survey results was states did not have specific stances to many of the items in question. This was found by the numerous responses that indicated neither agree nor disagree.

The items that respondents had mixed feelings about included their belief that their state had more stringent graduation requirements than other states. A majority of respondents indicated that they were unaware if their graduation standards were more rigorous than others. While this would at least indicate if their state has or has not taken a stance towards higher expectations, it may fall in line with many other states which are producing students who participated in only basic course work. The percentage of students who completed only a standard academic curriculum increased between the year of 1990 and 2005 by 20% (Shettle et al., 2007).

While retaking the ACT a second time has historically shown an increase in scores (Sawyer, 2008), a majority of respondents indicated they neither agreed nor disagreed regarding encouraging students to retake the ACT multiple times for better achievement. The belief that increased scores came from the state having higher expectations for students was also non-existent. While Hoxby (2009) reported that most colleges have not become more selective in their student admittance over the past 50 years, state respondents neither agreed nor disagreed towards the fact that their college standards are higher. While Santelices and Wilson's (2010) research indicated the verbal section of one college admissions test functioned differently for Black students as compared to White students, respondents felt unsure about the belief that student demographics had any influence on their state's ACT scores. Respondents neither agreed nor disagreed towards the belief that schools within their state offer high school credit for ACT preparatory courses. This would show that though some schools may offer a preparatory class, it is not a state mandated class that is offered.

Respondents agreed with the opinion that their state encourages students to take the ACT regardless if they were college bound. As compared with the high-achieving schools within Missouri, ACT participation among those high-achieving schools was over 6% higher than the Missouri average. This demonstrates a possible best practice for ACT success by consistent encouragement to take the ACT in high school. Another belief that respondents felt strongly about was the ACT results are used to make educational decisions within their schools. Respondents believed that the ACT can show areas of weakness and strengths within a school's instruction and curriculum. These accountability measures were a key element in North Carolina's decision to add the ACT into their testing program (Bonner, 2010).

This may also be reflected in the fact that respondents also felt very strongly that the schools in their high-achieving states offer incentives for enrolling in advanced courses. A majority of respondents believed that most schools offer weighted or adjusted GPA advanced courses as an encouragement or incentive for enrolling in these classes. It appears that successful states analyze ACT data and then work in the areas of weakness and strengths to better prepare students. While a proven best practice for students was participation in advanced courses, it also appears that high-achieving states had incentives in place for increased participation in these high rigor courses. Last of all, respondents indicated that both administrators and teachers feel the ACT results are important. Based on the strengths of beliefs, it appeared that teachers in these high-achieving states feel that it is more important that the administrator. Contrary to the opinion of Shankin (2012), respondents feel that student demographics did not account for decreasing or increasing ACT success, although socio-economic status may have an

effect. In support of Barry's (2006) view, half of the respondents indicated they felt strongly that socio-economic status has an effect on student ACT achievement, while half of the respondents felt that they could not agree or disagree.

While many survey items stimulated responses indicating strong belief, respondents also disagreed with many of the items presented in the survey. One statement that a majority of respondents indicated they either disagreed or strongly disagreed with was the belief the ACT is used as an indication of academic ability for students. This is a contrasting view from those who believed the ACT is an appropriate state test. Of the states which mandate all graduates to take the exam, many leaders felt the ACT is an academic assessment that measures overall educational ability. It would also make sense because state respondents felt that the ACT is not a good tool to measure overall academic ability. It also does not depict or measure success for high schools.

Another statement that a majority of respondents viewed with disagreement or strong disagreement was the belief that students in their high-achieving state are made known of ACT and its importance before they enter high school. This can also be supported by the fact that a majority of respondents also disagreed with the statement that most students participate in the EXPLORE and the PLAN test before they take the ACT test. This is surprising since taking the EXPLORE and the PLAN has shown to increase ACT average scores (ACT, 2006b).

Further disagreements included the belief that state college acceptance rates are lower, professional development is offered for better ACT achievement, and students are rewarded for overall high-achieving ACT scores. These statements again show that high-achieving states do not have a direct plan of action for high ACT scores. Respondents

also disagreed to the statement that administrators and teachers view ACT results the same as NCLB state testing results. Based on the response selections, it appeared that respondents believed that building administrators view NCLB state testing in higher regard than teachers.

Lastly, respondents indicated that the most important aspect for student success on the ACT is student motivation. The respondents of high-achieving Missouri schools indicated that students enrolling in advanced courses was the best indicator of student success. This further supports the idea that high-achieving states have no direct goals or programs in place to account for their high achieving scores. In summary, it appears that the high-achieving states' ACT success is a by-product of quality education, socio-economic statuses, and not by programs or instruction directed specifically for ACT achievement.

Research question 3. How have ACT scores changed in high schools across the nation where graduating seniors are required to take the test?

A characteristic of most long term assessments seem to be consistent increased scores throughout each year. The NAEP mathematics exam has shown increased or steady scores since 1973, except in 2004 when the test was revised; however, in Missouri, there has been a 78% increase in communication arts scores from 2002 to 2011 and a 156% increase in mathematics scores during that same time span (MODESE, 2012). Many speculations can be made about these significant increases. Having data in place to look at the scoring trends of states that mandate the ACT will show if similar tendencies take place for this assessment, as well.

The ACT, which has been touted as an uncoachable test (Atkinson & Geiser, 2009), has been mandated by schools since 2002. Colorado and Illinois were the first states to begin this testing regime. During the time span of 2002-2011, scores in Colorado have only dipped two times and have increased a mere 3%. In Illinois, scores have only dropped once but held constant from year to year on two different occasions. Illinois shows an overall 4% increase since it introduced the ACT in 2002 as part of its state test.

Other states that introduced the ACT to all graduates show similar results. The most significant increase was seen in Wyoming's average, which jumped 0.3 points from its second year of existence to its third year (2010-2011). Tennessee has been the only state to show a drop in ACT average from its first year to its second year. The newer states that have recently begun the program have the benefit of looking at the methods of those states like Colorado and Illinois. As compared to Missouri's state testing scores, the ACT does in fact seem to have more stable results from year to year.

Research question 4. What are the perceptions of school leaders in states where graduates are required to take the ACT?

Similar overarching beliefs and themes existed from both education leaders from states that are using the ACT in conjunction with the NCLB requirements. Both respondents indicated that though the introduction of the new testing regime was met with apprehension, the use of the ACT is now welcomed and supported by educators in their state. SDR1 specifically indicated that initially money as an issue. While SDR1 specified that educators now believe that it is money well spent after implementing the ACT into their state testing program, other states may feel differently due to the fact that

19 states indicated they reduced their testing budgets, and 10 other states expected to eliminate or reduce testing budgets in the future (Robelen, 2009).

The respondents credited the success of the program in large part to the arduous standards that have been developed or used by their state. Success on the ACT was credited to implementing high-achieving standards throughout each state and the evaluation of such credits. While Michigan developed stringent statewide standards, Common Core Standards have been adopted by all by seven states. The Common Core Standards will focus on skills students need for success in college and careers (Omear & Schlosser, 2010). The development or use of high standards was reoccurring throughout the responses during both interviews. The high standards increased the students' depth-of-knowledge and helped establish a higher expectation of learning. The large achievement gaps found between states such as Minnesota, Nebraska, and Iowa, which had composite scores averages above 22, and states, such as Alabama, Arkansas, and New Mexico, which had composite scores below 20.3 (ACT, 2010), may possibly narrow if high standards were put into place in these lower achieving states.

The high standards established within these states, resulting in increased course rigor, continued as a reoccurring theme, as indicated and supported by Sawyer (2008). Traditionally, high course rigor is usually found in advanced class, but now, more encompassing objectives are being introduced to students in introductory or beginning level classes.

Limitations of Findings

One limitation of this study was the number of respondents participating in the high-achieving schools survey portion of the study. With only 59% of invitees

responding to the survey, this would support Schmoker's (2006) belief that the culture of schools and school leadership discourages learning from others' successes, and these practices are not readily shared in the educational community.

Another limitation is the fact that information obtained through the survey and interview questions may not reflect the general attitudes and beliefs of all administrators and stakeholders. The responses will reveal the participants' feelings at a particular time and may not provide information pertaining to past problems or benefits of the testing programs. Moreover, the survey and interview questions were constructed in an attempt to exclude bias, but could exclude subject matter that could help in the development of best practice formation.

Relationship of Findings to Conceptual Framework

The most challenging aspect of the study supported Schmoker's (2006) belief that educators are hesitant to share their successes or achievements. The invitation to participate in the survey process of the study was ignored by many administrators of high-achieving schools. Information that was obtained through the survey process supported Schmoker's (2006) belief that high-achieving schools are results-focused and data driven. Information gathering, as reported by Wiggins (as cited in Schmoker, 2006), continues to only be directed towards standardized tests in those schools that are not high-achieving and fail to have an overall attitude of achievement.

Furthermore, Marzano's (2001), statement that the teacher is the most important part of the education process, could continually be supported due to the fact that most of the best-practices determined come from the success implementation of the teacher. This could be found in the form of high expectations or rigor in the classroom. Since there was

a direct correlation between the number of graduates entering a four-year college and increased ACT success, the most important part of ACT success may be demonstrated by the encouragement that teachers give students to pursue academic ventures.

Implication for Practice

The results obtained through the investigation of best practices for better ACT success address several implications for practice. Many implications for practice will be used by varying populations; however, consistent themes exist for all involved. Teachers can use this information to better understand the significance and importance of presenting a challenging course curriculum and placing high expectations on students for success. Teachers still must be viewed as the most important facet in the educational process, because they must construct and present challenging material efficiently and in a manner that motivates students to learn.

Administrators can value this research obtained in the study because it shows the importance of a school guided by an attitude of overall achievement and not just one striving for ACT success. High-achieving schools have plans in place, are data driven, and produce motivated students who value their education and wish to proceed to the post-secondary education level. Building principals can strive to set forth high learning and teaching objectives, incorporate preparatory workshops to prepare students for test construction, and develop advance courses for students to participate in for greater knowledge needed for high achievement. Most importantly, administrators must understand that high-achieving schools are developed in part by the programs and attitudes educational leaders bring into their schools.

State departments of education can use the information to evaluate their current testing programs and to decide if a college admissions exam would work as part of their testing regime. Due to the limited timeframe and the difficulty in obtaining viable data, many of the desired outcomes or goals of incorporating the ACT into a state's testing program have yet to be determined. Nevertheless, if states did decide to incorporate the ACT into their state test, the future scoring trends along with a course of action could be established embracing and implementing the data collected through this study.

Most importantly, this study could have a significant impact with all high school or soon-to-be high school students. Through the findings of this study, the over-arching theme was enrollment in advanced courses. Students must value challenging course rigor for their future preparation for the ACT. Students must also understand the importance of self-motivation. Students in high-achieving high schools value the ACT and strive for acceptance into a four-year college or university. They must understand that preparatory classes are important, before the test, and along with retaking the ACT after the initial test. Most importantly, much like teachers and administrators, students must develop an academic plan which focuses on achievement in advanced course work and provides a wide variety of experiences.

Recommendations for Future Research

While research suggests students leaving high school are not prepared for college (Phillips, 2011), ACT scores have remained relatively constant over the last several years. This may suggest that while student achievement has reached a plateau, college standards have increased. Through the use of interviews and/or surveys given to post-secondary educators, these standards for college achievement could be compiled. Additionally, with standards in place, a state could then develop their state test by

addressing the standards obtained. Not only could these tests be used in fulfillment of NCLB standards but could be used in the college admissions process much like the ACT is now, only with more specific alignment and standards needed for post-secondary achievement.

Further research could be conducted into the development and construction of courses with a high level of course rigor and in an attempt to determine how teachers have changed course content, teaching styles, homework, or any other aspect of their class. It could also be of use to compare and contrast current course content and teaching styles between similar classes found in high-achieving schools and non-high-achieving schools.

Lastly, research could be conducted to discern if the underlying benefits of implementing the ACT into a state's testing program are occurring. Information could be gathered to discover if Michigan's goals of increasing college enrollment, along with producing a greater number of adults with bachelor's degrees (Martineau, 2008), are being met. A study could also examine if states, such as North Carolina are fulfilling their aspirations. Bonner (2010) suggested adding the ACT to determine effectiveness of education within a school and to identify students in need of extra help to become better prepared for college work.

Summary

The current best practices found in research support many of the best practices presented from this study. The presence of a challenging course rigor was found to be the most reoccurring indicator for high-achieving ACT scores. While Marzano's (2001) belief that the teacher is most important indicator, if an adequate teacher is not in place to

teach course rigor, then the challenge of the material would not exist. Another best practice found which supports existing research are schools that use the EXPLORE and the PLAN tests for all students. Educators believe that these assessments help shape a student's future education plan and possibly lead students to advanced course placement.

Nevertheless, administrators and teachers may not need to focus on specific best practices, but in the development of an overall attitude of high expectations and achievement. Establishing a strategy through the use of available data and research must be introduced and continually updated. Setting high standards or adhering to those standards already in place by aligning curriculum and assessments are necessary in becoming a high-achieving school. Developing intrinsically motivated students who become aware of their course of study and future plans is also a necessary component of a high-achieving school.

Until educators develop better methods in the sharing of their success and achievements, there may always be achievement gaps found between schools. Teachers and administrators must push beyond the confines of their school and share the practices and methods used for high achievement. The path to high achievement exists for all schools, and research-driven best practices must be used in order to obtain such status.

Appendix A

Survey Questions for High-achieving Missouri Schools

1. What percent of the eighth grade student population participate in the EXPLORE?

a.) 0%
b.) 1-49%
c.) 50-99%
d.) 100%

2. How are the results of the EXPLORE used for individual students?
(Check all that apply)

( ) Results are given to students
( ) Results discussed with students
( ) Results are given to parents
( ) Results are discussed with parents
( ) Results are used for student's following year academic schedule
( ) Results are used to help student create four-year plan
( ) Results are used to check curriculum
( ) Results are used for student career planning
( ) Results are used indicate areas of weakness or strength
( ) Results are used to better prepare for ACT
Other: _____

3. Who pays for the EXPLORE?

a.) Students are responsible for the cost of the test
b.) School is responsible for the cost of the test
c.) Students and School share the responsibility for the cost of the test
d.) Students pay for majority of test but school pays for those that are in financial need

4. What percent of the tenth grade student population participate in the PLAN?

a.) 0%
b.) 1-49%
c.) 50-99%
d.) 100%

5. How are the results of the PLAN used for individual students?
(Check all that apply)

( ) Results are given to students
( ) Results discussed with students
( ) Results are given to parents
( ) Results are discussed with parents
( ) Results are used for student's following year academic schedule
( ) Results are used to help student create four-year plan
( ) Results are used to check curriculum
( ) Results are used for student career planning
( ) Results are used indicate areas of weakness or strength
( ) Results are used to better prepare for ACT
Other: _____

6. Who pays for the PLAN?

a.) Students are responsible for the cost of the test
b.) School is responsible for the cost of the test
c.) Students and school share the responsibility for the cost of the test
d.) Students pay for majority of test but school pays for those that are in financial need

7. What form of ACT preparation does your school offer?

a.) One or two session ACT workshop for students
b.) Weekly ACT study sessions
c.) Daily class offered outside of regular school hours
d.) Daily class offered during school hours
e.) Other: _____

8. How many hours of ACT preparation provided by your school can a student participate in prior to taking the ACT the first time?

a.) 0 hours
b.) 1-5 hours
c.) 5-9 hours
d.) 10 or more hours

9. What percent of students taking the ACT for the first time participate in ACT preparation workshops or classes?

a.) 0 %
b.) 1-49%
c.) 50-99%
d.) 100%

10. How long has your school participated in an ACT class or workshop?

a.) 0 years
b.) 1-3 years
c.) 4-7 years
d.) 8 or more years

11. How is the class or workshop conducted?

a.) Self-paced, students work through practice test
b.) Students are assigned practice test questions in a timed setting
c.) Students are assigned some concepts and a majority of practice test questions
d.) Students are assigned concepts of ACT objectives with only minimal time spent on practice questions

12. How does the ACT preparation fit into a student's academic record?

a.) Students participate voluntarily
b.) Students participate voluntarily but pay for the preparation
c.) Students are awarded high school credit for participating in class
d.) Other:_____

13. How are teachers selected to teach an ACT workshop or class?

a.) Teacher has voluntary created class for students who want extra help
b.) Teacher has been selected because it best fits his or her schedule
c.) Teacher has been selected because he or she is most qualified to teach class
d.) Other:_____

14. How does the teacher instruct the ACT prep workshop or class?

a.) Teacher works on problems that students feel they need extra help on
b.) Teacher only works on particular subject matter that they are qualified in
c.) Teacher works through practice problems and test questions from all subject areas
d.) Teacher uses a specific ACT preparation curriculum
e.) Other: _____

15. Does your school offer incentives for ACT success?

a.) Notification of ACT success
b.) Monetary award
c.) No reward
d.) Other: _____

16. Does your school offer incentives for taking advanced curriculum courses?

a.) Weighted grades for advanced classes
b.) Advanced or college diploma
c.) Valedictorian privileges
d.) No special rewards are given
e.) Other: _____

17. What is the most important characteristic to obtain high-achieving ACT scores?

a.) Teacher effectiveness
b.) ACT preparation classes
c.) Enrollment in advanced courses
d.) Student motivation

18. What is the second most important characteristic to obtain high-achieving ACT scores?

a.) Teacher effectiveness
b.) ACT preparation classes
c.) Enrollment in advanced courses
d.) Student motivation

19. What is the third most important characteristic to obtain high-achieving ACT scores?

a.) Teacher effectiveness
b.) ACT preparation classes
c.) Enrollment in advanced courses
d.) Student motivation

20. How much training do your teachers participate in for ACT Test?

a.) 0 hours of professional development is spent on ACT success
b.) 1-3 hours
c.) 3-6 hours
d.) More than 6 hours

21. The EXPLORE is a necessary component for ACT success in your school.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

22. The EXPLORE is used to make educational decisions about a student's academic plan.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

23. The PLAN is a necessary component for ACT success in your school.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

24. The PLAN is used to make educational decisions about a student's academic plan.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

25. The ACT is used to make educational decisions about a student's academic plan.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

26. It is important that students take the ACT multiple times.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

27. Our school encourages students to take the ACT regardless if students plan on attending college or not.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

28. Our school encourages students to take the ACT multiple times.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

29. It is important to administer the ACT at your school.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

30. It is important to administer an ACT prep class or workshop for your students.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

31. It is important to have students enrolled in advanced courses for ACT success.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

32. Teacher effectiveness is the most important factor in the determination of ACT success.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

33. ACT results are used to make educational decisions within your school.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

Appendix B

Survey Questions for High-achieving States

1. Your state values the ACT as a test that measures academic ability.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

2. Your state uses ACT scores to measure success for a high school.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

3. Your state encourages participation on the ACT regardless if the student is college bound.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

4. Your state encourages students to retake the ACT for better achievement.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

5. ACT scores are high because high school graduation requirements are more stringent than other states.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

6. ACT scores are high because participating in challenging course rigor is highly stressed in your state.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

7. ACT scores are high because college standards are higher in your state.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

8. ACT scores are high because state college acceptance rates are lower than surrounding state colleges.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

9. Students are made known of the ACT and its importance before high school.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

10. Students in most schools participate in the EXPLORE and the PLAN prior to taking the ACT.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

11. Student demographics play a large role in the determination of ACT success.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

12. Student socio-economic status plays a large role in the determination of ACT success.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

13. Besides scholarships and college acceptance, incentives are offered to students for high ACT scores.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

14. The ACT is used to make educational decision about a student's academic plan in your state.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

15. High school credit can be earned at a majority of your high schools for students enrolling in an ACT preparatory class.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

16. Incentives are offered for students enrolling and completing advanced courses.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

17. High schools are rewarded for overall high-achieving ACT scores.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

18. Most high schools offer weighted or adjusted GPA advanced courses to encourage students to participate in advanced courses.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

19. High school administrators in your state feel that ACT results are important.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

20. High school administrators feel that ACT results are equally important to NCLB state testing results.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

21. High school teachers in your state feel that ACT results are important.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

22. High school teachers feel that ACT results are equally important to NCLB state testing results.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

23. A majority of teachers are provided professional development to gain better achievement on the ACT.

a). Strongly disagree **b.)** Disagree **c.)** Neither agree nor disagree **d.)** Agree **f.)** Strongly agree

24. What is the most important characteristic to obtain high-achieving ACT scores?

a.) Teacher effectiveness
b.) ACT preparation classes
c.) Enrollment in advanced courses
d.) Student motivation

25. What is the second most important characteristic to obtain high-achieving ACT scores?

a.) Teacher effectiveness
b.) ACT preparation classes
c.) Enrollment in advanced courses
d.) Student motivation

26. What is the third most important characteristic to obtain high-achieving ACT scores?

a.) Teacher effectiveness
b.) ACT preparation classes
c.) Enrollment in advanced courses
d.) Student motivation

Appendix C

Interview Questions for Representatives in Michigan and Illinois

1. What do you perceive is the overall attitude of the ACT testing regime among students, teachers, administrators, and state officials?
2. Though research would indicate that as more students take the ACT, scores should drop. What do you attribute to rising scores in your state?
3. The main reason _____ (state) has increasing ACT scores is….
4. What is the role of the state department of education in obtaining increasing ACT scores?
5. What are the schools responsibilities in obtaining increasing ACT scores?
6. Students have access to the EXPLORE and the PLAN which have indicated positive results in the participation of these tests. What role does preparation, specifically for the ACT, play in high-achieving scores?
7. Course rigor is also an indication of ACT success. How do you feel that schools within your state compare with other states? Do you believe the schools in your state are more stringent? Why or why not? Ex. Graduation requirements, college acceptance, etc.
8. What are the biggest changes in the education process from before and after all students began taking the ACT?

Appendix D

Letter of Introduction

<Date>

<Title><First Name><Last Name>
<Position>
<School District>
<Address>

Dear <Title><First Name><Last Name>,

Thank you for participating in my research study. I look forward to talking with you on <date><time> to gather your perceptions and insights into best practices for increased ACT achievement.

I have allotted one hour to conduct the interview. With your permission, the interview will be audiotaped to ensure your responses are transcribed accurately.

Enclosed are the interview questions to allow time for reflection before our interview. I have also enclosed the Letter of Informed Consent Form for your review and signature. Your participation in this research study is voluntary and you may withdraw at any time. Confidentiality is assured. If you have questions, please call or send an e-mail (417-546-XXXX or grant.boyer@XXXXXX).

Sincerely,

Grant C. Boyer
Doctoral Candidate
Lindenwood University

Appendix E

Lindenwood University

School of Education

209 S. Kingshighway
St. Charles, Missouri 63301

Informed Consent for Participation in Research Activities

Best Practices for Student Success on the ACT

Principle Investigator: Grant C. Boyer
Telephone: 417-546-XXXX E-mail: grant.boyer@XXXXXXX

Participant _____Contact info _____

1. You are invited to participate in a research study conducted by Grant C. Boyer (researcher) and Dr. Sherry DeVore (advisor). The purpose of this study is to identify best practices for high ACT achievement.

2. Your participation will involve an interview via telephone lasting approximately one hour. With your permission, the interview will be audiotaped to assure your responses are transcribed accurately.
   *I give my permission to audiotape the interview (Participant's initials: ___).

3. The amount of time involved in your participation will be 1 hour or less. Two subjects will be interviewed for this research.

4. There are no anticipated risks associated with this research.

5. There are no direct benefits for you participating in this study. However, your participation will contribute to the knowledge about best practices for increased student achievement on the ACT and provide stakeholders and legislators information to make informed decisions.

6. Your participation is voluntary and you may choose not to participate in this research study or to withdraw your consent at any time. You may choose not to answer any questions that you do not want to answer. You will NOT be penalized in any way should you choose not to participate or to withdraw.

7. We will do everything we can to protect your privacy. As part of this effort, your identity will not be revealed in any publication or presentation that may result from

this study, and the information collected will remain in the possession of the investigator in a safe location.

8. If you have any questions or concerns regarding this study, if problems arise, or you would like the results of the findings, you may call the Investigator, Grant C. Boyer, XXX-XXX-XXXX, or his Faculty Advisor, Dr. Sherry DeVore, XXX-XXX-XXXX.

9. You may also ask questions, or state concerns, regarding your participation to the Lindenwood Institutional Review Board (IRB) by contacting Dr. Jann Weitzel, Vice President for Academic Affairs at 636-949-4846.

I have read this consent form and have been given the opportunity to ask questions. I will also be given a copy of this consent form for my records. I consent to my participation in the research described above.

_____

Participant's Signature Date

_____

Signature of Principle Investigator Date

Appendix F

Lindenwood University

Institutional Review Board Disposition Report

To: Grant Boyer
CC: Dr. Sherry DeVore
IRB Project Number 12-30
Title: *Best Practices for Student Success on the ACT*

The IRB has reviewed your amended application for research, and it has been approved.

Please remember to file a completion report at the end of your research.

Thank you.

Dana Klar

Dana Klar 12/14/11

Institutional Review Board Chair Date

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Vita

Grant C. Boyer was born in Springfield, Missouri, on April 14, 1980. He grew up on a small Wright County farm and attended the Hartville R-II School District from kindergarten through his high school graduation in1998. Grant continued his education at Evangel University in Springfield, Missouri, earning a Bachelor's of Unified Science degree in Education in 2002. He then pursued a Master's of Science degree in Educational Administration from William Woods University, earning his degree in 2005.

Grant began his teaching career in Seymour, Missouri, where he taught Biology, Biology II, Physics, Chemistry, and Physical Science. Three years into his career, Grant moved to Forsyth, Missouri, and began teaching Biology and Biology II, in 2006. In 2008, Grant accepted a position as High School Assistant Principal in the Forsyth District and continued in this position for the next four years. In 2012, Grant accepted his current position in the Taneyville R-II School District as Superintendent.

In addition to his professional journey, Grant is also an active member of the Forsyth First Baptist Church and enjoys spending time with his wife, Sara, and their two young boys, Ben and Noah. Grant and his family enjoy spending as much time outdoors as possible and try to make the most of every day.