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The Relationship Between the Implementation of Freshman Academies and Student Achievement in Math, English, and Science for Schools in Arkansas

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THE RELATIONSHIP BETWEEN THE IMPLEMENTATION OF FRESHMAN ACADEMIES AND STUDENT ACHIEVEMENT IN MATH, ENGLISH, AND SCIENCE FOR SCHOOLS IN ARKANSAS

By

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Abstract

The purpose of the study was to explore the relationship between the implementation of freshman academies and student achievement in math, English, and science in schools in Arkansas. The study presents a review of the literature that discusses the ninth-grade year and the use of freshman academies to improve student achievement. The study consisted of five schools with a freshman academy and 27 schools without a freshman academy. The researcher examined achievement data to determine whether there was a significant difference between the percentage of students passing the ACT Aspire exams taught in a freshman academy versus the students not taught in a freshman academy. The researcher further analyzed data for subgroups to determine whether there was a significant difference between students taught in a freshman academy versus the students not taught in a freshman academy. The subgroups examined in the study were ethnicity and socioeconomic status. No significant difference existed between all student's achievement scores for students taught in a freshman academy versus not being taught in a freshman academy. In addition, there was no significant difference by ethnicity or socioeconomic status in achievement scores for students taught in a freshman academy versus not being taught in a freshman academy.

Keywords: Freshman Academy, Small Learning Community, Student Achievement

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Chapter I: Introduction

According to McIntosh and White (2006), "creating the perfect school environment that ensures academic, social and emotional success for every student is foremost in every administrator's mind and heart" (p. 40). This has been a problem for years. However, the risks are much higher for urban school students. Roderick & Camburn (1999) says, "research has consistently found that urban adolescent's school performance, involvement, and perception of the quality of their school environments decline markedly as they move into secondary schools" (p. 305).

The *No Child Left Behind Act of 2001* and the increased accountability measures that came with the act led many educators and legislators to use standardized test scores as the sole measure for student achievement. This action led to the scrambling of educational leaders to find ways to improve student achievement. School leaders have been trying to find ways to make for a smooth transition to high school for ninth-grade students for many decades (Styron & Peasant, 2010).

The large comprehensive high school or traditional high school was birthed in the early 20th century. Wraga (1998) states, "The comprehensive high school is a unique American invention that was designed to serve the educational needs of modern democratic society (p. 121). However, there has not been much research on the effectiveness of large traditional high schools. Many traditional high schools consisted of disjointed instruction with large student populations (Styron & Peasant, 2010). There has been considerable research done around high-school reform. Lounsbury and Johnston (1985) found many high schools lacked the guidance to help ninth-grade students adjust to high school academically and socially. Students are struggling with the transition from

middle to high school. McCallimore and Saparapani (2010) say, "ninth-graders have the lowest grade point average, the most missed classes, the majority of failing grades, and more misbehavior referrals than any other high school grade level" (p.60). Research has shown with the implementation of freshman academies, there have been some positive outcomes in student achievement (Styron & Peasant, 2010).

Bottoms (2008) says it best "improving student achievement in the ninth-grade can lead to improved graduation rates and improved readiness for college and careers" (p.1). Schools must commit to the work of providing quality instruction, allocating time and resources, and providing necessary supports for students to succeed (Bottoms, 2008, p.2). Schools are tasked with helping students find the inspiration to learn and grow. When students are presented with the goal and purpose for education, see a personal connection with educational options, develop caring relationships with an adult at school, understand the standards for quality work, and see the relevance with their future, they will have the inspiration and effort to succeed (Bottoms, 2008, p.2). Freshman academies have two goals: provide personalization to support students' social and emotional needs and provide the necessary remediation for students who enter high school behind (Emmett & McGee, 2012, p. 75).

This study examined how the implementation of a freshman academy affects student achievement in math, English, and science as measured by performance on the ACT Aspire for ninth-grade school students in schools in Arkansas. Research is needed to determine if student achievement is higher for schools that implement a freshman academy compared to those that do not implement a freshman academy. The researcher examined whether there is a significant difference in student achievement in math,

English, and science for schools with a freshman academy compared to schools without a freshman academy, whether there is a significant difference in student achievement in math, English, and science based on the socio-economic status of the school, whether there is a significant difference in student achievement in math, English, and science for African American students and other ethnic groups as measured by scores on the ACT Aspire.

Background of the Problem

The transition from middle school to high school may appear to be seamless to some that are on the outside looking in, but the transition is potentially the most challenging thing a student will have to do in their educational career. Mac Iver et al. (2015) state, "there is real and important national concern about the large numbers of students who fail to meet the minimal educational standards for a high school diploma-the basic certificate for survival in today's economy" (p. 27). The transition to high school brings many challenges. Many high schools are larger than middle schools, involve more rigorous standards, and have more class transitions throughout the school day (Roderick & Camburn, 1999). Therefore, educators must search for ways to improve student achievement (Styron & Peasant, 2010). Many students are disconnected to school with a lack of excitement for learning, lack of goals for the future, and the lack of a mentor or connection to a caring adult (Bottoms, 2008, p.1). Research around large traditional high schools has shown that the traditional way is counterproductive to ensuring a caring environment (Ellerbrock & Kiefer, 2010, p. 393).

School districts across the nation have prioritized attacking the high dropout rate (Baker & Sansone, 1990). Freshman academies have been formed in large high schools

to improve student achievement, increase student attendance, and lower high school dropout rates. “The Talent Development High School program, supported by John Hopkins University, describes a ninth-grade academy as.

> “a separate transitional program providing for students in their first year of high school that places them with small interdisciplinary teams of 4 or 5 teachers who share the same 150 to 180 students and a block schedule with common planning time (Osler & Waden, 2012, p. 13)”.

The two biggest problems for ninth-grade students are the lack of adequate preparation for high school and the organization of the high schools (Neild, 2009). Schools must do more than focus on the structure of the high school. Neild (2009) states, "evidence is growing that students who fall off track during the freshman year have very low odds of earning a high school diploma" (p. 55). Fulk (2003) states that students in the ninth-grade have more stress with passing their core classes for graduation. The stress of passing the core classes comes the feeling of being disconnected and the lack of interest in school. Implementing freshman academies creates a safe zone for ninth-grade students to succeed (Osler and Walden, 2012). The largest issue that arises when states have high dropout rates is the cost to the state. One dropout will cost a state between $3,000 and $5,000 per year (Bottoms, 2008, p.1). As the high school dropout gets older, the cost to the state will rise well over $10,000, leading to a crisis for the state (Bottoms, 2008, p.1).

Problem Statement

School accountability has increased the need for educators to find ways to improve student achievement (Styron & Peasant, 2010). Whether or not a student completes the ninth-grade is an early indicator of graduating on time (Mac Iver et al.,

2015). Research supports the idea that the freshman year is important. Hence, many schools have invested time and money into creating freshman academies. In addition, many researchers refer to the ninth-grade year as the crucial year of high school, and this fact alone makes it imperative to know if implementing freshman academies in any urban high school is an effective strategy (McCallumore & Sparapani, 2010).

Increasing graduation rates is one of the main areas of school accountability as well as the need for all ninth-grade students to obtain proficiency in math, English, and science. Research has shown with the implementation of freshman academies, there have been some positive outcomes in student achievement (Styron & Peasant, 2010). However, while research has shown positive outcomes, school leaders need to know if implementing freshman academies will yield overall positive results for student achievement.

Purpose of the Study

This quantitative study examined the implementation of freshman academies and how they affect student achievement in math, English, and science on the ACT Aspire for ninth-grade school students in Arkansas. The researcher looked at all schools in the state of Arkansas that have a freshman academy and those schools that do not have a freshman academy structure. Achievement data of students taught in a freshman academy setting was compared to students taught in a traditional school setting. Data were analyzed by factors of socioeconomic status and ethnicity. The purpose of the study was to explore the relationship between the implementation of freshman academies on student achievement in math, English, and science in schools in Arkansas.

Research Questions

1. Is there a significant difference in the percentage of students passing the ACT Aspire math, English, and science exams between schools with a freshman academy and schools that do not have a freshman academy?
2. Is there a significant difference in the percentage of students passing the ACT Aspire math, English, and science exams between schools with a freshman academy and schools that do not have a freshman academy when considering the factor of ethnicity?
3. Is there a significant difference in the percentage of students passing the ACT Aspire math, English, and science exams between schools with a freshman academy and schools that do not have a freshman academy when considering the factor of socioeconomic status?

Theoretical Framework

The theoretical framework that guided this study was the theory of small learning communities. Small learning communities are formed when school leaders take a large comprehensive high school and break it into smaller learning environments. Within this theory, it is asserted that small learning communities provide for more positive school climates, more personalized relationships between students and teachers, more rigorous and relevance in coursework, and an increase in student success (David, 2008).

Significance of the Study

Jackson (2008) says "two intertwined imperatives" face U. S. education today: the first being addressing the problem of persistent underachievement, particularly among minority and low-income students, and second, preparing students for work and civic

roles in a globalized environment, where success increasingly requires the ability to compete, connect, and cooperate in the international scale" (p. 58). With that thought in mind, freshman academies are being used to ease the transition into high school. Research has shown with the implementation of freshman academies, there have been some positive outcomes in student achievement (Styron & Peasant, 2010).

Freshman academies are not implemented at every large high school. Success or failure during the freshman year sets the tone for a student's entire high school career (Hertzog & Morgan, 1999). Offering developmentally responsive support structures at the ninth-grade level is one way to aid in the transition from middle school to high school (Ellerbrock & Kiefer, 2010). As stated by Oxley (2005), "SLCs that have the most success with their students are the ones that serve as the building blocks of school organization and the center of school activities, not as add-ons to the existing school organization" (p.46).

If implemented effectively, the ninth-grade experience for students should yield failure rates to less than five percent and increase the number of students graduating on time to at least ninety percent (Bottoms, 2008, p. 4). Schools should try to house the ninth-grade academy separately from the other grades and have the best teachers. As stated by Bottoms (2008), "the student-teacher ratio should be no higher than in other grade levels. Each team's leader should be one of the best teachers in the school." This research was needed to determine if the successful implementation of freshman academies will improve the transition and achievement of freshman students.

Nature of the Study

This quantitative study used the ex post facto design (causal-comparative design). Specifically, does the implementation of a freshman academy have a significant impact on the math, English, and science achievement scores for students taught within a freshman academy compared to those students that are not taught in a freshman academy? The ex post facto design seeks to determine the cause relationship between variables (Edmonds & Kennedy, p. 98). The study utilized archived ACT Aspire data for the identified schools with a freshman academy and the schools without a freshman academy. The primary purpose of the study was to determine from the archived data if the implementation of freshman academies had an impact on student achievement.

In Arkansas, all students in grades 9 & 10 are assessed in mathematics, reading, writing, and science. This data makes up the school accountability grade for schools. Students are assessed each school year during the month of April and May. Results are returned to schools each July. The schools and school district analyze the data to determine if there was growth in the tested areas for each grade level. Ninth-grade students attending a traditional high school often struggle to reach high levels of academic achievement (Styron & Peasant, 2010). Freshman Academies were birthed with the hopes of reducing dropout rates and improving student achievement (Styron & Peasant, 2010).

Assumptions and Definition of Terms

Small Learning Communities- small schools within the large secondary school where the focus is on the learner and learning. Specifically, the dynamic and collaborative nature of the teachers to provide a rigorous and relevant curriculum (Oxley, 2005).

Freshman Academy - a small learning community created to support first-time ninth-graders make a successful transition to high school. The freshman academy provides targeted academic and emotional support (Holland & Mazzoli (2001).

ACT Aspire - the adopted summative assessment given to all students in grades 3-10 in Arkansas. Students are assessed in English, math, science, and reading.

Achievement Rate- as defined by the Arkansas Department of Education, is a calculated weighted percentage of students who score ready or exceeding on the ACT Aspire.

Socioeconomic status-usually a combination of education and income for a family (American Psychological Association, 2021). Also known as students who qualify for free and reduced lunch.

Traditional High School - a high school that serves students in grades 9-12 as one large school.

For this study, one assumption is that all schools selected operates the freshman academy for first-time ninth-grade students.

Limitations and Delimitations

This study examined archived data from schools in the state of Arkansas that have a freshman academy in place and those that do not. A limitation of the study is that no information will be obtained about the longevity of the teachers teaching in the freshman academy. Additionally, it will not be known how long the administration has been in place at each school with a freshman academy. A change in administration may create a shift in expectations. A delimitation for the study is that all data were collected from the state data portal.

Summary

The transition from middle school to high school may appear to be seamless to some on the outside looking in, but the transition is potentially the most challenging thing a student will have to do in their educational career. School districts across the nation have prioritized attacking the high dropout rate (Baker & Sansone, 1990). Freshman academies have been formed in large high schools to improve student achievement, increase student attendance, and lower high school dropout rates. As stated by Oxley (2005), "SLCs that have the most success with their students are the ones that serve as the building blocks of school organization and the center of school activities, not as add-ons to the existing school organization" (p.46).

This study is comprised of five chapters. Chapter 1 is the introduction, which will include the statement of the problem, research questions, the significance of the study, key terms defined, and the limitations and delimitations of the study. Chapter 2 will be the literature review, which will discuss the research around freshman academies, including small learning communities' history. Chapter 3 will have the methodology for the research, chapter 4 will include the results, and chapter 5 will be the conclusions. This quantitative study used the ex post facto design (causal-comparative design). The researcher specifically examined if the implementation of a freshman academy has a significant impact on the math, English, and science achievement scores for students taught within a freshman academy compared to those students that are not taught in a freshman academy.

Chapter II: Literature Review

The purpose of this study was to explore the relationship between the implementation of freshman academies on student achievement in math, English, and science in schools in Arkansas. The literature review identified the various reasons for the lack of student success in the ninth-grade and the importance of the ninth-grade year for high school students. In addition, the literature review discussed the programs and efforts implemented by school leaders to create school reform for improving the ninth-grade experience and therefore improving student achievement.

Creating an environment that will allow for a smooth transition into high school will create students' successful high school experience. Students will feel supported, confident, and a part of a community. Freshman academies have been formed in large high schools to improve student achievement, increase student attendance, and lower high school dropout rates. The *No Child Left Behind Act of 2001* and the increased accountability measures that came with the act led many educators and legislators to use standardized test scores as the sole measure for student achievement. This action led to the scrambling of educational leaders to find ways to improve student achievement. School leaders have been trying to find ways to make for a smooth transition to high school for ninth-grade students for many decades (Styron & Peasant, 2010).

This literature review provided insight into the freshman academy model through the lens of the history of a traditional high school, the ninth-grade transition, at-risk freshman students, and the characteristics of success for the freshman academy.

Traditional High Schools

The large comprehensive high school or traditional high school was birthed in the early 20th century. As stated by Mirel (2006)

> "For more than a century, American educators and education policymakers have chosen sides in a great debate about the nature and function of American high schools. The origins of this long-running argument can be traced to 1893, when the influential Committee of Ten, a blue-chip panel of educators, issued a report proposing that all public high-school students receive a strong, liberal-arts education. Ever since then we have been fighting about whether our high schools should be college-prep for the masses or, as another blue-ribbon panel would put it 90 years later, a "cafeteria-style curriculum in which the appetizers and desserts can easily be mistaken for the main course."

Dating back to the 1990s, The National Educational Longitudinal Study (NELS) began studies to determine the link between the organization of the high school with student achievement (Neild, 2009). Wraga (1998) states, "The comprehensive high school is a unique American invention that was designed to serve the educational needs of modern democratic society (p. 121). Many traditional high schools consisted of disjointed instruction with large student populations (Styron & Peasant, 2010). Large high schools with large student populations create a sense of "lostness" for freshmen (Emmett & McGee, 2012). Lounsbury and Johnston (1985) found many high schools lacked the guidance to help ninth-grade students adjust to high school academically and socially. One may find the teacher at the front of the classroom talking and students in nice, neat rows listening or half-listening (Holland & Mazzoli, 2001). In their study, Lee &

Burkham (2003) share how school size is a key factor that will influence student success at the school. Their study also highlights the fact that teacher and student relationships are better at smaller schools.

Freshman Academy

The transition from middle school to high school may appear to be seamless to some on the outside looking in, but the transition is potentially the most challenging thing a student will have to do in their educational career. Students everywhere will experience the same problems as they enter high school; anxiety, social pressure, and academic pressures, and responsibility (Clark & Hunley, 2007). Many school leaders have chosen to implement freshman academies to curb the negative results of the ninth-grade year. Freshman academies have two goals: provide personalization to support students' social and emotional needs and provide the necessary remediation for students who enter high school behind (Emmett & McGee, 2012, p. 75). If students are successful during the freshman year, there is an increased likelihood that they will graduate high school and enjoy the high school experience (McIntosh & White, 2006). McIntosh and White (2006) further stated that first-year ninth-graders would have an easier transition if school leaders created a teaming concept on a separate wing of the building for a freshman academy. McCallumore & Sparapani (2010) state the purpose of the isolation is to increase the number of successful ninth-grade students and help with the transition to high school. The structure of the freshman academy is just as important as the location of the freshman academy. McIntosh & White (2006) found that effective freshman academy structures include an administrator and counselor. A key success indicator is a supportive administrator for the freshman academy. The freshman academy counselor is vital as that

person will work with the middle school counselors to ensure students make a successful transition to high school (Montgomery & Hirth, 2011). Bottoms (2008) also has research stating the ideal freshman academy will include all first-time ninth-grade students, have an instructional leader or principal assigned to assist teachers with planning and examining student work, provide common planning time for teachers, common practices within the academy, and mentors or advisors for all students.

Additionally, research by Somers & Piliawsky (2004) found that in a typical urban high school, the caseload for teachers can be exceptionally large, making it difficult for teachers and students to build quality, valuable relationships. Thus, implementing a freshman academy will create a more personalized relationship (Montgomery & Hirth, 2011). Each school has the autonomy to create a freshman academy that will work for its students. The goal of creating a freshman academy is to put supports in place that will allow students to be successful and make academic progress during their ninth-grade year. Scott Habeeb collaborated with many schools across the nation and found the essential components necessary for the maximum impact with the freshman transition (Habeeb, p.20, 2013):

- Make a more nurturing environment where it is difficult for students to slip through the cracks.
- Standardize expectations so that students know what they should do, and teachers know what they should look for to improve expectations.
- Equip students with belief systems they need to learn and succeed.
- Create classroom cultures where excellence occurs.
- Teach students organizational and time-management strategies.

• Foster effective parent-teacher contact.

• Ensure that the teachers of freshmen grow professionally and use the latest and greatest strategies in pedagogy and technology.

• Recognize freshmen for their accomplishments and make them feel at home within the high school.

• Preemptively and proactively provide support services for students who fall behind

Ninth-grade transition

All transition supports and the transition program will aid in a more developmentally responsive transition for students as they transition from middle to high school. The effects of the transition to high school affect students in different ways. Students need a caring school community that will ensure needs are met and provide a sense of belonging. Wilder et al. (2009) state that the transition from middle school to high school "has been an extremely critical factor" in the students' experiences in high school and their level of academic achievement (p. 11). An effective transition program can transform a school from the bottom up (Habeeb, 2013). Dedmond (2008) recommended implementing courses that would assist students in identifying goals for future education and career plans. Creating a small learning community that includes common planning time, academic and behavior incentives, and a ninth-grade transition course support a community of care (Ellerbrock et al., 2015). In their study, Flannery et al. (2000) found that implementing the Freshman Success transition program improved student engagement, motivation, and achievement. It is becoming more apparent that a

multitiered system of support is needed to improve student achievement (Flannery et al., 2020).

The creation of a freshman success program will provide an opportunity for increased student engagement during the ninth-grade year, which will foster increased student achievement (Flannery et al., 2020). Having some type of intervention model has shown to affect student participation, attendance, and credits earned directly. Neild (2009) found evidence of low odds for students to graduate from high school if they fall off track during their ninth-grade year. First-time ninth-grade students need the additional preparation for high school and the resources offered by high schools to assist with the transition (Styron & Peasant, 2010). It is essential to determine the elements necessary for the successful transition to the ninth-grade and ensure students are not retained. Providing some form of summer transition program will increase the student's motivation for high school. Activities may include academic expectations, school tours, and social activities (Hazel et al., 2014). Grossman & Cooney (2009) found that the preparation middle school students receive for the transition into high school not only affects whether they graduate high school but also "the odds of staying in college until graduation" (p. 1). The research supports transition programs have a positive impact on the academic success of students. The ninth-grade transition is also a time when parents become less involved in their child's education (Chmelynski, 2003). Chmelynski (2003) further states that freshman academies are most successful when a transition committee comprises the parents of the eighth-graders, teachers, students, and administrators.

According to Neild (2009), there are four reasons that ninth-graders struggle during the transition to high school 1) high school organization and culture, 2) inadequate

preparation for high school, 3) transition to a new school, and 4) life-course changes. Styron & Peasant (2010) conducted a study to determine the effects on student achievement (standardized test scores) for students enrolled in ninth-grade academies compared to students enrolled in ninth-grade within a traditional high school. The results showed higher student achievement for students enrolled in ninth-grade academies than those enrolled in a traditional high school setting.

One of the most important aspects of high school for ninth-grade students is positive and affective student-teacher relationships (Longobardi et al., 2016). Longobardi et al. (2016) conducted a study to investigate the quality of teacher-student relationships on academic achievement. The findings from the study showed that both average and varying levels of closeness with teachers significantly predicted changes in academic achievement. This study supports the significance of student-teacher relationships as a protective factor during students' transition to high school (Longobardi et al.,2016).

The transition between the middle grades and high school is seen as a process, not an event. Students that have a successful transition are more likely to have high student achievement and attend regularly. In addition, these same students will develop and sustain positive social relationships with peers and with adults (Reents, 2002). Reents (2002) found there were four components to an effective transition process: providing students and families accurate and helpful information, supporting students' social success in high school, preparing students for academic success in high school, and working collaboratively to monitor transition plans and adjust those plans based on data about student success (Reents, 2002).

Block Scheduling

Scheduling is an essential aspect of freshman academies. Block scheduling has been used to address the needs of gifted students as well as at-risk students. Schools are also implementing block scheduling to address student discipline, improve test scores, and improve the learning experience. Gruber & Onwuegbuzie (2001) define block scheduling as reorganizing the instructional day by providing more than 50-minute classes. Gruber & Onwuegbuzie (2001) researched to determine what effect being taught in a 4X4 block schedule had on student achievement compared to students being taught in a traditional setting. In the study, (Gruber & Onwuegbuzie, 2001) found that teachers who felt teaching on a 4 x 4 block schedule provided fewer class preparations, fewer students per semester, and less paperwork to complete. Students also favored block scheduling, believing it would allow for less homework (Gruber & Onwuegbuzie, 2001). However, Gruber & Onwuegbuzie (2001) found no correlation between the scheduling method and student achievement.

Carroll (1990) found that structuring the school into blocks of 90 minutes will alleviate students' feeling of being overwhelmed. Stader & DeSpain (1999) conducted research comparing block scheduling to traditional scheduling, revealing that teachers and administrators perceive block scheduling to have contributed to student achievement. Further, it was found that there were improvements in the quality of student work, depth of subject matter taught, student retention of material, and an increase in student enrollment in advanced courses (Stader & DeSpain, 1999).

Most freshman academies implement some form of block scheduling. Block scheduling provides flexibility within the freshman academy. Clark & Hunley (2007)

found Muhlenberg High School in Kentucky to use many of the tenets of a small learning community without implementing a fully functioning freshman academy. One aspect was the creative scheduling for the freshman students for their core and elective courses.

Banner, K., & Myers, J. (2015) found a high school in Knoxville, TN that created a freshman academy known as FRAC. At this high school, the administration used an alternating block schedule that created a common plan for freshman teachers to provide academic support for students in English I and Algebra I. After the creation of the FRAC, the Algebra I students met their achievement objectives, and the freshman performance was 12% above the schoolwide data.

Collaborative Planning

Collaborative planning time or structured team meetings is a critical aspect of implementing freshman academies and contributes to its success (Emmett & McGee, 2012, p. 74). Collaborative planning time allows teachers to discuss the same students and create plans for interventions for students. Rimpola (2014) found that collaboration between teachers was necessary to create effective lessons that addressed students' needs. Teachers benefit from collaborative planning as they will have the potential to learn from each other by sharing their best practices, providing feedback to each other, and helping with any of the daily issues that arise within the classroom with students (Rimpola, 2014). Thus, collaborative planning between teachers has the potential to improve student achievement for schools.

Teacher collaboration is a key component of implementing a freshman academy successfully. Freshman Academy teachers must be committed to the process. Teachers getting together in a group is not collaborative planning. Instead, the teachers must

collaborate to commit to the process and focus on the student's needs (Rimpola, 2014). One important outcome for collaborative planning is the teacher learning around pedagogy and the reflections on lessons taught (Rimpola, 2014).

Another important aspect of collaborative planning is the freshman academy teachers will utilize the time to develop common expectations for the freshman academy that will be used in all freshman academy classrooms (Banner & Myers, 2015). Operating with a common set of expectations will bring less confusion to students around expectations within the freshman academy. After common expectations are created, the teachers will have the time to focus on students' academic and social needs in the freshman academy. During collaborative meetings, teachers can share effective strategies they are using to increase student achievement and growth (Emmett & McGee, 2012). Emmett & McGee (2012) discussed the implementation of a freshman academy at West High School in Bakersfield, CA. After two years, student achievement improved, literacy skills improved, and student discipline was reduced. According to Habeeb (2013), when at least four core teachers share a group of common students and meet regularly, it will create a nurturing and supportive environment. Allowing time for teachers to collaborate will empower teachers to learn from one another and meet daily to support students and one another (Habeeb, 2013).

Salem High School in Salem, VA, implemented strategies that contributed to freshman success (Osler & Waden, 2012). The strategies included:

- The creation of a team of core teachers, English, math, science, and World History. The teachers were provided a common planning period to

develop common expectations, meet with parents, and develop cross-curricular assignments.

- Each student had the same four teachers for the same four classes.
- The team created a common system of rules, procedures, and expectations.
- The team identified common problems and used the time to discuss solutions.

Urban Schools

Student deficits, low-income family structure, genetic explanations about achievement, and cultural mismatch theories persist within the culture of schools (Friend & Caruthers, 2012). According to Patterson et al. (2007), "for many urban school districts, the response to the dehumanizing condition of the large urban high school has been the creation of smaller learning communities (SLC)" (p.9). Patterson et al. (2007) wanted to determine if there were any differences between student achievement, attendance, and discipline of students within the freshman academy compared to students, not in the freshman academy. The data from the study showed there were positive correlations for student achievement, attendance, and discipline for students taught in a freshman academy. Friend & Caruthers (2012) found that students want their instruction to be active and engaging, to receive recognition for their talents and strengths, and have caring teachers. In the study done by Patterson et al. (2007), it was found that students thought it was important to have the opportunity to get to know their teachers. Patterson et al. (2007) further state that the main reasons students give for dropping out of school were the importance of building a student and teacher relationship.

Knapp et al. (2013) say urban schools are described as schools that are pervaded by high concentrations of poverty, a diversity of racial, cultural, and language backgrounds, and over-crowdedness. Teaching and learning in an urban school setting often produce less than other schools, leading to low-level student performance on various accountability assessments (Knapp et al., 2013). Educators in urban schools learn to maneuver around the various circumstances that students in urban schools bring to school with them (Friend & Caruthers, 2012).

Often there is very little parental involvement in urban schools. Increasing parental involvement is a huge task for urban school administrators. Mapp (2004) found that research supports the notion that parental involvement increases student achievement regardless of the child's race, grade level, and socioeconomic class. However, many parents of color were found to participate even less in any school-sponsored activities. Anderson & Minke (2007) say regardless of what administrators may believe, when parents perceive their child and their child's administrators wants them to be involved, then they will be involved. The school's administrative team must make the extra effort to create an environment where parents or guardians feel welcomed in the building, which will, in turn, improve their willingness to assist with their child's education. When students enter high school, especially in an urban school, there are various risk factors that school leaders and teachers must address. Some of these risk factors are dropout rates, high mobility rates, school size, and poverty (Montgomery & Hirth, 2011). As a result, students in urban schools become disengaged at the start of the middle grades, which significantly reduces the odds of eventually graduating. Balfanz et al. (2007) conducted a study that looked at the practical, conceptual, and empirical foundations of

early identification and intervention system for middle-grade schools and how each could help alleviate student disengagement and increase graduation rates.

At-Risk Students

At-Risk students can be defined as students who are highly likely to drop out of high school (National Center for Education Statistics, 1992). One central aspect that school leaders investigate when determining at-risk students is the graduation rate and family and societal issues. School districts across the nation have made attacking the high dropout rate a priority. (Baker & Sansone, 1990). Baker & Sansone (1990) wanted to determine if school structure had any impact on student success and found that schools should use any interventions available to prevent students from dropping out of high school. Students face social and vocational challenges if they are unsuccessful in high school. Montgomery & Hirth (2011) studied the freshman transition program HEART and the effects of implementing the program for at-risk students on high school students. The HEART program had a positive influence on students' GPA. Osler & Waden (2013) found that ninth-grade academies and centers have a positive effect on the students' academic success and aid in the retention of students.

McCallimore and Saparapani (2010) say, "ninth-graders have the lowest grade point average, the most missed classes, the majority of failing grades, and more misbehavior referrals than any other high school grade level" (p.60). One study in the research discusses the various risks that students possess when they enter high school. It was found that the supports of teaching teams and the ability of the teachers to support the needs of students, led to significant changes within schools and districts (Hazel et al., 2014).

Neild (2009) investigated four theories about why ninth-grade poses difficulties for some

students. First, ninth-grade overlaps with other life changes, such as increased peer influence. The second is that moving to a new school means losing some of the relationships built in middle school with teachers and students. The third is that many are inadequately prepared for high school. The final theory is that the organization of some high schools is itself a major source of students' difficulty. Being inadequately prepared for high school was the theory with the most effect. Further research (Neild et al.,2007) discovered that if middle school students exhibited at least one of the following red flags, they would not complete high school:

- Failed mathematics
- Failed English
- Have an attendance rate of below 80% for the school year
- Have an “unsatisfactory” behavior mark in at least one class

ACT Aspire

The ACT Aspire is a yearly summative criterion-referenced assessment used by the state to determine the college and career readiness for students in grades 3 -10 in the areas of English, math, science, writing, and reading (Division of Elementary and Secondary Education (DESE), 2020). The ACT Aspire test is also used as a predictor for the ACT score for each student assessed. The test consists of various question types and can be administered via the computer or paper and pencil. The student achievement scores in math, English, and science from the ACT Aspire will be used to measure student achievement. The data collected for this study will be retrieved from the My

School Info section within the data center of the Arkansas Department of Education for the academic school years 2017-2021.

The Arkansas Department of Education contracts with Pearson for the ACT Aspire assessment. The validity and reliability of the assessment are thorough. Data retrieved from My School Info is valid and reliable. There will be no individual student data accessed via My School Info. The My School Info section allows the public to view and compare achievement data for any school or district within the state (DESE, 2020). The ACT Aspire has structures built into the system for administration security and the collection of evidence for score interpretation. As with anything, inconsistencies are possible within the differing administration organizations (ACT Aspire Technical Manual, 2020). Care will be taken to ensure internal validity. Edmonds & Kennedy (2013) says, "the major threat is selection bias (p. 98)".

Characteristics of an Effective Academy

Creating a ninth-grade academy is not only for the success of first-time ninth-grade students but for the overall positive effects on school culture and climate. With the goal of a freshman academy being to ensure academic success for all students and prepare the students for the next level, there are characteristics that will help determine the effectiveness of the freshman academy. Scott Habeeb found in his research six characteristics that make for an effective freshman academy: be flexible, be thrifty because change can be implemented without lots of funding being available, be positive because having the buy-in and commitment from the school community goes a long way, be effectual, be empowering, and be efficacious (Habeeb, p. 20, 2013). During their research, Roybal et al. (2014) found successful freshman academies were a

comprehensive program with numerous strategies. In addition, Roybal et al. (2014) found the following interventions to be effective with freshman academies:

- Common planning time for the teachers within the academy.
- Increased parental involvement at the high school.
- System in place for homework assistance.
- Incentives for students, for attendance, grades, and citizenship.
- Block scheduling.

Longobardi et al. (2016) investigated the effects a positive student-teacher relationship has on student achievement for students making the transition from middle school to high school. The outcome was that students felt a positive relationship was influential in their success as they transitioned to high school. Habeeb (2013) discussed how the entire school would benefit from creating a ninth-grade academy, especially if the students are strategically separated from the upper-class students. In their research, Osler & Waden (2012) found that Patterson High School in Baltimore, Maryland observed significant gains with implementing strategies that increased ninth-grade students being promoted to the tenth grade.

Research Questions

The purpose of this study was to explore the relationship between the implementation of freshman academies on student achievement in math, English, and science in schools in Arkansas. Specifically, the researcher will answer the following questions:

1. Is there a significant difference in the percentage of students passing the ACT Aspire math, English, and science exams between schools with a freshman academy and schools that do not have a freshman academy?

2. Is there a significant difference in the percentage of students passing the ACT Aspire math, English, and science exams between schools with a freshman academy and schools that do not have a freshman academy when considering the factor of ethnicity?
3. Is there a significant difference in the percentage of students passing the ACT Aspire math, English, and science exams between schools with a freshman academy and schools that do not have a freshman academy when considering the factor of socioeconomic status?

Theoretical Framework

The theoretical framework that guided this study was the theory of small learning communities (SLC). Small learning communities are formed when school leaders take a large comprehensive high school and break it into smaller learning environments. Within this theory, small learning communities provide for more positive school climates, more personalized relationships between students and teachers, more rigorous and relevance in coursework, and an increase in student success (David, 2008). Implementing a small learning community will provide a nurturing environment for students, decentralize the typical large comprehensive high school into small central units in one school, increase personalized learning, create relevance and rigor for student coursework, and create an environment for teachers to collaborate (David, 2008). The success of SLCs is established in the literature.

The Elementary and Secondary Education Act authorized the implementation of the small learning community model (Implementation study of smaller learning communities, 2008). The freshman academy is one model used under the theory of small

learning community. The research found, according to the United States Department of Education (2008), the freshman academy, along with implementing career academies, is one of the most widely implemented types of smaller learning communities. In the beginning, the federal government provided millions of dollars to schools to implement small learning communities. There were also grant monies supplied to large urban high schools by Bill and Melinda Gates to implement small learning communities. Research supports the implementation of freshman academies based on improved student achievement, graduation rates, and the feeling of safety from students. Kilby (2006) suggests there is an increased feeling of safety from the connection to a caring adult with the small learning community. Research around small learning communities aligns students' poor performance with poor social ties (Lee and Friedrich, 2007). Lee and Friedrich (2007) say, "smaller learning environments provide students with social supports such as mentoring, personal guidance, social attachment, adult advisory systems, and social ties that are directly or indirectly linked to improvements in student achievement" (p. 267). In her research on small learning communities, Cotton (2001) found that implementing small schools reduced the negative effects of poverty. It is noted that minority students have higher achievement in small learning community environments (Cotton, 2001). By 2003 over 55% of high schools had started a freshman academy (Bernstein et al., 2008).

Chapter III: Methodology

The transition from middle school to high school may appear to be seamless to some on the outside looking in, but the transition is potentially the most challenging thing a student will have to do in their educational career. Roderick & Camburn (1999) says, "research has consistently found that urban adolescent's school performance, involvement, and perception of the quality of their school environments decline markedly as they move into secondary schools" (p. 305). School leaders have been trying to find ways to make for a smooth transition to high school for ninth-grade students for many decades (Styron & Peasant, 2010). This quantitative study looked at how the implementation of a freshman academy affects student achievement in math, English, and science as measured by performance on the ACT Aspire for ninth-grade school students in schools in Arkansas. The researcher examined data for schools in Arkansas that have a freshman academy and those that do not have a freshman academy structure. This chapter will discuss the research design, information regarding the population and sample size of the study, the instrumentation, and data collection processes, and lastly, the process for the statistical analysis. The researcher answered the following research questions in this study.

1. Is there a significant difference in the percentage of students passing the ACT Aspire math, English, and science exams between schools with a freshman academy and schools that do not have a freshman academy?
2. Is there a significant difference in the percentage of students passing the ACT Aspire math, English, and science exams between schools with a freshman

academy and schools that do not have a freshman academy when considering the factor of ethnicity?

3. Is there a significant difference in the percentage of students passing the ACT Aspire math, English, and science exams between schools with a freshman academy and schools that do not have a freshman academy when considering the factor of socioeconomic status?

Research Methodology

Research has shown with the implementation of freshman academies, there have been some positive outcomes in student achievement (Styron & Peasant, 2010). With the understanding that many students are struggling with the transition from middle to high school, McCallimore and Saparapani (2010) say, "ninth-graders have the lowest grade point average, the most missed classes, the majority of failing grades, and more misbehavior referrals than any other high school grade level" (p.60). Bottoms (2008) says it best "improving student achievement in the ninth grade can lead to improved graduation rates and improved readiness for college and careers" (p.1). Schools must commit to the work of providing quality instruction, allocating time and resources, and providing necessary supports for students to succeed (Bottoms, 2008, p.2).

School districts across the nation have prioritized attacking the high dropout rate (Baker & Sansone, 1990). Ninth-grade students attending a traditional high school struggle to reach high levels of academic achievement. Freshman Academies were birthed with the hopes of reducing dropout rates and improving student achievement (Styron & Peasant, 2010). The main goals of a freshman academy are to provide personalization and support to students' social and emotional needs and provide the

necessary remediation for students who enter high school behind (Emmett & McGee, 2012, p. 75).

This quantitative study looked at how the implementation of a freshman academy affects student achievement in math, English, and science as measured by performance on the ACT Aspire for ninth-grade students in schools in Arkansas. Achievement data in math, English, and science were analyzed for students taught in a freshman academy and their achievement compared to students taught in a traditional school setting. The researcher also analyzed achievement data based on the ethnicity of students and their socioeconomic status as defined by eligibility to receive free and reduced lunch.

The researcher used the causal-comparative design for this study. Quantitative studies are used to explain relationships or describe the association among variables (Edmonds & Kennedy, 2013). The casual-comparative design was selected for the study because there are two specific groups at the center of the research, schools with a freshman academy and schools without a freshman academy (traditional high school). The two groups will be compared based on student achievement, the dependent variable. The researcher is attempting to determine if the freshman academy had any effect on student achievement. The essence of casual-comparative research is determining the cause for the difference between the groups (Gay et al., 2012). According to Patton (2013), "the advantage of a quantitative approach is that it's possible to measure the reactions of a great many people to a limited set of questions, thus facilitating comparison and statistical aggregation of the data" (p.22). The purpose of this study was to explore the relationship between the implementation of freshman academies and student achievement in math, English, and science in schools in Arkansas.

Research Design

The researcher used the ex post facto design (causal-comparative design). The ex post facto design seeks to determine the cause relationship between variables (Edmonds & Kennedy, p. 98). With causal-comparative, the researcher compared two or more groups in terms of a cause (Creswell, 2018). This non-experimental approach was selected to analyze the independent variable (freshman academy status) and how it will affect student achievement (dependent variable) in math, English, and science as measured by the ACT Aspire in Arkansas.

The researcher attempted to determine if the implementation of freshman academies is the leading factor in the differences between student achievement for students in a freshman academy compared to students, not in a freshman academy. It is common in education to conduct prospective causal-comparative research (Gay et al., 2012). This approach is helpful for educational leaders who may be looking to determine if spending specific amounts of money on a program will be beneficial. Thus, there were two comparison groups, implemented freshman academy and no freshman academy implemented. The researcher used descriptive statistics and inferential statistics for data analysis and interpretation.

The study utilized archived ACT Aspire data for the identified schools with a freshman academy and schools without a freshman academy. The purpose of the study was to determine if the implementation of freshman academies had an impact on student achievement for all students, African American students and other ethnic groups, and low socioeconomic students. In Arkansas, all students in grades 9 & 10 are assessed in mathematics, reading, writing, and science. This data makes up the school accountability

grade for schools. Students are assessed each school year during the months of April and May. Data is returned to schools each July. Currently, the schools and school district analyze the data to determine if there was growth in the tested areas for each grade level.

Participants

The population of this study was comprised of ninth-grade students enrolled in a public school in the state of Arkansas that has implemented a freshman academy and ninth-grade students enrolled in a public school in the state of Arkansas that has not implemented a freshman academy. There are schools in the state of Arkansas that operate as a junior high school to include grade 7 through grade 9. The researcher included those selected schools in the study. Additionally, some schools in the state operate as a high school to include grade 10 through grade 12. Such schools were not included in the population for the study. Furthermore, schools in Arkansas that are a part of the department of corrections system or virtual school system were not included in the study. The study included data from public charter schools.

The researcher obtained a list of all schools in Arkansas from the Department of Education Data Center. The list included the school's name, principal, principal email address, and a school telephone number. Schools were deleted from the list if they did not have ninth-grade students, were a part of the department of corrections, or were a virtual school. An email was sent to all principals on the revised list. The email included information about the researcher, the purpose of the study, and a brief questionnaire to complete (See Appendix A). The questionnaire was provided as a Google form which provided for easy data collection for the researcher. The questionnaire asked the principals if their school had a freshman academy and, if so, how long had the freshman

academy been in operation on the campus. It also asked for the name of the school containing the 9th grade. Principals were asked to complete the questionnaire within a week. The email informed the principals that the time to complete the questionnaire should be less than five minutes.

Data Collection

Questionnaire responses were compiled into two groups. Group A was for all schools that responded that they have a freshman academy on campus. Group B was for all schools that responded that they did not have a freshman academy on campus. Archived data was collected for group A and group B for 2017-2018, 2018-2019, 2020-21. Due to the global pandemic, no standardized testing was conducted during the 2019-20 school year. The achievement data was retrieved from My School Info within the Arkansas Department of Education data center. My School Info allows the public to view and compare achievement data for any school or district within the state (DESE, 2020). The data retrieved for math, English, and science was specific for ninth-grade students. Data are categorized as the percent of students exceeding, ready, close, and in need of support. It is further categorized by gender, ethnicity, economically disadvantaged, students with disabilities, English learners, homeless and gifted talented. Data are not reported for any category that has less than ten students represented on the test. For this study, the percent of students classified as Ready or Exceeding was combined to create a new variable called Passing. This variable was used to determine whether there are any significant differences in the percentages of students passing the ACT Aspire test in schools that have a freshman academy and those that do not.

Instrumentation

This quantitative study examined how the implementation of a freshman academy affects student achievement in math, English, and science as measured by performance on the ACT Aspire for ninth-grade school students in schools in Arkansas.

The researcher looked at three continuous variables; ACT Aspire math, English, and science scores for schools with a freshman academy implemented and ACT Aspire math, English, and science scores for schools without a freshman academy implemented. Students in group A were taught in a school with a freshman academy, while students in group B were taught in a school without a freshman academy. Achievement data from two subgroups, ethnicity, and SES (free and reduced lunch), categorical variables, were also collected for each group. Since the study involved archived data, no instrument was used other than the questionnaire sent to the principal.

Data Analysis

The researcher answered the following research questions. First, is there a significant difference in the percentage of students passing the ACT Aspire math, English, and science exams between schools with a freshman academy and schools that do not have a freshman academy? Second, is there a significant difference in the percentage of students passing the ACT Aspire math, English, and science exams between schools with a freshman academy and schools that do not have a freshman academy when considering the factor of ethnicity? Third, is there a significant difference in the percentage of students passing the ACT Aspire math, English, and science exams between schools with a freshman academy and schools that do not have a freshman academy when considering the factor of socioeconomic status?

Data were analyzed using SPSS Software. To answer the first question, a t-test was run and used p =.05 as the level of significance. The percentage of students passing the individual ACT Aspire math, English, and science exams in Group A was compared to those in Group B. The two groups were further analyzed, considering the factors of ethnicity and socio-economic status to answer questions two and three. Knapp (2018) says the *t*-test is used when there are two groups wherein each group renders a continuous variable for the outcome (p. 81). Using the t-test allowed for analyzing the means and producing a *p*-value that determines if there is a significant difference in the means leading to the acceptance or rejection of the proposed hypothesis.

Summary

This quantitative study examined how the implementation of a freshman academy affects student achievement in math, English, and science as measured by performance on the ACT Aspire for ninth-grade students in schools in Arkansas. This chapter discussed the three research questions the researcher answered in the study. Lastly, this chapter discussed the research design, information regarding the population and sample size of the study, the instrumentation, and data collection processes, and lastly, the process for the statistical analysis.

Chapter IV: Results

This chapter discusses the data analysis collected during this study. The purpose of this quantitative causal-comparative study was to examine the implementation of freshman academies, and how they affect student achievement in math, English, and science on the ACT Aspire for ninth-grade school students in Arkansas. With student achievement being the dependent variable, achievement data, as measured by student performance of the ACT Aspire, were analyzed to determine if there were any statistical differences in achievement for schools that housed a freshman academy when compared to schools that did not have a freshman academy. A principal questionnaire was sent to all principals in the state of Arkansas that had ninth-grade students on their campus. A total of two hundred eighty-nine questionnaires were sent to principals. The questionnaire responses were used to create two groups, schools with a freshman academy and schools without a freshman academy. There were twenty-seven responses for no freshman academy and eight responses for having a freshman academy. Of the eight responses, three of the schools just started their freshman academy during the 2021-22 school year and thus will not have any data included in the analysis. Also, some of the schools may not have data for one of the years, depending on when they started their freshman academy on their campus. The achievement data was obtained from the Arkansas Department of Education Data Center, My School Info for the schools in each group.

Analysis of Research Questions

Data were organized into a table and included the passing percentage for ninth-grade students at schools with a freshman academy and schools without a freshman academy for the years 2017-18, 2018-19, 2020-21. Due to the global pandemic, no

standardized testing was conducted during the 2019-20 school year. Data were analyzed using SPSS Software. An independent samples t-test was conducted to compare the ACT Aspire passing scores for students taught in a freshman academy with those not taught in a freshman academy for each content area.

Research question 1: Is there a significant difference in the percentage of students passing the ACT Aspire math, English, and science exams between schools with a freshman academy and schools that do not have a freshman academy?

An independent-samples t-test was run to determine if there were differences in ACT Aspire passing scores in math, English, and science involving schools that implemented a freshman academy and those that did not during the three years in question. In the 2017-18 school year, schools that did not have a freshman academy had a higher percentage of students passing the math exam than schools with a freshman academy. However, the difference was not statistically different, $t(28) = .36$, $p = .723$. Likewise, schools that did not have a freshman academy had a higher percentage of students passing the English and science exams than schools with a freshman academy. However, the difference was not statistically different for English, $t(28) = .34$, $p = .734$, nor for science, $t(28) = .43$, $p = .673$. Table 1 displays the mean percentage passing the ACT Aspire for all students in English, math, and science for freshman academy schools and non-freshman academy schools. The level of significance was set at $p = .05$.

Table 1

Mean Percentage Passing ACT Aspire Achievement Test – All Students

Exam	Year	Academy	N	Mean	Std Dev	Std Error
Math	17-18	No Academy	26	34.24	12.00	2.35
		Academy	4	31.83	16.33	8.17
English	17-18	No Academy	26	45.26	10.57	2.07
		Academy	4	43.21	15.24	7.62
Science	17-18	No Academy	26	32.62	10.82	2.12
		Academy	4	30.09	12.83	6.41
Math	18-19	No Academy	27	33.79	13.13	2.53
		Academy	4	30.61	15.81	7.91
English	18-19	No Academy	27	42.93	13.09	2.52
		Academy	4	39.98	13.12	6.56
Science	18-19	No Academy	27	36.40	13.85	2.66
		Academy	4	29.38	14.21	7.11
Math	20-21	No Academy	27	23.20	9.66	1.86
		Academy	5	19.21	12.28	5.49
English	20-21	No Academy	27	33.53	11.09	2.13
		Academy	5	31.91	20.14	9.01
Science	20-21	No Academy	27	27.68	9.71	1.87
		Academy	5	22.69	14.93	6.67

In the 2018-19 school year, schools that did not have a freshman academy had a higher percentage of students passing the math exam than schools with a freshman academy. However, the difference was not statistically different, $t(29) = .44$, $p = .662$. Likewise, schools that did not have a freshman academy had a higher percentage of

students passing the English and science exams than schools with a freshman academy. However, the difference was not statistically different for English, $t(29) = .42$, $p = .678$, nor for science, $t(29) = .94$, $p = .353$.

In the 2020-21 school year, schools that did not have a freshman academy had a higher percentage of students passing the math exam than schools with a freshman academy. However, the difference was not statistically different, $t(30) = .82$, $p = .421$. Likewise, schools that did not have a freshman academy had a higher percentage of students passing the English and science exams than schools with a freshman academy. However, the difference was not statistically different for English, $t(30) = .26$, $p = .798$, nor for science, $t(30) = .97$, $p = .340$.

Research question 2: Is there a significant difference in the percentage of students passing the ACT Aspire math, English, and science exams between schools with a freshman academy and schools that do not have a freshman academy when considering the factor of ethnicity? Data were collected for African American, Hispanic, and Caucasian students for the selected years for the study.

To answer question two, an independent samples t-test was conducted to determine if there were differences in ACT Aspire passing scores for African American students in math, English, and science involving schools that implemented a Freshman Academy and those that did not during the three years in question. Table 2 summarizes the data analysis for African American students passing on the ACT Aspire for the given years. In the 2017-18 school year, schools with a freshman academy had a higher percentage of African American students passing the math exam than schools without a freshman academy. However, the difference was not statistically different, $t(8) = -.03$, $p = .974$.

Likewise, schools with a freshman academy had a higher percentage of African American students passing the English and science exams than schools without a freshman academy. However, the difference was not statistically different for English, $t(8) = -1.12$, $p = .297$, nor for science, $t(8) = -.71$, $p = .498$.

Table 2

Mean Percentage Passing ACT Aspire Achievement Test – African American Students

Exam	Year	Academy	N	Mean	Std Dev	Std Error
Math	17-18	No Academy	6	16.86	7.74	3.15862
		Academy	4	17.07	11.57	5.78561
English	17-18	No Academy	6	26.25	7.52	3.06999
		Academy	4	34.18	15.14	7.56901
Science	17-18	No Academy	6	15.88	8.05	3.28737
		Academy	4	20.45	12.55	6.27544
Math	18-19	No Academy	8	18.73	12.17	4.30144
		Academy	4	20.18	17.62	8.80945
English	18-19	No Academy	8	20.79	11.61	4.10413
		Academy	4	26.97	11.44	5.72248
Science	18-19	No Academy	8	15.18	10.70	3.78249
		Academy	4	21.25	17.16	8.57826
Math	20-21	No Academy	6	6.26	2.40	.98183
		Academy	5	8.98	4.86	2.17334
English	20-21	No Academy	6	15.55	11.50	4.69520
		Academy	5	17.03	8.84	3.95211
Science	20-21	No Academy	6	8.88	5.95	2.42774
		Academy	5	8.61	4.80	2.14822

During the 2018-19 school year, schools with a freshman academy had a higher percentage of African American students passing the math exam than schools without a freshman academy. However, the difference was not statistically different, $t(10) = -.17$, $p = .868$. Similarly, schools with a freshman academy had a higher percentage of African American students passing the English and science exams than schools without a freshman academy. However, the difference was not statistically different for English, $t(10) = -.87$, $p = .403$, nor for science, $t(10) = -.76$, $p = .463$.

In the 2020-21 school year, schools with a freshman academy had a higher percentage of African American students passing the math exam than schools without a freshman academy. However, the difference was not statistically different, $t(9) = -1.21$, $p = .256$. Likewise, schools with a freshman academy had a higher percentage of African American students passing the English exam than schools without a freshman academy. However, the difference was not statistically different for English, $t(9) = -.24$, $p = .819$. Lastly, schools without a freshman academy had a slightly higher percentage of African American students passing the science exam than schools with a freshman academy. Still, the difference was not statistically different for science, $t(9) = .08$, $p = .938$.

The second component of research question 2 compared scores of Hispanic students in schools with a freshman academy and schools that do not have a freshman academy. Table 3 summarizes the data for Hispanic students passing the ACT Aspire for the given years.

Table 3

Mean Percentage Passing ACT Aspire Achievement Test – Hispanic Students

Exam	Year	Academy	N	Mean	Std Dev	Std Error
Math	17-18	No Academy	6	19.62	10.11	4.13
		Academy	4	26.48	16.15	8.08
English	17-18	No Academy	6	27.83	9.63	3.93
		Academy	4	35.59	18.34	9.17
Science	17-18	No Academy	6	19.28	9.83	4.01
		Academy	4	25.00	7.50	3.75
Math	18-19	No Academy	8	20.85	5.94	2.10
		Academy	4	25.03	9.11	4.55
English	18-19	No Academy	8	30.36	6.95	2.46
		Academy	4	33.73	8.57	4.28
Science	18-19	No Academy	8	24.90	10.69	3.78
		Academy	4	23.01	8.64	4.32
Math	20-21	No Academy	6	14.83	7.60	3.10
		Academy	5	19.49	11.47	5.13
English	20-21	No Academy	6	16.93	9.22	3.76
		Academy	5	33.77	17.44	7.80
Science	20-21	No Academy	6	17.93	5.53	2.26
		Academy	5	20.63	15.75	7.04

An independent-samples t-test was conducted to determine differences in ACT Aspire passing scores for Hispanic students in math, English, and science involving schools that implemented a Freshman Academy and those that did not during the three years in question the study. In the 2017-18 school year, schools with a freshman academy

had a higher percentage of Hispanic students passing the math exam than schools without a freshman academy. However, the difference was not statistically different, $t(8) = -.84$, $p = .428$. Similarly, schools with a freshman academy had a higher percentage of Hispanic students passing the English and science exams than schools without a freshman academy. However, the difference was not statistically different for English, $t(8) = -.89$, $p = .402$, nor for science, $t(8) = -.98$, $p = .355$.

During the 2018-19 school year, schools with a freshman academy had a higher percentage of Hispanic students passing the math exam than schools without a freshman academy. However, the difference was not statistically different, $t(10) = -.97$, $p = .355$. Similarly, schools with a freshman academy had a higher percentage of Hispanic students passing the English exam than schools without a freshman academy. However, the difference was not statistically different for English, $t(10) = -.74$, $p = .479$. Lastly, schools without a freshman academy had a higher percentage of Hispanic students passing the science exam than schools with a freshman academy. Still, the difference was not statistically different for science, $t(10) = .31$, $p = .766$.

In the 2020-21 school year, schools with a freshman academy had a higher percentage of Hispanic students passing the math exam than schools without a freshman academy. However, the difference was not statistically different, $t(9) = -.81$, $p = .439$. Likewise, schools with a freshman academy had a higher percentage of Hispanic students passing the English exam than schools without a freshman academy. However, the difference was not statistically different for English, $t(9) = -2.06$, $p = .070$. Lastly, schools with a freshman academy had a higher percentage of Hispanic students passing

the science exam than schools without a freshman academy. Still, the difference was not statistically different for science, $t(9) = -.40$, $p = .702$.

To conclude the analysis for research question 2, the mean percentage of Caucasian students passing the ACT Aspire math, English, and science exams in schools with a freshman academy and schools that do not have a freshman academy was computed. An independent-samples t-test was conducted to determine if there were differences in ACT Aspire passing scores for Caucasian students in math, English, and science involving schools that implemented a Freshman Academy and those that did not during the three years in question for the study. In the 2017-18 school year, schools with a freshman academy had a higher percentage of Caucasian students passing the math exam than schools without a freshman academy. However, the difference was not statistically different, $t(28) = -.15$, $p = .885$. Similarly, schools with a freshman academy had a higher percentage of Caucasian students passing the English and science exams than schools without a freshman academy. However, the difference was not statistically different for English, $t(28) = -.07$, $p = .942$, nor for science, $t(28) = -.13$, $p = .897$. Table 4 summarizes the data for Caucasian students passing on the ACT Aspire for the given years.

Table 4

Mean Percentage Passing ACT Aspire Achievement Test – Caucasian Students

Exam	Year	Academy	N	Mean	Std Dev	Std Error
Math	17-18	No Academy	26	37.62	13.13	2.58
		Academy	4	38.64	11.51	5.76
English	17-18	No Academy	26	49.48	11.33	2.22
		Academy	4	49.93	11.12	5.56
Science	17-18	No Academy	26	36.53	12.54	2.46
		Academy	4	37.39	10.14	5.07
Math	18-19	No Academy	25	37.24	14.96	2.99
		Academy	4	36.40	10.89	5.45
English	18-19	No Academy	25	46.59	13.23	2.65
		Academy	4	46.40	8.71	4.35
Science	18-19	No Academy	25	40.31	13.37	2.67
		Academy	4	34.46	11.68	5.84
Math	20-21	No Academy	26	24.25	10.77	2.11
		Academy	5	26.43	7.60	3.40
English	20-21	No Academy	26	35.90	10.37	2.03
		Academy	5	39.35	15.73	7.03
Science	20-21	No Academy	26	29.99	9.02	1.77
		Academy	5	29.65	11.48	5.13

During the 2018-19 school year, schools without a freshman academy had a higher percentage of Caucasian students passing the math exam than schools with a freshman academy. However, the difference was not statistically different, $t(27) = .11$, $p = .916$. Likewise, schools without a freshman academy had a higher percentage of

Caucasian students passing the English and science exams than schools with a freshman academy. However, the difference was not statistically different for English, $t(27) = .03$, $p = .978$, nor for science, $t(27) = .82$, $p = .418$.

In the 2020-21 school year, schools with a freshman academy had a higher percentage of Caucasian students passing the math exam than schools without a freshman academy. However, the difference was not statistically different, $t(29) = -.43$, $p = .671$. Likewise, schools with a freshman academy had a higher percentage of Caucasian students passing the English exam than schools without a freshman academy. However, the difference was not statistically different for English, $t(29) = -.63$, $p = .535$. Lastly, schools without a freshman academy had a higher percentage of Caucasian students passing the science exam than schools with a freshman academy. Still, the difference was not statistically different for science, $t(29) = .07$, $p = .941$.

Research question 3: Is there a significant difference in the percentage of students passing the ACT Aspire math, English, and science exams between schools with a freshman academy and schools that do not have a freshman academy when considering the factor of socioeconomic status? Table 5 displays the mean percentage passing the ACT Aspire for students categorized as low income (SES) in English, math, and science for freshman academy schools and non-freshman academy schools.

Table 5

Mean Percentage Passing ACT Aspire Achievement Test – Socio-Economic Status Students

Exam	Year	Academy	N	Mean	Std Dev	Std Error
Math	17-18	No Academy	25	27.44	9.39	1.88
		Academy	4	23.82	12.30	6.15
English	17-18	No Academy	25	37.43	10.01	2.00
		Academy	4	35.77	10.51	5.26
Science	17-18	No Academy	25	26.89	9.13	1.83
		Academy	4	23.18	8.94	4.47
Math	18-19	No Academy	27	26.67	10.76	2.07
		Academy	4	22.98	11.98	5.99
English	18-19	No Academy	27	34.79	13.62	2.62
		Academy	4	31.76	8.25	4.13
Science	18-19	No Academy	27	28.71	14.44	2.78
		Academy	4	21.24	10.34	5.17
Math	20-21	No Academy	27	17.88	7.90	1.52
		Academy	5	13.61	8.38	3.75
English	20-21	No Academy	27	27.40	10.79	2.08
		Academy	5	25.11	15.71	7.03
Science	20-21	No Academy	27	22.40	9.23	1.78
		Academy	5	16.61	10.24	4.58

An independent-samples t-test was conducted to determine if there were differences in ACT Aspire passing scores for low-income students in math, English, and science involving schools that implemented a Freshman Academy and those that did not

during the three years in question for the study. In the 2017-18 school year, schools without a freshman academy had a higher percentage of low-income students passing the math exam than schools with a freshman academy. However, the difference was not statistically different, $t(27) = .69$, $p = .497$. Similarly, schools without a freshman academy had a higher percentage of low-income students passing the English and science exams than schools with a freshman academy. However, the difference was not statistically different for English, $t(27) = .31$, $p = .762$, nor for science, $t(27) = .76$, $p = .456$.

During the 2018-19 school year, schools without a freshman academy had a higher percentage of low-income students passing the math exam than schools with a freshman academy. However, the difference was not statistically different, $t(29)= .63$, $p = .532$. Likewise, schools without a freshman academy had a higher percentage of low-income students passing the English and science exams than schools with a freshman academy. However, the difference was not statistically different for English, $t(29) = .43$, $p = .671$, nor for science, $t(29) = .99$, $p = .329$.

In the 2020-21 school year, schools without a freshman academy had a higher percentage of low-income students passing the math exam than schools with a freshman academy. However, the difference was not statistically different, $t(30) = 1.10$, $p = .281$. Similarly, schools without a freshman academy had a higher percentage of low-income students passing the English and science exams than schools with a freshman academy. However, the difference was not statistically different for English, $t(30) = .41$, $p = .688$, nor science, $t(30) = 1.27$, $p = .214$.

Additional information was gathered from the principal questionnaire regarding the freshman academy. If the school was operating with a freshman academy, the principal was asked if there was an academy principal for the academy, an academy counselor, housed separately from the other grades, operated on a block schedule, provided academy teachers with common planning time, and utilization of common academy practices. Table 6 summarizes the results for all the schools with a freshman academy.

Table 6

Questionnaire Results for Schools with Freshman Academy

Attribute	School 1	School 2	School 3	School 4	School 5
Academy Principal	Yes	Yes	Yes	Yes	Yes
Academy Counselor	Yes	Yes	Yes	Yes	Yes
Housed Separately	Yes	Yes	Yes	Yes	No
Block Schedule	No	No	No	Yes	Yes
Common Planning Time	Yes	Yes	Yes	Yes	Yes
Common Academy Practices	Yes	Yes	Yes	Yes	Yes

Chapter V: Conclusions

The transition from middle school to high school may appear to be seamless to some that are on the outside looking in, but the transition is potentially the most challenging thing a student will have to do in their educational career. Success or failure during the freshman year sets the tone for a student's entire high school career (Hertzog & Morgan, 1999). Bottoms (2008) stated that the ideal freshman academy will include all first-time ninth-grade students, have an instructional leader or principal assigned to assist teachers with planning and examining student work, provide common planning time for teachers, common practices within the academy, and mentors or advisors for all students. In contrast, you have a traditional high school. Wraga (1998) states, "The comprehensive high school is a unique American invention that was designed to serve the educational needs of modern democratic society (p. 121).

The purpose of the study was to explore the relationship between the implementation of freshman academies and student achievement in math, English, and science in schools in Arkansas. The researcher collected data for schools with a freshman academy and schools without a freshman academy. The researcher examined achievement data to determine whether there was a significant difference between the percentage of students passing the ACT Aspire exams taught in a freshman academy versus the students not taught in a freshman academy. The researcher further analyzed data for subgroups to determine whether there was a significant difference between students taught in a freshman academy versus the students not taught in a freshman academy. The subgroups examined in the study were ethnicity and socioeconomic status.

This chapter will detail the conclusions and findings of the researcher. Implications and potential recommendations will be outlined in this chapter as well as future research considerations.

There were three research questions at the forefront of this study. Archived ACT Aspire achievement data were collected for three years, and independent sample t-tests were conducted and analyzed with a .05 level of significance. Question one explored the relationship between achievement in math, English, and science for all students taught in a freshman academy compared to all students that were not taught in a freshman academy. Question two explored the relationship between achievement in math, English, and science for schools with a freshman academy and schools without a freshman academy when taking ethnicity into account. Lastly, question three explored the relationship between achievement in math, English, and science for schools with a freshman academy and schools without a freshman academy when taking socioeconomic status into account.

Summary of Findings

Overall, the results of the data analysis for the study suggest that the implementation of freshman academies has no significant impact on student achievement when reviewing the data for all students. The results of this study were similar to those found by Styron & Peasant (2010). They also found no significant difference in the achievement of students in a freshman academy compared to those not in a freshman academy. Enrollment may be a factor. Freshman enrollment for their schools within their study consisted of less than 300 students in each school. For this study, the freshman academy schools averaged well over 300 students each year, while the schools with no

freshman academy averaged considerably less than 300 students each year. School size may have been a confounding factor in this study. A study by Lee & Burkahm (2003) found that school size is a key factor that will influence student success in school. The enrollment size of the ninth-grade class may account for the difference in the results found in this study.

Another assumption of the study was that the schools responding that a freshman academy was present on campus were operating the freshman academy with fidelity and for only first-time ninth-grade students. The researcher did not verify this information for the study.

The percentage of students passing the exams was higher in schools that did not have a freshman academy even though the difference was not statistically significant. However, when analyzing the data based on ethnicity, a different pattern emerged. African American and Hispanic students typically did better in schools with a freshman academy while Caucasian students did not. Again, while differences existed, none were statistically significantly different. Even more pronounced differences existed when considering students who were eligible for free or reduced-price meals. Students from lower socioeconomic backgrounds had a higher percentage of passing in schools that did not have a freshman academy, though the difference was not statistically significant.

Overall, the results of the data analysis for the study suggest that the implementation of freshman academies has no significant impact on student achievement. However, when broken down by ethnicity, students performed better in the freshman academy than those students not in the freshman academy. Many of the schools without a freshman academy had one or more years without data for African American students.

The same would be true for Hispanic students within the no freshman academy category. Therefore, there was not much data for African American or Hispanic students for the years selected for this study. One limitation for this would be the fact that most of the responding schools without a freshman academy were from small, rural areas in Arkansas and would not be considered urban schools. The schools with a freshman academy were primarily urban school systems. The schools with freshman academies had data for all demographics selected.

Even though there was not a significant difference noted, the results found in this study align with previous studies conducted on freshman academies. The research details the notation and belief that the ninth-grade year is pivotal for students. For this reason, educators have transitioned to creating freshman academies for first-time ninth-grade students. If students are successful during the freshman year, there is an increased likelihood that they will graduate high school and enjoy the high school experience (McIntosh & White, 2006).

Styron & Peasant (2010) studied the impact of a freshman academy by ethnicity on academic achievement. They found that African American and Caucasian students taught in a freshman academy scored significantly better than students not taught in a freshman academy. In addition, that study found a significant difference for all ethnicities included in the study. Another study to support the results of this study when looking at ethnicity would be Osler & Waden (2013). The researchers found that freshman academies did affect student success when considering minority students. It is noted that minority students have higher achievement in small learning community environments (Cotton, 2001).

There was no significant difference in achievement in math, English, or science, as measured by the ACT Aspire for students taught in a freshman academy compared to those not taught in a freshman academy when considering socioeconomic status. However, the results found with this study do not correspond to previous studies on freshman academies, nor does it mean that freshman academies do not work. One limitation for the lack of significance might be that even though the students are low-income, they did not experience any of the challenges that generally accompany them, specifically student achievement. With many of the schools without freshman academies being rural schools in Arkansas, the schools may have a system in place to eliminate the effects of being low-income have on student achievement. This study did not investigate what systems were in place for low-income students.

In contradiction to the results of this study, one study in the research discusses the various risks that students possess when they enter high school. It was found that the support of teaching teams and the ability of the teachers to support the needs of students led to significant changes within schools and districts (Hazel et al., 2014). Montgomery & Hirth (2011) studied the freshman transition program HEART and the effects of implementing the program for at-risk students on high school students. The HEART program had a positive influence on students' GPA. Osler & Waden (2013) found that ninth-grade academies and centers have a positive effect on the students' academic success and aid in the retention of students.

Styron & Peasant (2010) investigated the impact of a freshman academy. In their study, 60% of the participants met the definition of low-income, but that fact was not an integral part of the study. Whereas, for this study, the researcher specifically looked at the

impact, if any, the freshman academy had on low-income students. In her research on small learning communities, Cotton (2001) found that implementing small schools reduced the negative effects of poverty. By 2003 over 55% of high schools had started a freshman academy (Bernstein et al., 2008).

In summary, there was no significant difference between achievement scores of students taught in a freshman academy when compared with achievement scores of students not taught in a freshman academy. However, little impact was discovered by ethnicity or socioeconomic status for math, English, or science achievement in a freshman academy versus a non-freshman academy. In addition, the math, English, or science scores of students in a freshman academy were not significantly different from those that were not in a freshman academy. However, the findings of this study align with Fleischman & Heppen (2009) where they determine that one reform model may not be enough to improve student achievement. Specifically, Fleischman & Heppen (2009) suggest that educators need to implement the freshman academy with fidelity and support the model for the required time for success.

Limitations

The review of the literature gives various characteristics of a successful academy but does not give a firm implementation procedure. The researcher had no way to control the variable of teacher skill in this study. Teaching strategies have the potential to vary from class to class as well as school to school. One of the limitations of this study was the length of time the administration has been in place at each of the schools with a freshman academy. New administrations create a shift in expectations. Schools must commit to the

work of providing quality instruction, allocating time and resources, and providing necessary supports for students to succeed (Bottoms, 2008, p.2).

This study is limited in that only student achievement data was examined to determine the effectiveness of freshman academies. The literature review found there are other results to implementing freshman academies which included improved student attendance and improved student behavior (McIntosh & White, 2006). For this study, student achievement is defined using the ACT Aspire achievement data for the state of Arkansas. Arkansas has been using the ACT Aspire summative exam since 2017. The achievement or lack thereof may reflect how well teachers are succeeding in preparing students to take the exam as opposed to the fact of the students being taught in a freshman academy or not being taught in a freshman academy. Prior studies conducted by Osler and Walden (2012) utilized graduation rates as the measure for student achievement. The study conducted by Longobardi et al. (2016) used an average of all course grades as the measure for student achievement.

Another significant limitation for this study of the impact of freshman academies on student achievement in English, math, and science was the total focus on the quantitative measures for student achievement. Additional data was collected in the principal questionnaire but was only directed to the schools with a freshman academy. This data included six of the characteristics of an effective freshman academy. Bottoms (2008) in his research, states the ideal freshman academy will include all first-time ninth-grade students, have an instructional leader or principal assigned to assist teachers with planning and examining student work, provide common planning time for teachers, common practices within the academy, and mentors or advisors for all students. Of the

five schools with a freshman academy, all reported having all the suggested effective characteristics in place except for block scheduling. Only two of the five schools utilized a block schedule. The effectiveness of the academy is evident in the results for student achievement when considering ethnicity. However, the researcher for this study did not focus on any of the effective characteristics to determine the impact of freshman academies on student achievement.

Another limitation for this study is the number of schools responding that they have a freshman academy. There were 289 emails sent to principals in Arkansas of schools with ninth-grade students. Only eight returned that they had a freshman academy. One conclusion is that schools in Arkansas are just now becoming familiar with freshman academies. Of the five schools analyzed, two of the schools have operated a freshman academy for one to three years, one has operated a freshman academy for four to six years, and two of the schools have operated a freshman academy for seven or more years.

Recommendations for Practice

The results presented in this study have potential direct implications on the practice and policies of Arkansas high schools that include the ninth grade. With the focus on accountability, schools must examine their current practices and determine if they effectively ensure ninth-grade students are successful academically and socially. Implementing freshman academies is one reform movement used to improve ninth-grade transition and student achievement. There are mixed results on freshman academies through previous studies, but the results found with this study do not mean that freshman academies do not work. When looking at the transition from middle school to high school, implementing freshman academies or some form of an academy will provide a

smoother transition. McIntosh and White (2006) further found that first-year ninth-graders will have an easier transition if school leaders created a teaming concept on a separate wing of the building for a freshman academy. There is no specific formula to implementing freshman academies but taking the chance and doing something will be better than doing nothing. Implementing some or most of the effective characteristics will not break a budget for school leaders.

School leaders should evaluate various indicators of student success, including standardized test scores to determine what success looks like for their school. One indicator is the failure rates for the core subjects assessed on the standardized test. Another would be student attendance and its effect on student achievement. Leaders should also look at teacher attendance and how it affects student failures and student success on standardized tests. This will help when looking at the results of this study or any of the previous studies. As well as assist with determining what characteristics of the freshman academy will be most beneficial for their students.

Recommendations for Future Research

When school leaders decide if they would like to implement freshman academies, they should not base their decisions solely on one study. This study included. Additional research should include conducting a study that examines the impact of the freshman academy or the lack thereof on student failures for the core courses assessed on the ACT Aspire. It should compare to ACT Aspire achievement data to determine if there is a significant difference between students in a freshman academy and students not in a freshman academy. A qualitative study should be conducted to examine student and teacher perceptions on the effectiveness of the freshman academy. Lastly, a longitudinal

study should be conducted to determine the impact of the freshman academy on graduation rates compared to the graduation rates for the traditional school setting.

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APPENDIX A

Principal Questionnaire

Dear Principal,

I am a doctoral student at Arkansas Tech University, and I am conducting a study to determine if the implementation of a Freshman Academy has a positive impact on student achievement scores. I need your assistance to determine if your school has a freshman academy.

Please take less than 5 minutes to go to the following link https://forms.gle/moQrsrUYwXjFtUs38 and answer these brief questions:

1. Does your school have a freshman academy or similar arrangement? Yes/No
2. If yes, approximately how long has the Freshman Academy been in operation, counting this year? 1-3 years, 4-6 years, 7+ years
3. What is the name of the school that houses the 9th grade (if different)? (i.e., Brown High School, Green Middle School, etc.)
4. What is the school or district code number, if known?
5. Is there a Freshman Academy Principal? Yes/No
6. Is there a Freshman Academy Guidance counselor? Yes/No
7. Is the Freshman Academy housed in a separate area of the building? Yes/No
8. Does the Freshman Academy run on a block schedule? Yes/No
9. Are the Freshman Academy teachers provided with a common planning time? Yes/No
10. Are there common practices (i.e., rituals/routines, grading, discipline) in place for the Freshman Academy? Yes/No

Thank you for your assistance.