SELECTED PERFORMANCE INDICATORS OF UNIVERSITY-MODEL® SCHOOLS

by

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ABSTRACT

University-Model® schools seek to blend attributes of homeschooling with traditional schooling by transferring a significant portion of classroom time to a satellite classroom, typically the student's home. Proponents suggest the model lends itself to better prepared and well-balanced graduates due to the forced ownership required of students in terms of time management, the development of independent study habits, increased balance of family life, and subsequent parental guidance; however, very little research exists to validate these claims. These tenants of the model are in line with recent research and theories suggesting a more holistic approach, beyond academic metrics, to ensure college and career readiness. Over 170 recent graduates from 15 different University-Model® high schools responded to the questionnaire which captured key self-reported variables such as high school grade point average (HSGPA), highest ACT composite scores, reported time-management practices in high school and college, and beliefs regarding general preparedness in high school and college. These variables were analyzed to determine if relationships existed among preparedness levels and first-year college grade point average (FYGPA), and also to gain a better understanding of the college readiness levels of University-Model® graduates in terms first year college performance. Results of this study suggest that University-Model® graduates are academically well prepared for the transition to college, are confident that their high school program has adequately prepared them for college and appear to be making wise decisions regarding their time management practices in college. FYGPAs of University-Model® graduates are significantly higher than students from other educational models

with identical ACT scores. Regression analyses suggest that students within the model earning higher HSGPAs and ACT scores are performing better in the first year of college, but overall the connection between the high school academic variables and FYGPA is weaker within the University-Model® population than in the previous studies of non-University-Model® students. These results seem to indicate factors beyond academic preparedness explain the success of University-Model® graduates and further validate claims made by proponents of the model who suggest its blended approach to education, combining attributes of homeschooling with traditional schooling, is producing academically strong, well-prepared, and well-adjusted college freshmen.

ACKNOWLEDGMENTS

This project is the culmination of a long, winding path consisting of multiple obstacles that threatened to derail its completion. I would indeed have succumbed to these threats had it not been for the constant encouragement, timely interventions, and consistent and persistent reminders from my wonderful wife to stay the course—this finish line belongs to you as much as it does me.

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Additionally, I'm grateful to Barbara Freeman, chief executive officer of University-Model® Schools International, for her support of this project, and all the administrators and counselors at participating schools who provided student contact information. Without this collaboration, the project would not have been possible.

DEDICATION

This project is dedicated to my wonderful, late grandmother who, in part, provided funding for the classwork associated with this degree; which proved to be an additional constant source of motivation through difficult seasons.

Ultimately, I give all the glory to God, who through this project has taught me more about His sovereignty, provision to complete that to which He's called me, and my constant need to draw upon His forgiveness that was secured by the life, death, burial, and resurrection of Christ.

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LIST OF ABBREVIATIONS

ACT	American College Testing
ANOVA	Analysis of Variance
ARRA	American Recovery and Reinvestment Act
CCR	College & Career Readiness
CCSS	Common Core State Standards
CCSSO	Council of Chief State School Officers
CITA	Commission on International and Trans-Regional Accreditation
FYGPA	First Year Grade Point Average
GPA	Grade Point Average
GPA (Project)	Grace Preparatory School
HS	High School
HSD	Honestly Significant Difference
HSGPA	High School Grade Point Average
ICCR	Illinois College & Career Readiness
ICF	Inter City Fund
IRB	Institutional Review Board
LSD	Least Significant Difference
MDRC	Manpower Demonstration Research Corporation
MSLQ	Motivated Strategies for Learning

	Questionnaire
NAEP	National Assessment of Education Progress
NAGB	National Assessment Governing Board
NAUMS	National Association of University-Model® Schools
NCES	National Center for Educational Statistics
PDK	Phi Delta Kappa
RAND	Research and Development
SAT	Scholastic Achievement Test
SES	Socio-economic Status
SPSS	Statistical Package for the Social Sciences
TV	Television
UM	University-Model®
UME	University Model of Education
UMSI	University-Model® Schools International

CHAPTER I - INTRODUCTION

Recent parental dissatisfaction with the performance and culture of traditional schools has prompted what has been referred to as the "school choice movement," leading many families to consider alternate and non-traditional forms of education (Wearne, 2016). Additionally, the national trend of standardized practices and policies combined with the emergence of homeschooling and various hybrid educational models such as online schools and hybrid homeschools have driven the school choice movement (Wearne, 2016). University-Model® schools, an emerging but unproven hybrid educational model, is an attempt to provide a balance between homeschooling and traditional, five-day per week schooling by transferring a portion of classroom time to a satellite classroom, usually at the student's home (Turner, 2001). University-Model® schools are private, Christian schools associated with and supported by University-Model® Schools International (UMSI). In 2018, University-Model® Schools International (UMSI) changed its name from the National Association of University-Model® Schools (NAUMS).

The vision of UMSI is, "To strengthen Christian families and values by helping parents prepare college-worthy, character-witnesses of Jesus for the next generation" (University-Model® Schools International, n.d.-a). To carry out this vision, students at University-Model® schools attend classes on a university-type schedule ranging from 10 to 20 hours per week (Barker, 2012). Because students spend less time in a formal school setting in comparison to traditionally schooled students, program proponents assert that these students are able to more effectively manage their time and develop independent study habits (Turner, 2001). Proponents further assert that, within the flexibility of the

model, students are able to pursue their hobbies and interests and acquire part-time jobs or internships within their desired field of study. Lastly, the model affords its students more time with their families, and proponents believe that this fosters stronger, sustainable parental and sibling relationships (Grace Preparatory School, 2016). According to UMSI:

> The University-Model® combines the best attributes of traditional schooling with the best attributes of homeschooling and integrates them into one model. The result is quality, cost-effective, college-preparatory education that gives parents more time for imparting their own faith and values to their children. In partnership with one another, parents and the school work together toward a mutual goal: to produce wholesome, competent, and virtuous followers of Christ who will change the world in their generation (University-Model® Schools International, n.d.-b).

Statement of the Problem

Increasing dissatisfaction with public schools has prompted many American families to pursue alternative models of education for their children. According to a recent PDK/Gallup poll, 35% of Americans do not have trust and confidence in public school teachers (Burshaw & Calderon, 2014-b). When asked about the influence of attending public schools on the well-being of their children, 30% of parents strongly agreed that their children have a substantially higher sense of well-being as a result of attending their local public school (down 8% from 2011), while 6% strongly disagreed (up 2% from 2011) (Burshaw & Calderon, 2014-b). When parents were asked whether their child's school encourages stronger relationships with friends and families, 28% strongly agreed (down 15% from 2011), and 5% strongly disagreed (up 2% from 2011).

Furthermore, in 2013, according to one published study the majority of Americans opposed the Common Core State Standards (60%) and their local schools' curriculum (58%) (Burshaw & Calderon, 2014-a).

In addition to these data, current research indicates that a majority of America's high school graduates are not prepared to enter college (Anderson, 2015). As a result, college and career readiness (CCR) has become a major focus of education reform policies (ICF, 2012). When measured by the ACT's College Readiness Benchmarks, out of the 59% of high school seniors who took the ACT in 2015 only 28% performed at the college ready composite level in English, Reading, Mathematics, and Science (ACT, 2015). The College Board—which administers the SAT—reported that composite scores have decreased slightly from 1,497 to 1,490 from 2014 to 2015, and then from 1,490 to 1,484 from 2015 to 2016 (CollegeBoard, 2016). Since the test was overhauled in 2006 to include a writing section, composite scores have steadily decreased from 1,518 in 2006 to 1,484 in 2016 (CollegeBoard, 2016). All of these factors help explain why 50% of Americans gave their local public schools a rating of C, D, or F and 80% gave the nation's schools a C, D, or F (Burshaw & Calderon, 2014-a).

As a result of parental dissatisfaction and recent favorable legislation, charter schools, supported by 70% of Americans, are increasingly becoming the choice of school for many families (Burshaw & Calderon, 2014-b). From 2000 to 2013, charter school enrollment in the United States has increased from 0.3 million to 2.3 million, resulting in an increase from 0.7 to 4.6 percent of students leaving public schools for charters (U.S. Department of Education, National Center of Educational Statistics, 2015). The number of charter schools in America increased from 1,500 (1.7% of all public schools) in 1999-

2000 to 6,100 (6.2% of all public schools) in 2012-2013 (U.S. Department of Education, National Center of Educational Statistics, 2015). Many charter school enrollees come from private schools. Approximately 11% of all middle and high school students attending charter schools were drawn from private schools; however, in highly urban districts, these figures can be as high as 32% (Buddin, 2012). According to the Digest of Educational Statistics, private school enrollment over the past decade is on the decline, while tuition continues to increase (Snyder & Dillow, 2015). In 2001, approximately 11.7% (6.3 million) of American students attended private schools, but by 2011, the number decreased to 9.7% (5.3 million) (Snyder & Dillow, 2015). Despite this decline in enrollment, average tuition rates for American private schools continue to increase from $6,820 annually in 2001 to $10,940 in 2011 (Snyder & Dillow, 2015).

In contrast with the general decline in enrollment in private schools, the number of University-Model® schools, an alternative form of private education, has grown from the original test school which opened in the fall of 1993 to 90 schools in 24 states in 2018-2019 (University-Model® Schools International, n.d.-c). University-Model® schools have also grown in terms of student enrollment from 2,975 students in 2006 to 7,683 students in 2014 (National Association of University-Model® Schools, 2007; National Association of University-Model® Schools, 2014). Proponents of University-Model® schools claim their model inherently provides solutions to many of the issues they believe are prevalent in American schools. Such enhancements include a college-type schedule for high school students, reduced tuition compared to traditional private schools, increased family interactions and parental support, and a Christian environment designed to minimize the distractions and influence of violent and immoral behavior

(Turner, 2001). According to Turner (2001), the approach of University-Model® schools makes "no claim to have the 'final answer' for every million-dollar question, but it offers a compelling idea that is educationally solid, logistically practical, and fiscally efficient. Its worthiness of serious consideration in a variety of educational settings is earned" (p. 9-10).

Statement of Purpose

While the number of students attending University-Model® schools continues to grow, the educational model remains relatively untested in terms of students' academic performance on standardized tests and transitions to college. Research is needed to measure the performance of University-Model® schools in preparing students for successful transitions to college. The purpose of this study was to address the problem of limited data pertaining to the relative success of University-Model® schools in terms of their graduates' transition to college as measured by academics, time management practices, and beliefs regarding levels of preparedness.

In order to accomplish the purposes of the present study, the relationship between high school academic performance indicators (HSGPA and ACT scores) and FYGPA of University-Model® graduates was analyzed. Additional analyses were conducted to determine if the number of years graduates attended University-Model® high schools predicted academic performance in high school and college. Probabilities of FYGPA success based on ACT scores of University-Model® school graduates were compared with results from a recent study by ACT, Inc. (2017-b). Also, the relationships between University-Model® graduates' beliefs regarding time management and general preparedness and FYGPA were explored. Additionally, mean scores between high

school and college responses to the questionnaire were compared to a similar study Thibodeax, Deutsch, Kitsantas & Winsler (2017) employing the same metrics. Analyses were conducted to determine whether the specific University-Model® high school attended accounted for variance among the preparedness variables and the academic variables, HSGPA, ACT scores, and FYGPA. Additional analyses were calculated to determine whether the preparedness and academic variables differed significantly based on the University-Model® high school attended.

The study explored whether ACT scores among public school graduates, private school graduates, and homeschool graduates were significantly different from those of University-Model® school graduates, and whether ACT results from participants within this study differed from previously published studies (College Board, 2008; Huh & Huang, 2016). Lastly, analyses were conducted to explore whether the type and size of colleges attended by University-Model® graduates accounted for variance in the academic variables HSGPA, ACT scores, and FYGPA.

Research Questions

This study addressed the following primary research questions:

For graduates of University-Model® high schools:

1. Was performance in high school related to student performance in the first year of college?
2. Were beliefs regarding levels of preparedness related to performance in the first year of college?
3. Were beliefs regarding levels of preparedness related to the specific high school attended?

This study will additionally explore the following research questions:

4. Were there differences among the self-reported standardized composite test scores for high school seniors who attended public high schools, private high schools, and University-Model® high schools?
5. What types of colleges are graduates of University-Model® high schools attending and how does their transition to college differ among those attending different colleges in terms of size and type of institution?

Delimitations

In order to study the performance and attributes of graduates of University-Model® schools, this research was limited to a study of exclusively UMSI-certified University-Model® schools. To ensure the sample included qualified participants, only UMSI schools founded in or before 2005, consisting of students from at least the 7th grade through the 12th grade were included in the research. In addition to providing a sufficient pool of potential participants, these schools have achieved a status of longevity that increased the validity of the study.

Targeted University-Model® schools provided the researcher with a list of potential participants limited to former students who graduated from and attended a University-Model® school for at least two years and are part of the 2016 or 2017 cohort of graduating high school seniors. Additionally, due to the fact that UMSI is a Christian organization, this study was further limited to schools who teach students to "think and 'be' according to a Biblical worldview framework anchored in the person and work of Jesus Christ, the Spirit of Truth, and God's Word." (National Association of University Model Schools, n.d.-e).

For the exploratory portion of the study, the research delimited survey data on University-Model® students to that which is available in whole-population archival data of public and private school students. Data gathered from survey questions posed to University-Model® school graduates paralleled archival data regarding private and public school students that were accessible to the researcher. Specifically, University-Model® high school graduate data received from the instrument was self-reported.

Assumptions

Several assumptions will be made in this study.

1. It was assumed that targeted University-Model® schools will identify all eligible participants who fit the criteria for completing the survey instrument.
2. It was assumed that self-reported composite ACT and SAT scores, as well as self-reported first-year college GPA (FYGPA) of participants were accurate.
3. It was assumed that participants will be honest and answer all survey questions candidly, without fear of retribution.
4. It will be assumed that ACT and SAT scores of private and public school students retrieved from archival data were accurate and complete.

Definition of Terms

The following are specific definitions that apply to this study:

Blended learning: See "Hybrid model schools."

Charter Schools: "A public charter school is publicly funded school that is typically governed by a group or organization under a legislative contract (or charter) with the state or jurisdiction" (U.S. Department of Education, National Center of

Educational Statistics, 2015). While some private schools are charter schools, for the purpose of this study, the term charter school will refer to public charter schools.

College and Career Readiness (CCR): For the purpose of this study, a student who is college and career ready is one who is "able to progress successfully—without remediation—in credit bearing general education courses or a two-year certificate program" (Conley, 2011, slide 7).

First-Year Grade-Point Average (FYGPA): For the purpose of this study, FYGPA will be defined as grade-point average achieved by first-year college students on a four-point scale where points (4-0) are awarded based upon final grades (A, B, C, D, and F, respectively) and weighted based upon the hours per week spent in class (Nguyen, Allen & Fraccastoro, 2005).

Homeschooling: Homeschooling is a parent-led form of education that takes place entirely within the home of the student (Ray, 2015). For the purpose of this study, homeschool students do not attend traditional or non-traditional schools of any type including University-Model® or other hybrid school models.

Hybrid model schools: For the purpose of this study, hybrid model schools attempt to combine two or more distinct modes of learning (O'Byrne & Pytash, 2015). Modes of learning include public and private traditional schooling with face-to-face classrooms, online learning, and homeschooling. University-Model® schools are hybrid schools combining face-to-face learning environments with homeschooling. Some public charter schools are hybrid models that combine face-to-face learning with online learning (Schulte, 2011). Other synonymous terms used in research are blended learning and mixed-mode learning (O'Byrne & Pytash, 2015).

Hybrid homeschools: Hybrid homeschools are schools where students attend physical schools in classroom settings with teachers for 2 to 3 days per week and spend the remainder of the week homeschooled (Wearne, 2016).

Private schools: Private schools are tuition-based non-public schools that do not receive funding from local, state, or federal government sources and thus operate independently from legislative regulations. While University-Model® schools are private schools, for the purpose of this study the term private school will refer to only traditional non-public schools that students attend 5 days per week. For the purpose of this study, private schools include nonsectarian schools, Catholic schools, and all other types of religious schools.

Traditional schools: For the purpose of this study, traditional schools will be defined as the five-day per week educational model in America familiar to most Americans (Barker, 2012).

University-Model® schools: University-Model® schools are private, Christian schools that transfer a portion of classroom time to a satellite classroom facilitated by a co-teacher, usually a parent. Students at University-Model® schools typically attend classes on campus two or three days per week. "Parents partner with professional educators in this educational process. Under the supervision of the qualified educator, parents are required to provide oversight responsibilities of their children's coursework in the satellite classroom at home" (University-Model® Schools International, n.d.-d). University-Model® schools are certified and supported by the University-Model® Schools International (UMSI).

University-Model® Schools International (UMSI): Formally established in 2005, UMSI "serves as the centerpiece of the University-Model® school Christian movement" (University-Model® Schools International, n.d.-c) by providing resources and support for member schools. The vision of UMSI is "To strengthen Christian families and values by helping parents prepare college-worthy, character-witnesses of Jesus for the next generation" (University-Model® Schools International, n.d.-a).

Justification for the Study

In years past, school choice simply referred to parents' options to buy a house in a community with good public schools or pay for private school; however, in recent years, educational options for parents have expanded through legislation affording parents more options (DeArmond, Jochim, & Lake, 2014). Since the late 1980s, school choice has been a factor in the reform of American education by giving parents the option to select the school their children attend for various reasons beyond academics including religious or moral environment, and convenience (Hadderman, 2002). By creating charter schools, magnet schools, and making voucher programs available, policymakers have empowered more parents to think beyond traditional schooling options, including the options to consider homeschooling and virtual, or online, schools (Hadderman, 2002).

"Homeschooling—that is, parent-led home-based education—is an age-old traditional educational practice that a decade ago appeared to be cutting-edge and 'alternative' but is now bordering on 'mainstream' in the United States" (Ray, 2015, p. 1). According to the National Home Education Research Institute (n.d.) homeschooling has grown from 13,000 students in 1971, to 1 million in 1997, and to 2.2 million in 2015. Some researchers assert that, while representing a considerably different demographic of

families, homeschool students are outperforming public school students on standardized achievement tests by 15 to 30 percentile points (Ray, 2015; National Home Education Research Institute, n.d.). However, many argue that homeschool testing data do not reflect the entire population of homeschoolers, as parents are not required to test their children; this results in selected samples of only the top performing students (Lines, 2001). Additionally, one study found that while homeschooled students earned an average composite score on the ACT of 1.7 points higher than the national mean score, there was no statistical difference between the two groups when controlling for parental involvement (Barwegen, Falciani, Putnam, Reamer & Stair, 2004). These results suggest that parental involvement, not homeschooling, may be the primary factor that predicts student achievement. While homeschool proponents continue to fight for freedom from governmental regulation in terms of academic oversight of teaching methods and curriculum choices, some documented instances of neglect and child abuse disguised as homeschooling have raised questions of whether additional protections and legislation should be implemented to mitigate these cases (Clemmitt, 2014).

Beyond the comparison of academic performance, there are many who oppose the homeschool movement, often because of concerns over students' limited opportunities for socialization.

> Socialization is the process by which individuals learn to establish and maintain relationships with others, become accepted members of society, regulate their own behavior in accordance with society's codes and standards, and get along with others. Many educators, child development specialists, and social scientists

> claim that homeschooling deprives the child of the ability to develop socialization skills (Lebeda, 2015, p. 101).

Proponents of homeschooling often reject this notion and claim that socialization should depend primarily on interaction with adults, and secondarily on interaction with peers, and that peer socialization in large groups—such as in the traditional classroom—is often detrimental (Lebeda, 2005). Proponents of University-Model® schools claim their model of education bridges the social gap between traditional schools and homeschooling and provides the appropriate balance for the socialization of their students. Furthermore, supporters of University-Model® schools intentionally diverge the model from homeschooling, claiming to provide for families an appropriate social and academic balance between the two models (University-Model® Schools International, n.d.-d).

Other than the growing population of its students, very little data exist to quantitatively assess the effectiveness of University-Model® schools. A 2013 correlational study that examined the academic college readiness of high school seniors attending University-Model® schools compared to those attending traditional, comprehensive Christian schools found that University-Model® seniors averaged higher scores on the SAT composite exam, but there was no difference in academic college readiness (Brobst, 2013). While Brobst's (2013) study begins the process of measuring the academic achievement of students attending University-Model® schools, more research is needed to support its findings as the study was limited to three University-Model® schools and three comprehensive Christian schools.

At the time of this study, the research on University-Model® schools includes only one other current study—which analyzed parental involvement in University-

Model® schools. Barker's (2012) study of 12 University-Model® schools was designed to "examine teachers' and parents' perceptions of parent involvement practices within University-Model® schools at the middle and high school levels" (p. 17). The results of this study yielded four main reasons for parental and teacher satisfaction within University-Model® schools: increased family time, increased parental involvement through high school grades, better preparation for college, and better time management skills (Barker, 2012). While helpful in describing the beliefs of teachers and parents about University-Model® schools, existing research is insufficient to measure the impact of parental involvement benefits on student achievement in high school and their preparedness for college.

The goal of the study was to extend the existing body of research surrounding University-Model® schools, specifically in terms of their graduates' beliefs pertaining to the model's "college-simulated learning environment," (Turner, 2001, p. 7) and its effectiveness in preparing them for college. Additionally, the study examined whether the structural components of University-Model® schools are effective in aiding students to bridge the gap between high school and college. In this era of school choice and increasing options for parents, the goal of this study was to provide additional research and quantitative measures to assist parents in making informed decisions about the education of their children.

In addition to parents, practitioners and students in current University-Model® schools will benefit from data indicative of which areas the schools are succeeding and in which they are falling short. Practitioners in traditional schools will also benefit from this research by studying which, if any, components of University-Model® schools could

help their students and teachers be more successful. Lastly, in this era of school choice, this research will be of benefit to policymakers seeking to analyze the effectiveness of non-traditional schooling options.

Summary

According to University-Model® Schools International (NAUMS, 2015-b), University-Model® schools afford parents the time each week to invest themselves in the academic, moral, and spiritual education of their children strengthening family relationship and improving the behavior, character, worldview, and performance of its students. University-Model® schools are designed to "bring together the best attributes of traditional schooling with the best attributes of home schooling and integrate them into one model" (Turner, 2011, p. 24). The transfer of class time to a satellite class, usually at home, is designed to provide parents with more time to impart faith and values while also strengthening parental and sibling relationships and fostering stronger parental involvement in education. Additionally, by placing students on university-type schedules, proponents of University-Model® schools seek to increase college readiness by training students to more effectively manage their time and develop independent study habits. The purpose of this study was to measure the performance of University-Model® schools in terms of preparing students for successful transitions to college.

CHAPTER II – REVIEW OF RELATED LITERATURE

In an era of increased school choice options such as online learning, charter schools, and private schooling supported by vouchers, University-Model® schools have emerged as an additional hybrid learning option for parents beyond traditional five-day per week schools. Additionally, cultural changes considered by many to be threatening traditional American values have caused many families to reconsider the role of parents in the education of their children leading to a resurgence of homeschooling and Christian schools. As a result, despite a lack of empirical research supporting the model, student enrollment in University-Model® schools has continued to increase over the past decade (National Association of University-Model® Schools, 2014). Additionally, while parental satisfaction within the model has been proven to be high, quantitative data are lacking to validate the academic benefits of the model (Barker, 2012). In an effort to understand the migration toward and the satisfaction with the model, this study will explore many of the factors and foundational theories that have contributed to the rise of the school choice movement including such alternative educational options as hybrid learning.

Context for the Study

College and career readiness stands as the most effective manner in which parents, educators and policymakers can quantitatively measure the effectiveness of America's K-12 educational system, and recent data show cause for concern (ACT, Inc., 2015; Anderson, 2015; College Board, 2013). While many professional educators are vigilant in seeking innovations and research-supported strategies to improve student learning, current research indicates that American schools are failing their students in

terms of college readiness (Anderson, 2015). Thirty-one percent of ACT-tested high school graduates in 2015 were not college ready in any of the four ACT-defined domains of college readiness (ACT, Inc., 2015). Meanwhile, only 28% were considered college ready in all four domains (ACT, Inc., 2015). Additionally, recent trends show that college readiness has decreased somewhat recently in all four domains from 2011 to 2018 (ACT, Inc., 2015; ACT, Inc., 2018). The College Board (2013) reports similar results among SAT test-takers with only 43% of students meeting the SAT College and Career Readiness Benchmark.

> Studies show that students who meet the SAT College and Career Readiness Benchmark are more likely to enroll in a four-year college, more likely to earn a higher first-year GPA (FYGPA), more likely to persist beyond the first year of college, and more likely to complete their degree than their peers who did not meet the benchmark" (College Board, 2013, p. 3).

Prior to adjusting the method in which college readiness is measured in 2014, the College Board (2013) defined students who are academically college ready as those who have a "65% or greater probability of achieving a FYGPA of B- or higher" (p. 3). This study will use FYGPA as a measure to compare the performance of University-Model® high school graduates to national archival FYGPA data of graduates from traditional private and public schools (Shaw, Marini, Beard, Shmueli, Young & Ng, 2016).

In recent years, college and career readiness (CCR) has become a major focus of education reform policies (ICF, 2012). The federal education funds associated with the American Recovery and Reinvestment Act of 2009 (ARRA) required participating states to ensure that their students are college and career ready, and the Elementary and

Secondary Education Act measures college and career readiness as an expected outcome of America's education system (ICF, 2012). Organizations like Achieve, Inc., are responding to these mandated increased levels of accountability by assisting and supporting states with important research and the implementation of strategies to improve college and career readiness. Achieve, Inc., created the American Diploma Project—a network of state governors, state education officials, postsecondary leaders, and business executives, to respond to these governmental policies by working together to "improve CCR by aligning high school standards, assessments, graduation requirements and accountability systems with the demands of college and careers" (Achieve, Inc., 2011, About Achieve section, para 1).

While policymakers and school systems are working together to improve the status of CCR, many parents are responding to the school systems' failure to adequately prepare students for college and career by seeking alternative forms of education (Burshaw & Calderon, 2014-b). In recent years, school choice has altered the landscape of education in America by affording parents the option to choose the school their children attend (Haddermann, 2002). These changes have been made possible by policymakers, who have empowered parents to think beyond traditional schooling options and to consider charter schools, virtual schools, homeschooling, and hybrid educational models instead (Bhatt, 2014; Haddermann, 2002; Quillen, 2012). Charter schools, supported by a majority of Americans and enjoying favorable legislation in many states, are emerging as a popular alternative for families in many areas (U.S. Department of Education, National Center for Educational Statistics, 2015). Homeschooling, the fastest growing model of education in America, is appealing to

parents who are seeking academic and/or social autonomy from local school districts (Ray, 2015). Other parents are looking beyond traditional school walls and turning to virtual schools—private or charter online schools (Cavanagh, 2014; Wolfe, 2014). Just as colleges are offering more online and hybrid classes, some high schools are beginning to offer online classes creating hybrid model high schools where students attend some classes on campus in a traditional setting and other classes at home in a virtual classroom (Hughes, 2015; Schulte, 2011). University-Model® schools, a hybrid educational model combining the attributes of homeschooling with traditional schooling, are also growing rapidly (National Association of University-Model® Schools, 2013; Turner, 2001). As a relatively new education model, the performance of University-Model® schools remains largely untested.

Theoretical Foundations

College and Career Readiness (CCR)

In its blueprint for reauthorizing the Elementary and Secondary Education Act, the Obama administration set the goal that "every student should graduate from high school ready for college and a career, regardless of their income, race, ethnic or language background, or disability status" (U.S. Department of Education, 2010, p. 3). As a result, states are attempting to more clearly define college and career readiness and align high school graduation requirements and coursework with the requirements of college and career (Castro, 2013). Legislation like the Illinois College and Career Readiness (ICCR) Act is evidence that policymakers are beginning to award increased funding to approve and monitor CCR standards.

In terms of college preparation, in order to determine the effectiveness of an educational model, college readiness should be clearly defined, both in terms of academic and non-academic preparedness. Achieve, Inc., an independent, bipartisan, nonprofit education reform organization created by the nation's governors and corporate leaders (Achieve, Inc., 2011), defines college and career readiness exclusively in terms of academics. A prepared high school graduate possesses the "knowledge and skills in English and mathematics necessary to qualify for and succeed in entry-level, credit-bearing postsecondary coursework without the need for remediation" (Achieve, Inc., n.d.). ACT®, which similarly defines CCR as "the acquisition of the knowledge and skills a student needs to succeed in credit-bearing, first year courses at a postsecondary institution without the need for remediation" (ACT, Inc., 2010, p. 1). ACT (2015) measures academic college readiness of high school test-takers in the subjects of English, Reading, Mathematics, and Science and sets College Readiness Benchmarks for each subject. They also compute a composite score. These benchmarks, based upon a nationally stratified sample, represent the likelihood for students to have a 50% chance to obtain a B or higher or a 75% chance of obtaining a C or higher in corresponding credit-bearing college freshman courses (ACT, 2015). Additionally, the benchmarks distinguish between the terms academic preparedness and readiness where readiness includes academic as well as other non-academic preparedness indicators such as mental habits, time management, and persistence (Fields & National Assessment Governing Board, 2014). Mattern, Burrus, Camara, O'Connor, Hansen, Gambrell, …ACT, Inc. (2014) have broadened the scope of college readiness and defined college and career readiness (CCR) in terms of four domains that impact student success. These four

domains include core academic skills, crosscutting capabilities, behavior skills, and education and career navigation skills (Mattern et al., 2014) providing a more holistic definition to college readiness and thus, a more complete picture of the successes and shortcomings of our nation's high schools. Traditionally, researchers have attempted to predict college and career success based upon variables such as core academic skills as measured by high school grade point average, class rank, scores on college readiness assessments (ACT, SAT, etc.) and rigor of coursework (Mattern et al., 2014). While these variables are valid academic predictors of college and career success "when a more comprehensive definition of success is employed, noncognitive skills become more important and sometimes even more predictive than cognitive skills" (Mattern et al., 2014, p. 18). However, these non-cognitive skills that predict CCR have been often excluded from the national discussion despite being readily available; these data are used primarily for non-decision making purposes, and they are widely considered "fakeable" and coachable (Mattern et. al., 2014). While there is hope these hurdles will be addressed and resolved, evidence from meta-analyses suggest that many non-cognitive factors predict CCR (Mattern et. al., 2014). These predictors include absenteeism, academic self-efficacy, academic/grade goals, achievement needs, behavioral problems, fit (interest-major), goal orientation, interests, motivation, personality, self-regulation, social engagement, study skills, and text anxiety (Mattern et. al., 2014). Additionally, non-cognitive factors shown to predict success beyond college are fit, integrity, interests, personality, self-efficacy, self-esteem, and values (Robbins, Lauver, Le, Davis, Langley & Carlstrom, 2004). Specifically, evidence exists that these non-cognitive skills can predict CCR and college persistence above and beyond cognitive indicators (Robbins et.

al., 2004; Allen & Robbins, 2010; Schmitt et. al., 2009 as cited by Mattern et. al., 2014). This research suggests a comprehensive definition of CCR is needed to encompass and delineate between academic (cognitive) as well as non-academic (non-cognitive) predictors.

In his "Four Keys to College and Career Readiness" Conley (2011) presents a theory proposing a more holistic and broad definition of CCR to include factors beyond academic preparedness that contribute to the success of high school students entering college.

> In particular, Conley's model reveals the complexity of developing successful approaches to college and career readiness; it clarifies the range of issues to consider as institutions design, implementation, evaluate and readjust program initiatives; and it offers ways to define core concepts that require systematic evaluation to determine students' short- and long-term outcomes (Baber, Castro & Bragg, 2010, p. 5).

According to Conley (2012), existing standards and assessments for college and career readiness are inadequate for preparing and assessing America's high school students because they are far too simple and focus exclusively on eligibility for post-secondary pursuits based upon completing a set of requirements such as college preparatory courses, admissions tests, and placement tests. Conley (2011) defines college and career readiness as "being able to progress successfully—without remediation—in credit-bearing general education courses or a two-year certificate program" (slide 7). Conley further defines readiness as:

> The new measure of a sufficiently prepared student is one who has the knowledge and skills to keep learning beyond secondary school, first in formal settings and then in the workplace throughout their careers, so that they are capable of adapting to unpredictable changes and new economic conditions and opportunities (Educational Policy Improvement Center, 2015-b).

Conley (2012) asserts that current readiness models are really more concerned with college and career eligibility and academic preparedness rather than readiness. A report titled "Making New Links: 12th Grade and Beyond" conducted by the National Assessment Governing Board (2009) differentiates between academic preparedness and readiness by stating, "in addition to academic skills, readiness encompasses behavioral aspects of individual performance related to success—persistence, time management, interpersonal skills, and knowledge of the context of college" (p. 3).

Conley's (2011, 2012) four keys are:

- Key Cognitive Strategies such as problem formulation, research, interpretation, communication, precision, and accuracy. These strategies represent how students should be able to think deeply about what they are doing and beyond simply retaining or applying information; they should be processing, manipulating, assembling, examining, questioning, looking for patterns, organizing, and presenting information (Educational Policy Improvement Center, 2015-b).
- Key Content Knowledge including key terms and terminology, factual information, linking ideas, and organizing concepts. Students should know contextually why they learn and develop a strong foundation in core academic

subjects, but also understand the structure of knowledge. Students should learn that success is a function of effort more than a function of aptitude (Educational Policy Improvement Center, 2015-b).

- Key Learning Skills and Techniques such as time management, study skills, goal setting, self-awareness, persistence, collaborative learning, student ownership of learning, technological proficiency, and retention of factual information. These techniques represent the skills and techniques students need to act purposefully to achieve their goals and take ownership and manage their own education beyond high school to become independent learners (Educational Policy Improvement Center, 2015-b).
- Key Transitional Knowledge and Skills such as postsecondary program selection, admissions requirements, financial aid, career pathways, postsecondary culture, role and identity issues, and self-advocacy. These skills are necessary for students to navigate successfully through life's transitions to college and careers (Educational Policy Improvement Center, 2015-b).

While his four keys are designed to provide a comprehensive definition of CCR, Conley's definition, by design, focuses on the areas most influenced by schools (Educational Policy Improvement Center, 2012). Conley acknowledges his framework falls short of addressing factors beyond schools' control such as citizenship, parental support, peer group influence, and financial capability to attend college (Conley & Educational Policy Improvement Center, 2012). While acknowledging the model's failure to adequately account for these factors, Conley & Educational Policy

Improvement Center (2012) state that, "schools cannot necessarily teach or influence them as directly as they can the Four Keys" (p. 4).

Proponents of University-Model® schools claim their education model inherently accounts for some of the CCR factors; primarily parental involvement, which extends beyond the sphere of influence of traditional schools (University-Model® Schools International, n.d.-b). University-Model® schools describe among their purposes the aim to reduce barriers to college readiness by providing high school students with university-type scheduling resulting in "the successful transition of students directly into college with minimal 'culture shock' since they have already experienced a college-simulated work environment at the high school level" (Turner, 2001, p. 24).

Closing the CCR Gap

The National Assessment Governing Board (NAGB), which has spent the past decade conducting research on academic preparedness of 12th grade students, recommends that the 12th grade administration of the National Assessment of Educational Progress (NAEP) serve as an indicator for CCR, or "academic preparedness for college and job training" (Fields & National Assessment Governing Board, 2014, p. 1). Proponents of NAEP, which produces data from a national sample of 12th grade students, claim it is a more valid predictor of CCR than the ACT and SAT, which are only taken by self-selected samples of 12 graders (Fields & National Assessment Governing Board, 2014, p. 1). However, educators have been concerned that NAEP findings underestimate student achievement because "there are no consequences or stakes attached to performance on the tests and, therefore, students are not motivated to invest their best effort" (O'Neil, Sugrue & Baker, 1995, p. 135). Previous studies have quantified

students' lack of motivation, especially older students, when taking the NAEP (O'Neil, Sugrue & Baker, 1995; Educational Testing Service, 1991; Karmos & Karmos, 1984; Kiplinger & Linn, 1993). Conversely, students taking the ACT and SAT are typically highly motivated due to the assessments' connection to college entrance and scholarships.

The ACT and SAT include college readiness standards embedded within their assessments, and produce annual reports detailing the cumulative results of high school test-takers as it relates to their college readiness benchmarks. When measured by the ACT's® College Readiness Benchmarks, out of the 55% of high school seniors in the United States who took the ACT® in 2018 only 27% performed at the college ready composite level in English, Reading, Mathematics, and Science (ACT, 2018). While this figure is up two percent from 2011, a closer look at the data reveals these numbers actually trended downward during the past seven years in English, Reading, and Mathematics. Additionally, the decline was masked by a six percent increase in science college readiness possibly impacted by a 2013 decision to decrease the Science College Readiness Benchmark from 24 to 23 (ACT, Inc., 2015). Recent trends painted a similar picture. College readiness has decreased by 4% in English (64% to 60%), 3% in Math (43% to 40%), 1% in Science (37% to 36%), while increasing in Reading by 2% (44% to 46%) (ACT, Inc., 2018). The College Board—which administers the SAT—reported a similar trend. SAT scores of high school seniors decreased seven points in math (518 to 511), eight points in reading (503 to 495), and thirteen points in writing (497 to 484) over the past ten years. Composite scores have decreased from 1497 to 1490 from 2014 to 2015—the lowest score since the test was overhauled in 2005 (Anderson, 2015). Cyndie Schmeiser, chief of assessment for the College Board, suggests that the results point to

the need for reform in the education system: “Simply doing the same things we have been doing is not going to improve these numbers. This is a call to action to do something different to propel more students to readiness” (Anderson, 2015).

Not only are many students ill-prepared for college by these standards, many are failing to graduate from college. According to a U.S. Department of Education report titled *The Condition of Education 2015*, once the nation’s high school graduates reach college, just over half complete a degree. Only 39.4% of enrolled college students in the 2007 cohort graduated with a bachelor’s degree within four years. Of the same cohort, 55.1% graduated within five years and 59.4% graduated within six years (U.S. Department of Education, NCES, 2015). While these numbers have been slightly increasing with each cohort, the report fails to calculate the additional number of high school graduates who never enter college—31% in 2014 (ACT, 2015).

On a national policy level, many believe the recent national standards initiative referred to as the Common Core State Standards (CCSS) can help close the academic CCR gap. “A growing number of educators believe the answer might be inadequate curriculum standards” (Rothman, 2012, p. 12). Initially adopted by 46 U.S. states, the Common Core State Standards were specifically designed to address the nation’s high schools’ shortcomings in preparing graduates for college and career (ACT, Inc., 2010-b; Conley, 2014; Rothman, 2012). The Council of Chief State School Officers (CCSSO) and the NAGB, along with input from ACT and the College Board, led a coordinated effort to draft the CCSS by establishing clear criteria and a definition of CCR, consistent with Conley’s (2013) definition of CCR, in efforts to close the gap (ACT, Inc., 2010-b; Rothman, 2012). However, the implementation and acceptance of the CCSS have faced

many obstacles. Conley (2014), who serves on the NAGB's *Technical Panel on 12th Grade Preparedness Research Committee*, acknowledges that the challenges facing the implementation of the CCSS are political and ideological, not based upon its fabric, content, and skills required or its potential to improve CCR.

> When ideological arguments about educational governance and who should control curriculum are stripped away, the Common Core State Standards are more likely to be viewed more dispassionately as a synthesis of college and career readiness standards already developed, the expectations contained in the standards of high performing U.S. states and in the educational system of countries that are equipping their citizens for life in the dynamically changing economic and social systems of the 21st century (Conley, 2014, p. 3).

While those states that decide to fully implement the CCSS could lead to more well-prepared college students over time, improved standards alone will not be sufficient to close the CCR gap (MDRC, 2013). "Students will need programmatic supports from secondary and postsecondary educational institutions to better prepare them for a successful postsecondary educational career" (MDRC, 2013, p. 1).

In efforts to improve academic college and career readiness, states are responding with various initiatives based upon research conducted by ICF, Achieve, Inc., ACT®, and others to close the CCR gap. A few of these strategies include:

- Providing more structured and effective mentoring and counseling for students and families pertaining to the standards required for college admission (Tierney, 2009).

- Developing a four-year course trajectory outlining the sequence of college-ready courses for students offers a curriculum students can use to guide their high school course selection each year (Tierney, 2009).
- Early College High Schools and dual enrollment allow high school students to earn college credit while attending high school (ICF, 2012) which can improve post-secondary preparation and immediate college enrollment (Le & Frankfort, 2011).
- Summer bridge programs have been proven to have positive short-term impact in terms of the transition from high school to college, but in order to produce lasting results, they should start earlier and last longer (MDRC, 2013).
- Contextualized instructional models have been shown to be more effective in engaging underprepared students and improving their basic skills required for college or career readiness (Rutschow, Schneider & MDRC, 2011).

Dividing semester-long courses into discrete learning units, or modules designed to focus on specific competencies or skills (Rutschow, Schneider & MDRC, 2011). In efforts to measure the preparedness of University-Model® high school graduates, this study will operationalize the variable of preparedness in terms of academic and non-academic factors impacting CCR. Specifically, the instrument will generate two separate mean subscale scores to measure the self-reported preparedness of University-Model® high school graduates in terms of time management and general preparedness—which includes factors such as maturity and well-being. These data will help explain the perception of University-Model® high school graduates as it pertains to the degree in which they feel their high school prepared them for college.

While some strategies have been shown to improve college and career readiness in certain situations, proponents of University-Model® schools, assert that the model provides for its students and families an alternative form of education that better prepares its graduates for college as opposed to traditional models. Advocates of University-Model® schools claim their education model addresses both academic and non-academic factors impacting CCR. The purpose of this study is to quantitatively measure the performance of University-Model® high school graduates in terms of college preparation.

School Choice Movement

Economist Milton Friedman, 1976 Nobel laureate, challenged the concept of government-controlled schooling (Hastings, 1999). Friedman, "the grandmaster of free-market theory," believed government's role in controlling and managing economics was minimalistic (Noble, 2006, p. 1). Friedman's capitalistic views, expressed throughout the second half of the 20th century, were in direct opposition to the British economist John Maynard Keynes' General Theory, which contended that governments had the obligation to assist economies in periods of recession and to reduce the impact of inflation (Noble, 2006; Taylor, 1985). For example, while both economists saw the great American depression of the 1930's as a "crisis of inadequate aggregate demand" Keynes pointed to great depression as proof that the free market had failed, while Friedman concluded it was in fact the Federal Reserve that failed by improperly managing the supply of money (Wolf, 2006, p. 1). In addition to publishing more than a dozen books, Friedman championed his theories on a global scale through his ability to communicate his complicated economic theories in simple terms through various media such as magazine

columns and a public television series (Noble, 2006; Wolf, 2006). With the momentum of his best-selling book "Free to Choose" in 1980, Friedman went on to become an influential figure in American economics including serving as a close advisor to American President Ronald Reagan and British Prime Minister Margaret Thatcher (Noble, 2006; Stedman Jones, 2009). Friedman says of the free market,

> Economic freedom is an essential requisite for political freedom. By enabling people to cooperate with one another without coercion or central direction, it reduces the area over which political power is exercised. In addition, by dispersing power, the free market provides an offset to whatever concentration of political power may arise. The combination of economic and political power in the same hands is a sure recipe for tyranny. (Friedman & Friedman, 1980).

In addition to his influence on global economics, Friedman, applied his theories to the role of government in education (Friedman, 1955). Friedman's free-market theory, when applied to education, challenges the long-held views of Horace Mann's 19th century aim of traditional, universal and free public education (Hastings, 1999). In his essay "The Role of Government in Education" Friedman (1955) claims the government has fulfilled its obligation to fund education but has over-extended itself in its efforts to administrate schools. Friedman (1955) connects his free-market theory to education by stating,

> The lack of balance in governmental activity reflects primarily the failure to separate sharply the question what activities it is appropriate for government to finance from the question what activities it is appropriate for government to

> administer—a distinction that is important in other areas of government activity as well (p. 16).

Friedman advocated less governmental control of schooling, and increased parental choice, which in turn would drive the free market to improve education (Friedman, 1982; Hastings, 1999). To accomplish this, Friedman advocated for educational vouchers to free up governmentally allocated education funds affording parents the option to choose which school they want their children to attend (Friedman & Friedman, 1980; Hastings, 1999). As public perception of public schooling declined, Friedman continued to write articles in support of vouchers, and his ideas eventually began to gain support in political and educational spheres (Friedman, 1995; Friedman, 1997; Friedman, 2005; Hastings, 1999). Friedman's consistent advocacy of educational reform by means of vouchers supported by his free market theory, effectively eroded the public's long-held views of the role of government in education and essentially led to the rise of a "plethora of plans, schemes, designs, and definitions" (Hastings, 1999, p. 72) of the school choice movement. As a result, recent favorable legislation has afforded parents increasing educational options such as charter schools, magnet schools, vouchers, virtual or online schools, and even homeschooling (Bhatt, 2014; DeArmond, Jochim, & Lake, 2014; Haddermann, 2002; Quillen, 2012). Additionally, tools for parents to exercise their educational options such as education savings accounts, vouchers, tax-credit scholarship, and individual tax credits/deductions are becoming increasingly available in many states (EdChoice, 2016).

Friedman's application of his market theory to educational vouchers and school choice lives on today through Ed Choice (formerly the Friedman Foundation), an

organization solely devoted to advocating the concept of educational choice as well as training policymakers and stakeholders to understand the benefits of school choice and equipping them to enact change (EdChoice, 2016). According to EdChoice (2016), there are 25 current voucher programs in 14 states, the largest of which is Indiana's Choice Scholarship Program, serving 32,686 of the estimated 168,900 students nationally. Educational savings accounts are now available in three states serving nearly 10,000, tax-credit scholarships are available in 17 states serving 249,800 students, and individual tax credits are now available in 4 states with an estimated 473,000 tax returns claiming educational expenses (EdChoice, 2016).

The charter school concept remains very popular among Americans and enrollment in such schools has increased over 700% from 2000 to 2013 (Burshaw & Calderon, 2014-b; U.S. Department of Education, National Center of Educational Statistics, 2015). Additionally, homeschooling has grown over 200% from 1997 to 2015 (National Home Education Research Institute (n.d.). While private school enrollment has decreased by 16% from 2001 to 2011, this can be explained by the increase in charter schools, where up to 32 percent of charter school enrollment comes from private schools in highly urban districts (Buddin, 2012; Snyder & Dillow, 2015). However, the school choice movement is not without opponents, particularly in how it impacts traditional public schooling. Students migrating from private to charter schools within the same tax base create financial burdens on districts and states attempting to fund the education of these additional students (Buddin, 2012). Additionally, policymakers must continue to carefully consider all potential and far-reaching implications of school choice legislation that may be favorable to school choice proponents but negatively impact non-choosers

(Gill, Timpane, Ross, Brewer, Booker & RAND Education, 2007). While policymakers work with educators and other stakeholders to apply Friedman's free market theory to school choice, trends show that families are eager to exercise their freedom to choose the best educational options for their children.

Hybrid/Blended Learning

An expanding plethora of school choice options combined with ongoing advances in technology have created an additional educational option for parents: hybrid or blended learning, which is sometimes referred to as mixed-mode learning. While many researchers use the terms synonymously, others refer to hybrid learning when describing schools that require students to spend at least half of their instructional time online, often in a live, synchronous, teacher-facilitated virtual classroom, while in blended learning schools, students spend the majority of their time in a traditional, face-to-face classroom while a smaller portion of materials are available online (Schulte, 2011). Still others draw delineation by referring to blended learning as a more balanced format than hybrid learning when comparing time spent between face-to-face and online learning (Helms, 2014). For the purpose of this study, blended and hybrid learning will be used synonymously.

Initially online blending learning environments were exclusive to higher education. However, by 2000 approximately 45,000 K-12 students participated in online courses, and by 2010 that number surpassed 4 million (Staker, 2011). Additionally, since the majority of K-12 students seeking online courses were homeschoolers, virtual content providers, realizing that 90 percent of the population will never consider homeschooling, began to recruit mainstream, traditional students from brick-and-mortar schools (Staker,

2011). While most researchers include online learning as an essential component of blended schools, others are defining University-Model® schools as hybrid homeschools combining brick-and-mortar schools with homeschooling (Bliss, 2013; Wearne, 2016). In fact, according to Oliver & Trigwell (2005), when one considers the various pedagogical tools and resources employed by an instructor, all learning is blended, even within a traditional classroom.

Much research is being conducted to determine the benefits and performance of students in blended learning environments. While many agree that a blended approach to learning provides students with personalized, teacher-facilitated instruction while maintaining the learner's control over elements such as path, pace, time, and place, others are concerned that these elements fail to provide the structure and accountability many students require to be successful (O'Byrne & Pytash, 2015, Staker, 2011). Studies have shown students in higher education blended classes receive higher grades than they received in face-to-face classrooms (Dziuban & Moskal, 2001; Martyn, 2003; Twigg, 2003; Vaughan, 2007), had higher retention rates (Dziuban & Moskal, 2001; Vaughan, 2007), and better access to learning resources (Aspden & Helm, 2004). However, according to Helms (2014), these results are dependent on solid course design and pedagogy. Helms' (2014) meta-analysis research identified face-to-face scheduling, teacher-student communication and course content as three recommendations for blended course designers. Despite recent support of K-12 blended learning from the U.S. Department of Education and the Bill & Melinda Gates Foundation, some researchers point to the rapidly evolving software and curricula as well as the wide variety and effectiveness of partnered brick-and-mortar schools as lack of empirical data (Sparks,

2015). Nevertheless, blended learning environments are growing in popularity and enrollment (Staker, 2011).

This migration of students to blended learning can be explained, in part, by variation theory (Marton & Trigwell, 2000; Marton & Tsui, 2004). Variation theory has its roots in phenomenography which emphasizes how people experience or think about phenomena around them (Pramling Samuelsson & Pramling, 2015). Variation theory suggests that for learning to occur in a formal setting, the learner must experience variation in terms of instructional delivery strategies and resources as well as curricula design (Oliver & Trigwell, 2005). Oliver and Trigwell (2015) suggest that for students to learn, they must be capable of discerning differences between new information and previous knowledge, and without variation, this is not possible. Blended learning varies the space of learning (off campus or brick-and-mortar) as well as the mode of instructional delivery (online via technology or face-to-face). Educational theories such as constructivism and the Montessori approach have been instrumental in the shift from teacher-centered classrooms to student-focused learning as well as the understanding that all students learn and interpret information differently (Ultanir, 2012; Oliver & Trigwell, 2005). While these approaches have led to pedagogical reform in brick-and-mortar schools, their impact has opened the door for additional forms of variation in learning.

Additionally, blended learning can be further understood by Anderson's (2003) Equivalency of Interaction (EQuiv) Theorem, developed from research surrounding the distance learning fad of the 1990's. The Equivalency of Interaction Theorem states that deep and meaningful formal learning is supported as long as one of the three forms of interaction (student-teacher; student-student; student-content) is at a high level. The

other two may be offered at minimal levels, or even eliminated, without degrading the educational experience. High levels of more than one of these three modes will likely provide a more satisfying educational experience, though these experiences may not be as cost time effective as less interactive learning sequences (Anderson, 2003, p. 4).

Parental Involvement in Education

Parents are increasingly dissatisfied with public schools as evidenced by a general distrust of teachers (Burshaw & Calderon, 2014-b), the failure of schools to adequately prepare students for college (Anderson, 2015), the unpopularity of recent changes in curricula including the Common Core State Standards (Burshaw & Calderon, 2014-a) and parents' concern regarding the cultural climate of schools and the safety of their children. These factors are leading an increasing number to consider alternative options beyond traditional schools, particularly homeschooling, and blended school-home programs such as University-Model® schools. Schools have responded to issues such as school shootings and bullying by installing cameras and metal detectors, restricting on-campus access, requiring staff members to wear ID badges and training staff members on crisis management (Ewton, 2014). However, according to the 2016 Gallup Work and Education poll, 29 percent of U.S. parents fear for the physical safety of their children at school and 10 percent of parents report their child has expressed worry or concern about feeling unsafe at school (Auter, 2016). Twenty-year trends of these data show little change with the exception of spikes corresponding with mass school shootings like Columbine, Colorado (1999) and New Town, Connecticut (2012) (Auter, 2016). Despite the fact that the U.S. Department of Education (2015-a) reports that the percentage of students ages 12-18 who report being bullied during the school year has decreased from

28.1 percent in 2005 to 21.5 percent in 2013, parental perception of school safety remains relatively unchanged. These negative factors are causing many parents to challenge the status quo of traditional schooling and reconsider their roles in educating their children. According to Murphy (2012), along with religion and family-based motivations, the top reasons parents are turning to homeschooling are a result of academic deficiencies and social/environmental problems in their assigned public schools. Wearne (2016) conducted research among parents whose children attend hybrid homeschools to determine the most important reason why parents choose this model; he determined the top three responses reported were better learning environment (13 percent), better education (13 percent) and religious education (13 percent). Wearne (2016) defines hybrid homeschools as any school which follows "the organizational structure of holding school 2-3 days per week in a physical, traditional-looking classroom setting, and homeschooling the rest of the week" (p. 365).

Because of the partnership embedded with the model, supporters of University-Model® schools assert the model engages parents in the education of their children, and with that, parents are afforded a central role in the formation of their children's values and character (Turner, 2001). According to Barker (2013), "University-Model® schools strive to capitalize on the human resources available to them—specifically, the parents—and aims to provide the parents opportunities to monitor and be involved in their children's educational progress" (p. 121). Barker's (2013) study examined parental involvement practices within University-Model® schools and reported that parents and teachers agreed that University-Model® schools provide high levels of parental

involvement through the high school grades ultimately resulting in graduates who are prepared for the transition to college.

Barker (2013) parses three foundational theories to support the rationale of the University-Model's® high levels of parental involvement and satisfaction with the model. Epstein's (1987) theory of overlapping spheres of influence suggests that for children to be successful in education and eventually in their career, the three influential spheres of school, family, and community should be overlapping and balanced in the life a child. In terms of Epstein's theory, University-Model® schools are unique in that they attempt to overlay the school and family spheres while providing space and time enough to properly balance the community sphere. Bronfenbrenner's (1979) systems-ecological theory espoused his ecological model of child development, which suggests that within the microsystem and mesosystem of a child's interaction, the parents, even more so than the school, teachers, peers, siblings, or religious setting, are the most powerful influence on a child's development. Lastly, Rosenburg, Lopez and Westmoreland's (2009) family engagement model of shared responsibility, which is based upon the theory of shared responsibility, defines the dimensions of opportunity, role, and learning to be shared among the school, family, and community. University-Model® schools seek to clearly define parental roles, including these three dimensions, through their uniquely blended scheduling and high levels of parental involvement (Barker, 2013). Parental dissatisfaction with the current state of traditional education and ongoing cultural changes away from traditional family values have led many parents to reevaluate educational decisions for their children. These theories help explain and validate a migration to greater parental involvement in educational choices.

Research studies have repeatedly confirmed a strong connection between parental involvement levels and student achievement (Epstein, 1985; Henderson & Berla, 1994; Shute, Hansen, Underwood & Razzouk, 2011). According to Soenens, Vansteenkiste, Luyckx and Goossens (2006), students have been proven to perform better academically and display positive behavior characteristics when their relationship with their parents is trustful, stable, and with open lines of communication.

While research has shown that parental involvement typically wanes as students progress through middle and high school (Deslandes & Bertrand, 2005; Flynn & Nolan, 2008), studies have shown that parental involvement remains critical for student success throughout high school (Tenenbaum, Porche, Snow, Tabors & Ross, 2007). Several factors contributing to this decline in parental involvement as students progress through school are increased difficulty levels of subject content, the natural desire for parents to provide their teenagers with autonomy in decision making, and better time management skills (Adams & Christensen, 2000; Deslandes, 2000; Simon, 2004). Additionally, lower levels of parental involvement are also attributed to factors within the control of school systems such as teacher attitudes towards parental involvement, lack of time for teachers to reach out to parents, lack of teacher training, and factors that inadvertently discourage parental involvement such as scheduling and school climate issues (Epstein & Van Voorhis, 2001; Epstein & Dauber, 1991; Hoover-Dempsey et al., 2005; Halsey, 2005; Reali & Tancredi, 2003; Smith et al., 1997). Lastly, another barrier preventing parental involvement in American schools is the changing nature of the family structure. The U.S. Census Bureau (2012) reports that 34.8% of school aged children do not live with

both parents, and out of the 65.2% of children who do live with both parents, 65% have mothers who work (U.S. Census Bureau, 2010; U.S. Census Bureau, 2012).

Despite these barriers, according to a series of U.S. Department of Education (2012) reports entitled *Parent and Family Involvement in Education*, parental involvement in education increased consistently from 1996 to 2007 (Child Trends, 2013; Noel, Stark, Redford & Zukerberg, 2015). Specifically, in 2007, 89% of parents reported attending general meetings, 78% report attending scheduled meetings with teachers, 74% report attending school or class events, and 46% report to have volunteered or served on a committee (Child Trends, 2013). The study reports consistent increases over time in all four areas. Despite slight decreases in the 2012 data, this trend suggests that parents, despite the changing familial structures, are making efforts to be involved in their child's education. While this study shows that parents are making efforts to be more visible and involved at the school building, an analysis of which specific strategies are having the most impact on student success is necessary to fully assist parents and teachers in developing and implementing parental involvement practices that best result in student success.

Hill and Tyson (2009) conducted a meta-analysis of 50 research studies to determine which strategies of parental involvement in education are the best predictors of student achievement at the middle school level. In this analysis, parental involvement strategies were separated into three categories: school-based, home-based, and academic socialization (Hill & Tyson, 2009). Results showed that parental help with homework was the only strategy that was not positively associated with achievement (Hill & Tyson, 2009). However, other home-based strategies such as making educational resources

available, taking children to educational outlets like zoos or museums, and providing enriching educational activities had a positive relationship with achievement (Hill & Tyson, 2009). While school-based strategies consistently showed positive relationships with achievement, the strategies that had the strongest association with achievement were those reflecting the academic socialization of the student (Hill & Tyson, 2009).

> Academic socialization includes parents' communication of their expectations for achievement and value for education, fostering educational and occupational aspirations in their adolescents, discussing learning strategies with children, and making preparations and plans for the future, including linking material discussed in school with students' interests and goals (Hill & Tyson, 2009, p. 758).

In another meta-analysis study, Jeynes (2010) reports that the spirit and attitude of parents engaging in the education of their children may be more important than the strategies applied at home. According to Jeynes (2012), while the research clearly states that voluntary expressions of parental involvement (e.g., reading with one's child, setting high expectations for academic achievement) are strongly related to student success, evidence is still lacking regarding the impact of school-based parental involvement programs leaving schools unsure how to respond. "Without this knowledge, it is not clear whether schools should attempt to enhance parental engagement or whether such activities should be left up to parents with schools practicing a more laissez fair approach to parental participation" (Jeynes, 2012, pp.707-708). However, since the U.S. Department of Education has repeatedly stressed parental involvement as a key factor for student success through policies and legislation (National Education Goals Panel, 1995; No Child Left Behind Act of 2001, 2002; Shartrand et al., 1997) traditional school

systems are implementing activities and programs designed to teach parents and teachers how to foster more effective and efficient parent-school relationships (Barker, 2013).

While student demographics including parental income levels have been proven to predict student achievement, studies have shown that the connection between parental involvement and student achievement goes beyond income levels (Heymann & Earl, 2000; Xu, 2004; Xu & Corno, 2003). According to Henderson and Berla (1994), parental involvement, more so than family income or social status, is the most accurate predictor of student achievement. Oyerinde (2014) found similar results in a recent study researching the relationship among parental involvement, socioeconomic status, and mathematics achievement of 8th grade African-American students. Using NAEP assessment mathematic scores, Oyerinde (2014) found a significant positive correlation between parental involvement and student achievement, but no statistically significant correlation between parents' socioeconomic status and students' math achievement. This impact is explained by the family's ability to create a home environment that encourages learning, express high expectations for achievement and career goals, and be involved in the educational process at school and in the community (Henderson & Berla, 1994). According to Epstein (1987), "The evidence is clear that parental encouragement, activities, and interests at home and parental participation in school and classrooms positively influence achievement, even after the student's ability and family socioeconomic status are taken into account" (p. 19).

This study will measure the performance of University-Model® school graduates in terms of successful transitions to college. Research has clearly shown that parental involvement in education—a key component in the structure of University-Model®

schools—is a consistent predictor of student success particularly in the area of academic socialization. Proponents of University-Model® suggest that their model of education promotes many of these areas of academic socialization because of the more centralized role of the parent (Barker, 2013). Specifically, University-Model® schools are said to provide specified roles for parents, constant parent-teacher communication, and support for parents (UME, 2010 as cited in Barker, 2013). According to Turner (2001), University-Model® schools require "active parental mentoring" (p. 39). In fact, Turner (2001) identifies nine parental roles central to University-Model® schools: primary teacher, co-instructor, private tutor, guide for dependent study, guide for independent study, course monitor, project assistant, parent coach, and the active supporter. These nine parental roles, which are embedded within the design of University-Model® schools, detail the various levels of involvement required by parents as student progress through the model (Turner, 2001).

According to Henderson & Berla (1994), "When schools work together with families to support learning, children tend to succeed not just in school, but throughout life" (p. 1). Proponents of University-Model® schools believe their model, with its college-simulated learning environment and structured and specific family involvement requirements will adequately prepare its graduates for the transition to college (University-Model® Schools International, n.d.-a; University-Model® Schools International, n. d.-b; Turner, 2001). In order to measure the impact of University-Model® schools in achieving this mission, this study will compare the FYGPAs of University-Model® school graduates from the 2016 and 2017 graduating cohorts to national archival data of FYGPAs of private and public school students from the same

cohort. Additionally, the study will gather and analyze data regarding University-Model® graduates' beliefs about the degree to which their high school experience prepared them for the transition to college.

Time Management Habits of Students

Much research has been conducted regarding the impact of time management habits as it relates to academic performance of students, particularly in the area of study habits. Recent studies have shown that students are struggling to balance the academic challenges of college life with other priorities like vocational pursuits, socializing and extra activities including leisure (Brint & Cantwell, 2010; Nonis, Philhours & Hudson, 2006; Thibodeaux, Deutsch, Kitsantas & Winsler, 2017). Consistent with Conley's (2011) theory of needing a more holistic approach to measuring CCR, Astin (1999) hypothesized that appropriate levels of non-academic pursuits could actually increase academic performance provided they are adequately tempered in terms of time. Brint & Cantwell (2010) found that college students generally spent equal amounts of time on academics and leisure; however, those who spent less time on academics than on non-academic pursuits like vocational or leisure pursuits, had lower FYGPAs. Brint & Cantwell (2010) further learned that higher amounts of active leisure (exercising, socializing, volunteering, etc.) are better predictors of academic success than higher amounts of passive leisure (commuting, watching television, playing video games, etc,). Studies have shown that college students spend inadequate amounts of time studying and completing school-related tasks, and that students generally have an inaccurate understanding of how much time is required to succeed academically (Zuriff, 2003; Cerrito & Levi, 1999). These studies paint the picture of college students lacking the

ability to discern the difference between actual time spent studying and planned time set aside for studying (Thibodeaux, et. al., 2017).

Thibodeaux, et. al. (2017) consider time management, along with learning strategies and goal setting, to be the keys for students to develop self-regulated learning habits, and that, "planning one's time helps avoid procrastination, which can be seen as a failure to self-regulate" (p. 8). One study found that students with good GPAs understood short- and long-term planning and had time-oriented attitudes while students with low GPAs were more prone to procrastination (Britton & Tesser, 1991). Bembenutty's (2009) study on at-risk students showed that students setting goals for academic pursuits positively related to their time management habits and academic performance. Despite the research indicating that better time management practices relate to higher academic achievement, a recent study by Thibodeaux, et. al. (2017) concluded that many students, particularly first-year college freshmen, are struggling to adjust to the planning required to master self-regulated learning skills. Their study tracked 589 students across the first two years (four semesters) collecting data comparing planned time management habits with actual time spent on various tasks and activities. Students were asked a series of questions four times over the course of two years, and their scores were scaled within four categories: academic, passive leisure, socializing, and obligations. Additionally, students were asked to report their beliefs regarding a series of questions with Likert-style options. Students were also asked to record their targeted GPA for the first and second semester of college, which was ultimately compared to their actually GPAs. They concluded that students who plan their time and adjust the plan accordingly as the semester unfolds achieved higher GPAs. However, they learned that

actual time spent on activities was not related to the first semester GPAs, but planned time use was related to GPAs. Since research has shown that college students are not typically aware of how much time should be planned for various activities, specifically academics, "assessments of student time use, planning, and time use revision" (p. 22) are important factors in increasing academic performance (Thibodeaux, et. al., 2017). Proponents of University-Model® schools claim their hybrid educational model encourages high school students to self-regulate their studying habits and balance their non-academic pursuits leading to successful transitions to college (Turner, 2001; UMSI, n.d.-e). This study will, in part, mimic the research of Thibodeaux, et. al., (2017) to determine if the sample of University-Model® school graduates' reported time use is an accurate predictor of FYGPA.

The Structure of University-Model® Schools

University-Model® schools are non-traditional private, Christian schools—a hybrid educational model combining attributes from homeschooling and traditional schooling. Typical University-Model students spend between 8-21 hours per week, depending on the age of the student, in a traditional classroom sitting under the instruction of a professional teacher (University Model Schools International, n.d.-a; Turner, 2001). As part of the design to gradually prepare students for college while students progress through the model the amount of time spent in the classroom increases such that upon graduation, University-Model® school graduates are already attending classes on a typical college schedule. Figure 1 shows how students in the University-Model® are uniquely prepared for the transition to college (University Model Schools International, n.d.-f).

Figure 1. *The Gift of Time*

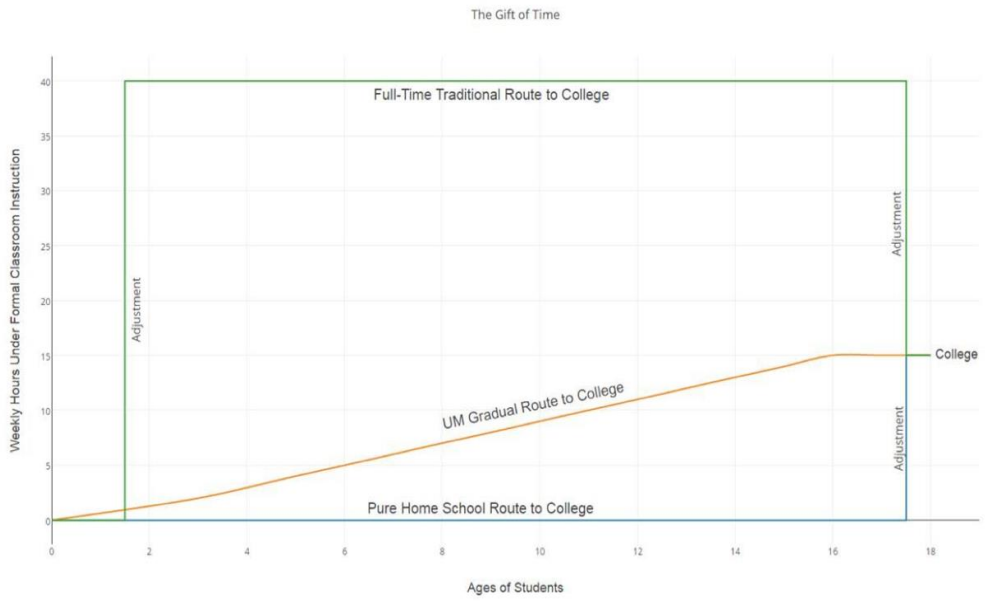


Figure 1. The Gift of Time. Reprinted from UMSI.org, 2019. Retrieved March 9, 2019 from http://umsi.org/about-umsi/about-the-um/. Copyright 2019 by UMSI.

University-Model® schools require a unique and strong level of parental involvement as parents of elementary age children serve as co-instructors, or co-teachers, on home-bound learning days. However, as students progress through University-Model® schools, the parent-student relationship evolves to more of a mentoring and facilitating role as the high school student takes ownership of his/her learning by developing independent study habits and time management skills (Turner, 2001). According to Turner (2001), the key attributes of University-Model® schools compared to traditional schools are "greater access for parents to stay involved" and the "college-simulated learning environment" (p. 7). This study will analyze the research and literature regarding both of these attributes.

The History of University-Model® Schools

In 1992, the *GPA Project*, a private group of parents desiring to test the educational theories of parental involvement and character development in terms of academic success in grades 1-12 and college preparation, was implemented (Grace Preparatory Academy, 2016). This group of parents sought to take advantage of the collective benefits from traditional schooling (private and public) as well as homeschooling in efforts to marry "two proven elements of educational success, the professional classroom instruction of a teacher and the caring at-home mentoring of a parent combined into a single, unified, college-simulated program" (Grace Preparatory Academy, 2016, Prospective Students, History section). Additionally, the *GPA Project* desired a learning environment with "character education, low student/teacher ratios, hands-on learning, a strong student work ethic, an effective college-preparatory curriculum, character-building student activities, and servant-minded local operation and management" (Grace Preparatory Academy, 2016, Prospective Students, History section). According to the University-Model® Schools International (2013), the educational theories sought by the *GPA Project* were supported by many research studies proving academically average students could achieve academic success and reduce high school dropout rates, but implementation efforts were limited based on the traditional structure of public and private schools.

This *GPA Project* became Grace Preparatory Academy, the first University-Model® school, which in the fall of 1993 opened its doors in Arlington, Texas (University Model Schools International, n.d.-c; Grace Preparatory Academy, 2016). University-Model® Schools International (UMSI), the outreach arm of the *GPA Project*,

was implemented in 2002 and incorporated in 2005 to provide guidance and assistance to all University-Model® schools by serving as a central repository and clearinghouse (National Association of University-Model® Schools, 2014; Grace Preparatory Academy, 2016). NAUMS, which was accredited by the Commission on International and Trans-Regional Accreditation (CITA) in 2008 and again by AdvancED in 2012, promotes its vision as "to strengthen Christian families and values by helping parents prepare college-worthy, character-witnesses of Christ for the next generation" (University-Model® Schools International, n.d-a). All UMSI member schools are private, Christian, University-Model® schools. As part of their supportive role, UMSI provides yearly statistical reports that describe "norms across the nation in order for member schools to better understand their own specific strengths and needs" (National Association of University-Model® Schools, 2014, preface section). While not available to the public, these Annual Statistical Reports have been made available to the researcher for the purposes of this study. All data in the NAUMS Annual Statistical Reports represent only reporting UMSI schools and has been collected and analyzed by UMSI; however, there are additional UMSI member schools for which UMSI did not receive data. Furthermore, the NAUMS Statistical Reports are currently the only comprehensive data available regarding University-Model® schools.

According to their most recent available data, UMSI schools have grown in recent years from 32 schools and 2,975 students in 2007 to 50 schools and 7,683 students in 2013 (National Association of University-Model® Schools, 2014). Most UMSI schools support part-time student enrollment. In the fall of 2013, approximately 87.5% students enrolled at reporting University-Model® schools were full-time students; however, these

percentages decrease as students progress toward upper grades as nearly 25% of 12th graders at reporting University-Model® students are part-time (National Association of University-Model® Schools, 2014). Attendance at reporting University-Model® schools is relatively equally spread out among grades K-12 with most grades within the 500 to 700 student range nationally (National Association of University-Model® Schools, 2014). Average class sizes of reporting University-Model® schools range from 4.2 to 14.9 with greater class sizes coming from generally upper grades and larger schools by population (National Association of University-Model® Schools, 2014). In the fall of 2013, reporting University-Model® schools were operating in 18 states with the greatest concentration in Texas (National Association of University-Model® Schools, 2014). 50% of reporting schools were located in suburban areas, 42% were in urban-residential areas, and 8% in rural areas (National Association of University-Model® Schools, 2014).

NAUMS reports the average enrollment per family in University-Model® schools is 1.46 (National Association of University-Model® Schools, 2014). In the fall of 2013, NAUMS schools reported 1,419 newly enrolled students, 41% of these students came from public schools, 33% from homeschooling, and 26% from private schools (National Association of University-Model® Schools, 2014). Recent data from their website suggest as of 2019, the number of UMSI schools has grown to 90 schools in 24 states (University-Model® Schools International, n.d.-c). However, since 2007 the percentage of new students from homeschooling has trended downward (47% in 2007) while the percentage of new students from public and private schools has increased (National Association of University-Model® Schools, 2007). Additionally, of the 119 new students who enrolled as part-time students in the fall of 2013, 65% came from a

homeschooling background, while 18% came from public schools, and 17% from private schools (National Association of University-Model® Schools, 2014). UMSI also reports on the number of parents in the home of University-Model® students. In grades K-2, 98% of students are from homes with 2 parents; this statistic is inversely related to the age of the student and bottoms out at 92.5% of 11th -12th graders (National Association of University-Model® Schools, 2014). While UMSI no longer reports ethnicity as part of their Statistical Reports, in 2010, reporting schools consisted of 91% white students and 92% white faculty (National Association of University-Model® Schools, 2010).

Only about 20% of the 1,230 faculty members at University-Model® schools are full-time with higher percentages of part-time teachers in the upper grade levels (National Association of University-Model® Schools, 2014). UMSI reports that 93% of its teachers at schools with more than 250 students have at least a bachelor's degree, 63% of its teachers have at least 6 years of teaching experience, and 50% of reporting schools' teachers have 6 or more years of experience (National Association of University-Model® Schools, 2014).

In the fall of 2013, reporting University-Model® schools enrolled 78.8% (1,916) of their 2,438 prospective students, which translates to approximately 46 new students per school (National Association of University-Model® Schools, 2014). These rates have fluctuated between 78% and 90% over the past four years (National Association of University-Model® Schools, 2014). Additionally, 87.1% of students enrolled in the 2012-2013 school year returned for classes in the fall of 2013; and 58% of the 9th grade freshman class of 2009 were retained through graduation in the spring of 2013 (National Association of University-Model® Schools, 2014). Retention rates of all students have

remained steady between 81% and 87% for the previous four years (National Association of University-Model® Schools, 2014). UMSI reports that 91% of the nearly 500 University-Model® high school graduates from reporting schools enrolled in colleges the following year (National Association of University-Model® Schools, 2014). Of this 91%, 41% enrolled in a 4-year state college, 29% enrolled in a 4-year private college, and 21% enrolled in a 2-year college (National Association of University-Model® Schools, 2014).

UMSI reports the average tuition (including related fees) of reporting University-Model® schools for the 2012-2013 academic year is $4,488.61, which represents a 10% increase from the 2008-2009 academic year when UMSI first began reporting tuition (National Association of University-Model® Schools, 2014). Tuition rates are generally lower at smaller schools ($3,708.21 for schools with student populations under 60 students) than at larger schools ($5,624.43 for school with student populations over 251 (National Association of University-Model® Schools, 2014).

From 2007 through 2012 UMSI collected selected standardized test scores from reporting schools. These yearly data, comprised of only results from reporting schools, resulted in ACT composite score averages ranging from 22.3 to 25.9, and SAT total score averages ranging from 1060 to 1125 (National Association of University-Model® Schools, 2007, 2009, 2010, 2012). Specifically, in 2007, ACT data was collected from 26 students attending 4 different schools resulting in an average composite score of 25.9; and SAT scores from 65 students attending 3 of the same schools plus one additional school resulting in an average score of 1125 (National Association of University-Model® Schools, 2007). Additionally, according to UMSI, in 2009 almost 250 University-

Model® school student standardized scores yielded an ACT composite average of 22.3 and a combined SAT average score of 1062 (National Association of University-Model® Schools, 2009). Also, in 2010, a combination of almost 450 standardized test scores from reporting UMSI schools resulted in average ACT composite scores of 25.4 and SAT scores of 1109 (National Association of University-Model® Schools, 2010). Lastly, in 2012, a total of 290 ACT composite scores were collected from reporting UMSI schools and yielded an average score of 24.4 (National Association of University-Model® Schools, 2012). In comparison, ACT nationwide composite scores of all graduating high school seniors have ranged from 21.0 and 21.2 from 2007-2012, and SAT total scores have ranged from 1010 to 1015 during the same year range (ACT, Inc., 2010-a; ACT, Inc., 2014; CollegeBoard, SAT, 2014). While University-Model® school standardized test scores from the limited sample collected by NAUMS indicates University-Model® high school graduates are outperforming the nationwide averages, these data are inconclusive due to the limited sample size and participation rate among the UMSI data. Additionally, nationwide ACT and SAT test scores include data from all students from traditional schools (private and public) as well as all non-traditional schools including University-Model® schools. In 2012, according to the Council for American Private Education (2012), private school students averaged 23.2 composite scores on the ACT, which falls within the range collected by NAUMS from 2007 to 2012. While this study will collect self-reported ACT and SAT scores of University-Model® high school graduates, it will also compare the academic performance of University-Model® schools with traditional private and public schools in terms of academic preparation for the transition to college as measured by first-year college GPA (FYGPA).

Existing Research: University-Model® Schools

Currently there exists a dearth of research surrounding University-Model® schools; there are only three known published research studies. The first, an unpublished dissertation, explored the difference between the beliefs of parents and teachers of University-Model® school students regarding the impact of parental involvement practices and satisfaction levels with University-Model® schools (Barker, 2012). Barker's study revealed that parents and students believe the key benefits of University-Model® schools are more family time, increased levels of parental involvement through high school, college preparation, and equipping students with time management skills (Barker, 2012). Barker's (2012) study, which consisted of a sample of 242 parents and 108 teachers from 12 participating University-Model® schools, indicated high satisfaction levels among parents and teachers regarding many of the variables that proponents of University-Model® schools tout (University-Model® Schools International, n.d.-d; Turner, 2001). Specifically, 97% of parents were satisfied with their teen's progress in his/her University-Model® school (Barker, 2012). When asked about key weaknesses of the model, 17% of parents reported no weakness, 10% reported limited electives, and 8% reported the overall homework workload can sometimes be overwhelming (Barker, 2012). Parents reported that the top key benefits of University-Model® schools to be:

> Involves parent in child's education all the way through high school (29%), students learn time management skills/become independent learners (26%), more family time (24%), quality college-prep education provided (14%), and the University-Model® school schedule structure (12%) (Barker, 2012, p. 200).

Teachers reported the key weaknesses of University-Model® schools to be:

> Unengaged/working parents (24%), limited face-to-face class time with students (17%), little time to practice/discuss concepts in classroom (12%), and sometimes at-home days viewed as free/vacation days (10%) (Barker, 2012, p. 200).

When asked about the key benefits of University-Model® schools, 42% of teachers reported that the model provides more family time for stronger relationships/greater influence, 28% reported that students learn time management skills/become independent learners, 19% report more parental involvement and support, 19% report the model involves parents in child's education all the way through high school, and 16% report that the model prepares students for college (Barker, 2012). Additionally, in a separate item 29% of teachers reported the biggest difference between traditional school models and University-Model® schools is more parent support, effort, and involvement; 56% of all teachers responding to the survey taught in a traditional school prior to teaching in a University-Model® school (Barker, 2012). While Barker's (2012) results of high parental satisfaction rates help explain the trends in increased enrollment among University-Model® schools, more research is needed to quantify the impact of attending University-Model® schools on the academic performance of students in high school and the transition to college.

A second study entitled "Academic College Readiness Indicators of Seniors Enrolled in University-Model® Schools and Traditional, Comprehensive Christian Schools" begins the process of shedding light on the academic performance of University-Model® students (Brobst, 2013). Brobst's (2013) unpublished dissertation explored the difference in levels of academic college readiness between high school

seniors attending University-Model® schools and traditional Christian schools while controlling for prior academic achievement and gender. Test data were collected from high school seniors from three University-Model® schools and compared to archival data from three traditional Christian schools, all in the Dallas, Texas, metro area. The sample size consisted of 156 traditional school seniors and 90 University-Model® seniors, all from the graduating classes of 2009, 2010, and 2011 (Brobst, 2013). In order to control for prior academic achievement, all participants from both groups had taken the Stanford-10 in 7th, 8th, or 9th grade. Brobst (2013) used the college readiness indicators within the score reports from ACT and SAT results to measure academic college readiness. Brobst (2013) concluded that school type, when controlling for gender and prior academic achievement, was significant in predicting academic college readiness. Specifically, while the SAT composite scores showed that University-Model® high school seniors scored significantly higher than traditional, Christian schools' seniors there was no such difference in the relationship between academic college readiness and school type (Brobst, 2013). These results suggest that, when measured by the ACT and SAT college readiness benchmarks, for the population in Brobst's (2013) study, University-Model® high school seniors, when controlled by prior academic achievement, are no better prepared for college than their traditional, Christian school peers. These results, while inconclusive and preliminary in nature due to the limitations of the study, run contrary to the claims of University-Model® school proponents.

A third study conducted by Wearne (2016) surveyed 136 parents of students from four (three Christian and one Catholic) hybrid homeschools in the Atlanta, Georgia metropolitan area to determine 1) family characteristics, 2) what hybrid homeschool

families value and 3) the sources of information they seek when choosing hybrid homeschools. One of the schools in Wearne's (2016) study was an official University-Model® school, another was an unofficial University-Model® school, and the other two were similar in structure, but were not affiliated with UMSI. Wearne (2016) found that 87.9% of families had yearly incomes of $75,000 or higher, 84.4% had college degrees, 96.7% were married, 92.6% White/Caucasian and 91.8% lived in suburban areas. The most popular reasons reported for choosing the hybrid homeschool model were religious education (81.7%), better learning environment (79.4%), smaller class sizes (79.4%), less time wasted during the school day (76.2%), more individual attention for child (64.3%), better education (59.5%), better preparation for college (54.8%), more meaningful opportunities for parental involvement (54.8%), more responsive teachers and administrators (53.2%), greater respect for my rights as a parent (53.2%) and other students would be a better influence on children (51.6%) (Wearne, 2016). Of these responses, better learning environment, better education and religious education were reported when parents were asked for the most important reason for choosing the hybrid homeschool model (Wearne, 2016). When asked about the type of information they sought, parents reported that the most important factors were curriculum (80.8%), student to teacher ratio (72.8%), school accreditation (71.2%), religious doctrine (67.2%), percentage of students who are accepted and attend college (53.6%) and hours spent in class (44.0%) (Wearne, 2016). While Wearne's (2016) study was limited in its 19% response rate and delimited geographically, it yields an understanding of the demographics and values of parents choosing hybrid homeschools and sheds light on their decision-making process.

Summary

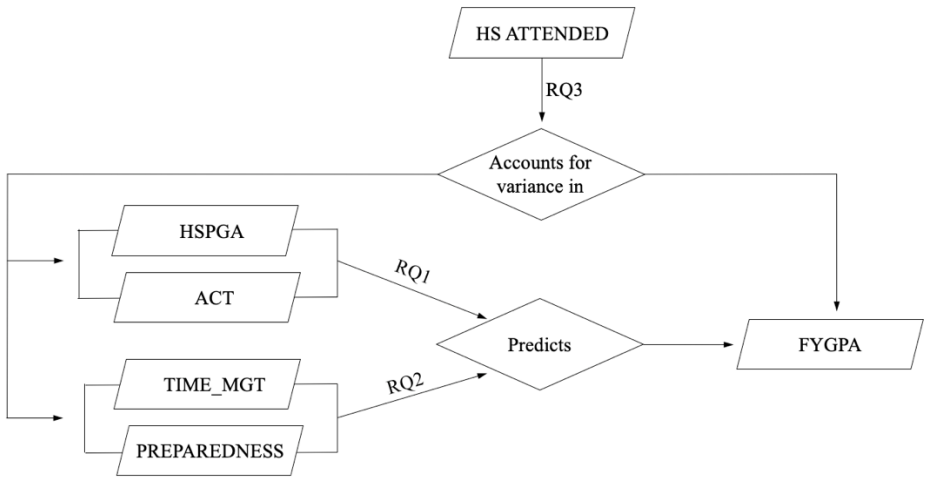
Poor performance by America's high schools in terms of CCR has opened the door for Friedman's (1959) free-market theory to be applied to education, leading to legislation favoring the school choice movement by providing parents with more education options for their children. While CCR has been often defined, measured, and researched in terms of academics, current research points to many non-academic factors that are predicting CCR (Allen & Robbins, 2010; Henderson & Berla, 1994; Heymann & Earl, 2000; Hill & Tyson, 2009; Jeynes, 2012; Oyerinde , 2014; Shartrand et al., 1997; Xu, 2004; Xu & Corno, 2003). Researchers and theorists, like Conley (2014) are responding to this research by expanding the definition of CCR to include these non-academic factors of preparedness (Fields & National Assessment Governing Board, 2014; Mattern et al., 2014). One key non-academic factor that has been consistently proven to predict student achievement, and thus CCR, is parental involvement (Epstein, 1985; Henderson & Berla, 1995; Shute, Hansen, Underwood & Razzouk, 2011; Soenens, Vansteenkiste, Luyckx & Goossens, 2006; Tenenbaum, Porche, Snow, Tabors & Ross, 2007). Theories such as Epstein's (1987) theory of overlapping spheres and Bronfenbrenner's (1979) systems-ecology theory have suggested that the parent's role in child development and education is central to a child's proper development. While school and community-based programs are responding by reaching out to strengthen school-parent relationships, University-Model® schools have taken a non-traditional approach to parental involvement (Turner, 2001, University-Model® Schools International, n.d.-b). University-Model® schools, like all educational models, seek to academically prepare graduates for successful transitions to college and career, and their

proponents suggest the structure embedded within the model also prepares graduates for these non-academic variables contributing to collegiate success such as parental involvement, time-management skills, independent study habits, and maturity (Turner, 2001; University-Model® Schools International, n.d.-b). With a growing number of families choosing to enroll their children in University-Model® schools, more research is needed to assist the education community, policymakers, and parents in making informed decisions as to whether or not this budding educational model is achieving the results its proponents and founders intended—namely college readiness.

CHAPTER III - METHODOLOGY

The purpose of this study was to collect data from 2016 and 2017 graduates of University-Model® high schools including academic performance indicators and beliefs regarding levels of preparedness for college to determine whether these variables are related to students' actual performance in the first year of college as defined by their first-year grade point average (FYGPA). Academic indicators collected included high school grade point average (HSGPA) and standardized assessment scores (ACT, SAT). To quantify preparedness, participants were asked two sets of questions to report their beliefs regarding how well-equipped they were for the transition to college in terms of time management (TIME_MGT) and general preparedness (PREPAREDNESS). A sum score of each variable was generated for each participant. These variables were analyzed to determine whether they predicted a successful transition to college as defined by first-year college grade point average (FYGPA). These data were collected via a researcher-generated questionnaire. Figure 2 shows the relationship among variables.

Figure 2. *Interaction of Variables*



Note. All variables will be collected via questionnaire from eligible participants.

Additionally, the study explored the relationship of the same performance indicators among University-Model® high school graduates, traditional public school graduates, and traditional private school graduates. In order to conduct this exploratory portion of the study, archival data of students who graduated from traditional private and public high schools was collected along with additional information on University-Model® graduates including demographics and the type and size of college attended. Through this process, the researcher measured the performance of University-Model® high school graduates in terms of preparing students for the transition to college.

Research Questions

This study addressed the following research questions:

For graduates of University-Model® high schools:

1. Was performance in high school related to student performance in their first year of college?
2. Were beliefs regarding levels of preparedness related to performance in the first year of college?
3. Were beliefs regarding levels of preparedness related to the high school attended?

This study additionally explored the following research questions:

4. Is there a difference among the standardized composite test scores for high school seniors who attended public high schools, private high schools, and University-Model® high schools?

5. What types of colleges are graduates of University-Model® high schools attending and how does their transition to college differ among those attending different colleges in terms of size and type of institution?

Research Design

A cross-sectional survey design was used to answer the research questions. Information was collected and analyzed from current college students who graduated from University-Model® high schools via a researcher-generated questionnaire. The questionnaire entitled "University-Model® School Graduate Questionnaire" (Appendix A) was distributed to eligible participants identified by participating University-Model® school counselors and administrators.

To answer Research Question 1, participants were asked to self-report their high school academic performance as measured by HSGPA, ACT score, and/or SAT score. The relationship between high school academic performance and FYGPA of University-Model® high school graduates was analyzed, and these data were used to determine whether relationships existed between the participants' performance in their first year of college as defined by first-year college GPA (FYGPA) and the students' academic performance in high school.

To answer Research Question 2, participants were asked to report their time management practices in high school and college as well as their beliefs regarding how prepared they were for the transition from high school to college. To quantify the time management and preparedness variables, participants were prompted to respond to two separate groups of questions with Likert-style selection options regarding their self-assessed beliefs of preparedness. The first section of questions assessed the time

management habits of participants in their senior year of high school and their first year of college. The second set of questions asked participants about their beliefs regarding their general level of preparedness in high school and their first year of college. These variables were operationalized by creating a mean score for each participant, and preparedness scores were analyzed to determine if relationships existed between the time management practices, general preparedness and FYPGA. Research Question 3 assessed the relationship between all variables and the specific University-Model® high school attended. Responses to the questionnaire items provided data from the participants regarding the University-Model® school each participant attended, including the name of the school and the number of years the participant attended the school, which allowed the researcher to disaggregate statistics based upon the number of years (longevity) the school has been in existence. Additionally, the number of years each participant attended their respective University-Model® school provided the opportunity to relate the length of a participant's experience at a University-Model® to their academic preparedness as defined by FYGPA.

The nature of Research Questions 4 and 5 were exploratory. To answer Research Question 4, self-reported ACT and SAT composite scores from eligible participants were compared to archival data from national score reports provided by ACT, Inc. (2019). Research question 5 was concerned with the type of college participants are attending. These data assisted the researcher in framing results based on the different types of colleges attended by graduates of University-Model®, public, and traditional private school graduates.

Participants

Permission to conduct the study was sought from the lead administrator at each of the 26 targeted University-Model® schools. Targeted schools were UMSI schools founded in or before 2005 and consisting of students from at least the 7th grade through the 12th grade. In order to increase the validity of the study, these eligible schools were selected to ensure that the sample included a sufficient pool of graduates from established UMSI schools. A sample copy of the request letter is included as Appendix B. Once approval to conduct the study was secured by the dissertation committee, the researcher earned approval through the Institutional Review Board of The University of Southern Mississippi (see Appendix H).

The researcher reached out to all 26 schools seeking institutional permission to conduct the study. Table 1 outlines the 26 eligible schools including their location and total enrollment as of 2018.

Table 1 *Eligible Schools*

School Name	Location	Total Enrollment
Christ Preparatory Academy	Lenexa, KS	214
Christian Life Preparatory School	Fort Worth, TX	311
Community Christian School	Westfield, MA	80
Coram Deo Academy	Flower Mound, TX	1259
Cornerstone Christian Academy	McKinney, TX	318
Cornerstone Preparatory Academy	Acworth, GA	484
Denton Calvary Academy	Denton, TX	309
Faith Academy of Marble Falls	Marble Falls, TX	261
Grace Preparatory Academy	Arlington, TX	424
Grace Preparatory School	Stafford, VA	84
Heritage Academy	Columbia, MO	84
Johnson Ferry Christian Academy	Marietta, GA	416
Kingdom Preparatory School	Lubbock, TX	192
Kings' Academy Christian School	Tyler, TX	84
Lake Pointe Academy	York, SC	174
Legacy Classical Christian Academy	Haslet, TX	79
Legacy Preparatory Christian Academy	The Woodlands, TX	420
Lighthouse Preparatory Academy	Jefferson City, MO	131
Logos Preparatory Academy	Sugar Land, TX	485
Lucas Christian Academy	Lucas, TX	412
Providence Classical Christian Academy	Rogers, AR	557
Rock Solid Christian Academy	Littleton, CO	65
Spirit Christian Academy	Tustin, CA	111
Veritas Academy	Austin, TX	581
Waxahachie Preparatory	Waxahachie, TX	143
Wylie Preparatory Academy	Wylie, TX	310

Email invitations (Appendix E) were sent to all 26 eligible schools seeking approval to participate in the study. Attached to the email was a copy of the approving committee's letter and a letter (Appendix F) from Barbara Freeman, chief executive officer of UMSI, validating and approving of the study. Data collection procedures were modified and IRB approval was secured allowing school leaders to 1) give organizational consent electronically via Qualtrics, and 2) send the questionnaire link directly to eligible students, thus avoiding completing the spreadsheet (Appendix D) and releasing student

contact information to the researcher. Organizational consent was secured from 15 of the 26 eligible schools; 8 schools elected to send student contact information to the researcher and 7 elected to forward the invitation directly to eligible graduates. Table 4 details the 15 schools participating in the study and response rates.

Table 2 *Participating Schools*

School Name, Location	Invitations Sent	Surveys Completed	Response Rate
Christ Life Preparatory School, Fort Worth, TX[a]	18	9	52.6%
Community Christian School, Westfield, MA[b]	17	6	35.3%
Coram Deo Academy, Flower Mound, TX[b]	98	27	27.6%
Cornerstone Christian Academy, McKinney, TX[a]	29	22	75.8%
Cornerstone Prep. Academy, Acworth, GA[a]	42	21	50.0%
Johnson Ferry Christian Aca., Marietta, GA[b]	68	13	19.1%
Kingdom Preparatory School, Lubbock, TX[a]	16	9	56.3%
Kings' Academy Christian School, Tyler, TX[b]	24	2	8.3%
Legacy Classical Christian Aca., Haslet, TX[b]	5	1	20.0%
Legacy Prep Christian Aca., The Woodlands, TX[a]	31	10	32.3%
Providence Classical Christian Aca., Rogers, AR[b]	46	10	21.7%
Spirit Christian Academy, Tustin, CA[a]	22	6	26.1%
Veritas Academy, Austin, TX[b]	46	10	21.7%
Waxahachie Preparatory, Waxahachie, TX[a]	23	6	26.1%
Wylie Preparatory Academy, Wylie, TX[a]	43	20	46.5%
Total	528	172	32.6%

[a]Submitted student contact information
[b]Forwarded the invitation directly to graduates

A total of 528 invitations were sent to 2016 and 2017 graduates from participating University-Model® schools; 226 invitations were sent directly from the researcher, and 304 invitations were sent directly from participating schools. Three of the invitations sent by the researcher were completed but removed from the study based on the participants' selection of "other" to graduating year disqualifying them from the study. 46.0% of invitations sent by the researcher were completed, and 22.7% were completed from invitations sent via participating schools for a total return rate of 32.7%. Of the 227 contacts provided to the researcher, 92 included cell phone numbers, and 221 included email addresses. For the 86 contacts consisting of email addresses and cell phone

numbers, email initiations were sent first, followed by text invitations. Text message invitations were sent to cell phone numbers through the researcher's email address.

Invitations sent by the researcher were personalized with the University-Model® high school name in the subject area, and the name of the graduates' school administrator and designee were listed in the first paragraph of the email. Additionally, the subject of the email contained a reference to the $10 eGift card participants could claim for completing the survey. Upon completion of the survey, participants were instructed to send an email to david.herndon@usm.edu with their preference of gift card. 117 (66.9%) of the 175 participants followed through to claim their gift card. All gift card requests were fulfilled within 48 hours of the request.

Instrumentation

The researcher developed a questionnaire to gather data from eligible participants. The questionnaire was sent to identified, eligible graduates from University-Model® high schools who were part of the 2016 or 2017 graduating classes. The survey provided data for the analyses associated with all research questions as well as provided pertinent background information on each participant. Participants were provided with an electronic questionnaire and distributed through Qualtrics to any eligible participant for whom an email address was provided. Additionally, some schools elected to distribute the instrument to graduates themselves.

The first section of the instrument was designed to gather background and academic data used for selected analyses. The second section, titled "Time Management" was mirrored from an instrument used in similar research conducted on the time management habits of college freshman (Thibodeax, et al (2017). However, some items

were altered slightly to fit the sample, and students were asked to respond to each item as it related to their senior year of high school and their freshman year of college. Participants selected from the following options to record their weekly time management habits from each of the 18 items: 1) none, 2) <1 hour, 3) 1-2 hours, 4) 3-5 hours, 5) 6-10 hours, 6) 11-15 hours, 7) 16-20 hours, and 8) > 20 hours. The last section of the instrument, also mirrored but altered from the same study on time management habits of college freshmen, was titled "Preparedness" and consisted of 12 items from which participants responded with the degree to which they agreed with each statement when they were 1) seniors in high school, then 2) freshmen in college. Response options were on a 7-point Likert-scale ranging from "strongly disagree" to "strongly agree."

Once approval to conduct the study was obtained by the Institutional Review Board at The University of Southern Mississippi grants, reliability of the instrument was established through a pilot study consisting of 22 participants from non-targeted University-Model® schools. To test the internal consistency of the time management and preparedness variables, Cronbach alpha values and test-retest measures of reliability were calculated.

Data Collection

As part of the exploratory portion of the study, archival data were collected, analyzed, and compared to the data collected from the researcher-generated questionnaire to assist with Research Questions 4 and 5. To answer Research Question 4, archival data of ACT composite scores were collected from national score reports provided by ACT, Inc. (2019). These data came from the same cohort of students (2016 or 2017 high school graduates) as those of the participants in the study and consisted of the entire

population of American high school seniors taking the assessment. The 2016 cohort of graduating high school seniors consists of approximately 2.09 million ACT test-takers (ACT, Inc., 2016) while the 2017 class of graduating seniors consisted of 2.03 million ACT test-takers (ACT, Inc., 2017). SAT scores were collected from participants, but the data was rendered unusable due to the researcher's failure to adequately control for the College Board's decision to change their scoring scale in 2016.

Counselors at each targeted site electing to provide the researcher with eligible graduates' contact information received specific instructions (Appendix C) along with a pre-designed spreadsheet for completion (Appendix D). The instructions for each counselor laid out the steps required to complete a spreadsheet. Each spreadsheet consisted of a column for graduating seniors from the class of 2016 or 2017 along with contact information for each potential participant. Contact information included email addresses and the names of the colleges the students are currently attending. Counselors were given the option to complete a handwritten form or type in the columns on the spreadsheet. Lastly, they were asked to scan and email the document back to the researcher or mail a hard copy to the physical address provided by the researcher. The researcher compiled a list of all University-Model® high school graduates' email addresses and cell phone numbers provided by participating schools from the graduating cohorts of 2016 and 2017 in order to track the participation rate. Lead administrators electing to distribute the survey to eligible graduates completed an online consent form through Qualtrics. An email invitation was sent to the school's designee to be forwarded out to eligible graduates. Designees responded back to the researcher reporting how many surveys were distributed to track participation rates.

All data collected from the researcher-generated questionnaire were anonymous, and participants were requested not to give their names. Participants were informed that their responses were anonymous. Emails were sent to eligible participants directing them to the Qualtrics hosting site to access the questionnaire. Upon entering Qualtrics, participants encountered an informed consent cover letter in which the researcher explained that consent was given should the participant complete and submit the questionnaire. Participants were informed that by doing so they were consenting to participate in the study and for the data they provided to be used for the purposes described in the letter. Participants wishing to proceed continued to the questionnaire. Electronic responses were compiled within the hosting site then downloaded to a secure, password protected computer. All participants were given contact information for the researcher should any questions or concerns arise regarding the instrument, their data, or the study itself.

In order to help motivate eligible participants and increase the participation rate, each participant received a $10 Amazon, iTunes or Google Play gift card gift card for the completion of the study. Participants completing the questionnaire were prompted at the end of the questionnaire to send an email to the researcher's email address requesting their choice of gift card should they wish to do so. There was no way to associate these requests with data provided.

Data Analysis

Research question 1 analyzed the relationship between high school academic performance indicators (HSGPA), ACT scores, and FYGPA of University-Model® school graduates through a multiple regression analysis. An additional multiple

regression was conducted to determine if the number of years graduates attended University-Model® high schools predicted academic performance in high school and college. Additionally, a paired-samples *t*-test was conducted to compare the probabilities of FYGPA success based on ACT scores of University-Model® school graduates with the results from a recent study by ACT, Inc. (2017-b). Research question 2 was addressed by analyzing the relationships between University-Model® graduates' beliefs regarding time management and general preparedness and FYGPA by multiple regression analyses. Additionally, *t*-tests were conducted to compare the mean scores between high school and college responses as well as compare responses from the University-Model® graduates to a similar study employing the same metrics by Thibodeaux, et al (2017). An ANOVA was conducted to answer research question 3 regarding whether the specific University-Model® high school attended accounts for variance among the time management and preparedness variables and the academic variables, HSGPA, ACT scores, and FYGPA. Additionally, *z*-scores were calculated to determine whether the preparedness and academic variables differed based on the University-Model® high school attended.

Research questions 4 and 5 were part of the exploratory portion of the study. To answer research question 4, *z*-scores were calculated to determine if population standardized test scores were significantly different among public school graduates, private school graduates, homeschool graduates, and University-Model® school graduates. SAT scores were collected from 113 participants, but the scores were deemed unusable for this study since the College Board changed the SAT score range in January 2016. Since the instrument did not gather information on when the SAT score was

achieved, scores reported were on two different, undistinguishable scales; therefore, standardized test scores for this study will only be analyzed based on ACT scores.

Comparing means from the University-Model® graduates within the study to the whole population data has its limitations. Whole population data from ACT is reported from all test-takers within the August through May school year and includes students of all high school grades—some of which are taking the test for the first time. This study collected the highest ACT score reported from each participant, so it would be expected that a sample of likely high school seniors scoring their highest ACT score within a population consisting of younger, less experienced test-takers would be significantly higher. To get a better understanding of whether the ACT performance of University-Model® graduates varies significantly from the population of ACT test-takers, unpublished data was collected by the researcher through contact with ACT researchers. Appendix G contains a copy of the original request made by the research to ACT, Inc. These data consisted of the population mean ACT scores from the graduating classes of 2016 and 2017 separately and were disaggregated by type of school attended (homeschool students, public school students, and non-public school students). Additionally, these data included only the highest reported score from each test-taker, as many students take the test multiple times within their senior year of high school. In summary, these data only include the highest composite score of high school seniors within the same graduating classes (2016 and 2017) as University-Model® graduates within the study. It will be assumed that the University-Model® participants from this study scored their highest ACT composite score in their senior year and are therefore included within these population data.

When registering for the ACT, students are prompted to enter a six-digit high school code. According to ACT, Inc. (2019), students comprising the "Home School" group entered a value of 969999 on the ACT registration form. Homeschool students are not verified by ACT, Inc., and it should be assumed that some homeschool students elected to enter a value of a local public or private school. Students within the "Public School" group entered a value corresponding to their local high school and are verified by ACT, Inc. Students in the "Non-public School" group have either been verified by ACT, Inc. as being part of a registered private school or have not been verified as a public or private school student. The number of unverified students within the non-public school group is approximately 6-7% (ACT, Inc., 2019).

Research question 5 was answered by conducting ANOVAs to determine whether the type and size of colleges attended by University-Model® graduates accounted for variance in the academic variables HSGPA, ACT scores, and FYGPA.

Summary

As the number of University-Model® schools and students attending them continues to grow, more research is needed to assess the performance of students attending the budding educational model. The current study attempted to analyze the degree to which University-Model® schools are successfully preparing their graduates for the transition to college in terms of academics and other non-academic factors such as time management, maturity, and independent study habits. Additionally, the study will measure the performance of University-Model® schools against the aggregate performance of private schools, public schools and homeschoolers across America. A researcher-developed questionnaire on University-Model® schools yielded self-reported

data from University-Model® high school seniors from the graduation cohorts of 2016 and 2017. These data included the variables of academic performance in high school (HSGPA, ACT, SAT), beliefs regarding graduates' preparedness for college in terms of time management (TIME_MGT) and general preparedness (PREPAREDNESS), and the graduates' first year college freshman GPA (FYGPA). Additionally, as part of the exploratory portion of the study, data were collected from each participant regarding the type (by name) of University-Model® high school attended, the number of years attending the University-Model® school, and the type and size of the college attended. These data were compared to existing archival data on private and public schools to determine the performance of University-Model® schools in terms of academic performance and preparation for and success in college as measured by FYGPA. The outcome of this study provides parents, educators, and policymakers valuable information to assist them in making informed, appropriate decisions for the education of their children, students, or constituents.

CHAPTER IV - RESULTS

Pilot Phase

A pilot study was conducted to determine the validity of the researcher-generated questionnaire. Based on the limited number of schools eligible for the study, initially only non-eligible schools were approached to participate in the pilot study; non-eligible schools consisted of University-Model® schools founded after 2005. Since most of these schools are small in terms of student enrollment, it became necessary to use two eligible schools for the pilot study. Table 3 displays the schools who participated in the pilot study and the number of participants from each school.

Table 3 *Schools Participating in the Pilot Study*

School Name	Location	Participants
Greenville Classical Academy	Greenville, SC	2
Lanier Christian Academy	Flowery Branch, GA	7
Oak Grove Classical Academy	Albuquerque, NM	1
Providence Preparatory School[a]	Bellville, TX	5
The University School[a]	Colorado Springs, CO	6

[a]Eligible school

Items from the instrument's time management and preparedness sections were tested for internal validity using Cronbach's Alpha. Both sections of the instrument asked participants to respond to a series of questions reflecting upon their senior year in high school, and their first year in college. The time management section consisted of 36 total items (α = .85) including high school and college questions. This analysis indicated that the 18 (α = .74) high school time management items and 18 (α = .70) college time management items did not reach conventional levels for the assessment of internal consistency reliability. The preparedness section consisted of 24 total items (α = .55) including 12 high school and 12 college questions. When calculated separately, the 12

high school preparedness items (α = .48) and 12 college preparedness items (α = .46) did also not reach conventional levels of internal consistency reliability. Combining all 60 items from the time management and preparedness sections resulted in acceptable levels of reliability (α = .74). Despite the low alpha values associated with some of the questions, the decision was made to not alter any of the questions since the structure and many of the items themselves were mirrored from previously validated studies and subsequent instruments. Specifically, the time management section items were duplicated from Thibodeaux, et al (2017) study on the time management habits of first year college students, and the preparedness section's scale was derived from the previously validated Motivated Strategies for Learning Questionnaire (MSLQ) (Pintrich & De Groot, 1990). Nevertheless, based on feedback from one participant and the platform's (Qualtrics) recommendations, the format in which the questions were presented to participants was altered slightly to make the questionnaire more user-friendly. Items within each section were separated into groups of four to allow the answer choice headings to be visible at all times throughout the 16 time management items and 12 preparedness items. Also, all high school prompts were displayed in red and all college prompts were displayed in blue to help distinguish between the two scales. Lastly, the format was altered to allow the time management and preparedness sections to better display on mobile devices. These changes greatly increased the validity of the instrument. Table 4 displays the Cronbach's alpha values from the pilot with those of the study after the changes were implemented.

Table 4 *Reliability of Questionnaire*

	Pilot		Study	
Subset	*n*	α	*n*	α
Time Management (All)	17	.85	132	.73
Time Management (HS only)	17	.74	134	.60
Time Management (College only)	17	.70	132	.60
Preparedness (All)	20	.55	142	.84
Preparedness (HS only)	20	.48	142	.72
Preparedness (College only)	20	.46	147	.73

Main Phase

Academic Predictors of FYGPA (RQ1)

All academic data was self-reported by participants. Despite SAT scores being collected from 113 of the 172 participants the data were rendered unusable based on the College Board's decision to change the composite score range from 600-2,400 to 400-1,600 in January 2016. Table 5 displays all academic-related data collected from participants.

Table 5 *Descriptive Statistics: 2016 & 2017 Graduates of University-Model® Schools*

Variable	*n*	*M*	*SD*
Years Attended UM in High School			
2016	78	3.5	.92
2017	94	3.5	.95
All	173	3.5	.93
ACT Score			
2016	57	27.0	4.60
2017	60	26.5	4.43
All	118	26.7	4.48
High School GPA			
2016	67	3.84	.38
2017	88	3.75	.45
All	156	3.79	.42
First Year College GPA			
2016	68	3.60	.36
2017	87	3.49	.53
All	156	3.54	.47

[a]Responses greater than 4 were coded as 4

The purpose of research question 1 was to investigate whether academic performance in high school predicts academic performance in the first year of college. To answer this question, a multiple regression was performed using the independent variables high school grade point average (HSGPA) and ACT composite score (ACT) and the dependent variable first-year grade point average in college (FYGPA). A total of 118 participants reported ACT scores and 156 reported HSGPAs and FYGPAs; these data were analyzed to determine if relationships exist among variables within the sample of University-Model® graduates, and whether ACT scores and HSGPA can predict FYGPA as has been the case in multiple studies. In the sample of University-Model® school graduates from 2016 and 2017, HSGPA was related to FYGPA ($r = .42$, $p < .001$) and ACT scores were related to FYGPA ($r = .22$, $p = .020$). Research has consistently shown that HSGPA is more correlated with FYGPA than ACT scores; this study is consistent with the existing research. To understand these relationships more, a multiple regression analysis was conducted to determine if the independent variables, HSGPA and ACT scores predict FYGPA. It was determined that HSGPA and ACT scores significantly predict 8.0% of the variance ($R^2 = .42$, $F(2,103) = 4.5$, $p = .013$). It was found that HSGPA significantly predicted FYGPA ($\beta = .22$, $p = .034$), but ACT scores did not predict FYGPA ($\beta = .12$, $p = .236$). So, while both HSGPA and ACT scores are related to FYGPA, and together they predict FYGPA, separately HSGPA, but not ACT scores, predicts FYGPA. When compared to the existing research, these findings suggest that University-Model® school graduates' ACT scores are less of a predictor of FYGPA than the general population.

Based on the structure of the model, proponents would suggest the longer a student has attended a University-Model® high school, the better prepared he/she would be for the transition to college. To test this theory according to the academic variables, a correlation was conducted to determine if the number of years a graduate attended a University-Model® high school was related to HSGPA, ACT scores, and FYGPA. Only ACT scores were related to the number of years attended a University-Model® school (r = .20, p = .032) while no relationship existed between HSGPA (r = .06, p = .444) or FYGPA (r = -.02 p = .854). A multiple regression revealed that together HSGPA, ACT scores, and years attended the University-Model® school significantly predict 30.1% of the variance in FYGPA (R^2 = .09, $F(3,102)$ = 3.4, p = .021). Separately, it was found that HSGPA (β = .22, p = .032) significantly predicted FYGPA, but ACT scores (β = .14, p = .185) and years attending the University-Model® school (β = -.10, p = .29) did not. These results confirm the number of years graduates attended the University-Model® school from which they graduated had no impact on a successful academic transition to college. While descriptive statistics and mean comparisons of HSGPAs, ACT scores, and FYGPAs of the sample were all consistently significantly greater than known populations and most subgroups, the relationships and predictors of these academic variables were less significant than related studies have shown. These results suggest there are additional factors contributing to high levels of academic performance in high school and the first year of college for University-Model® school graduates.

Preparedness for College

Time Management Practices. If Conley (2011) accurately theorizes that CCR readiness cannot be predicted by academic variables alone, levels of less tangible

readiness should be prevalent in the University-Model® sample due to its unique approach to scheduling, required time management skills, and high levels of parental involvement (Turner, 2001). Research question 2 attempts to help explain how self-reported beliefs regarding preparedness are related to academic performance in high school and the first year of college. Participants were asked to report their experiences in their last year of high school (senior year) and their first year of college (freshman year) in terms of time management practices and general preparedness. The time management section included a total of 18 prompts for each level, totaling 36 responses. Responses were recorded based on weekly hours spent completing each task; the 8 response choices ranged from "none" to ">20 hours." Items and scales for this section were created based on research conducted by Thibodeaux, Deutsch, Kitsantas & Winsler (2017), and items were separated into four composite sections: academic activities, passive leisure activities, socializing activities, and obligatory activities, as consistent with previous research studies (Brint & Cantwell, 2010; Nonis, Philhours & Hudson., 2016). Responses were coded and tallied by sections to create a scale score from each participate within each of the four categories. The higher the scale score, the more weekly time was spent by each participant within each category. Each participant had two scores within each category: one for the senior year of high school, and the other for the freshman year of college. These results were used to determine whether the time management habits of University-Model® graduates predict academic success in high school and college. Table 6 summarizes responses from these sections.

Table 6 *Time Management Scale Scores of University-Model® School Graduates in Senior Year of High School and Freshman Year of College*

Variable		Sum Scale Score		Average Scale Score	
	n	*M*	*SD*	*M*	*SD*
Academics					
High School Sr.	145	22.1	4.5	3.67	.74
College Fr.	144	22.5	4.5	3.75	.75
Passive Leisure					
High School Sr.	142	17.9	4.4	3.58	.78
College Fr.	143	16.5	4.0	3.31	.81
Socializing					
High School Sr.	148	6.7	2.0	3.37	.79
College Fr.	148	6.6	2.0	3.32	1.0
Obligatory					
High School Sr.	142	16.7	4.2	3.35	.72
College Fr.	142	17.0	4.3	3.41	.85

Additionally, responses for all items were coded to an hourly amount using the following key (Table 7) to make the data more relatable.

Table 7 *Coding Key to Convert Time Management Responses to Hourly Amounts*

Answer Choice	Hour Amount Coded
None	0
<1 hour	.5
1-2 hours	1.5
3-5 hours	4
6-10 hours	8
11-15 hours	13
16-20 hours	18
> 20 hours	25

Figure 3 displays the coded mean total weekly hours each participant spent completing tasks within each category.

Figure 3. *Mean Total Weekly Hours by Category: High School vs. College*

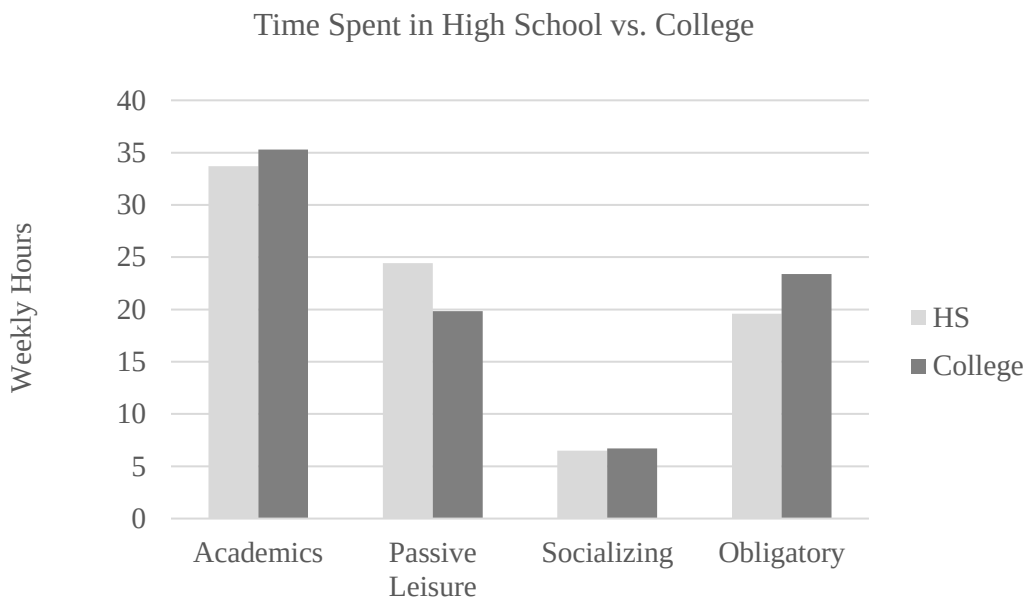


Table 8 displays the mean scale score by participant for each item as well as the coded weekly time spent on each activity among participants from University-Model® schools.

Table 8 *Mean Weekly Time Spent per Activity in High School and College*

Activity	High School Sr. Year			College Freshmen Year		
	M	*SD*	Hrs/ Wk	*M*	*SD*	Hrs/ Wk
Academic						
In Class	6.17	1.32	14.4	5.92	1.13	12.9
Studying	4.01	1.44	5.3	4.43	1.34	6.6
Homework	4.65	1.39	7.5	4.52	1.43	7.0
Academic Assistance w/ Parents	1.74	.98	.7	1.15	.43	.1
Academic Assistance w/ Tutors	1.45	.83	.4	1.66	.96	.6
Using Technology to Study	4.11	1.28	5.4	4.80	1.43	8.1
Passive Leisure						
Watching TV/Movies	4.10	1.45	5.7	3.84	1.44	4.8
Cell Phone/Social Media	4.34	1.48	6.5	4.54	1.40	7.1
Video Games	2.57	2.00	3.1	2.23	1.70	2.1
Pleasure Reading	2.51	1.42	1.9	2.39	1.34	1.7
Other hobbies	4.40	1.77	7.23	3.60	1.45	4.15
Socializing						
Attending Religious Gatherings	3.11	1.36	2.9	3.21	1.43	3.2
Socializing with Friends	3.65	.95	3.6	3.45	1.26	3.5
Obligatory						
Meetings Required for School	2.91	1.26	2.4	2.74	1.42	2.3
Exercising/playing sports	4.18	1.43	5.9	4.73	1.53	8.0
Working at a Job	3.56	2.46	6.3	4.28	2.74	9.2
Volunteering/Serving	3.01	1.41	2.8	2.52	1.40	1.9
Household Duties	3.06	.93	2.2	2.78	1.20	2.0

To determine whether the changes between reported time spent on tasks in high school was significantly different, a related samples *t*-test was conducted. Table 9 shows the results of this analysis.

Table 9 *Related Samples t-test: Time Spent on Tasks in High School vs. College*

Activity	HS Sr *M*	HS Sr *SD*	College Fr. *M*	College Fr. *SD*	*t*-test
Academic					
In Class	6.17	1.32	5.92	1.13	-2.50*
Studying	4.01	1.44	4.43	1.34	3.67***
Homework	4.65	1.39	4.52	1.43	ns
Academic Asst. w/ Parents	1.74	.98	1.15	.43	-7.94***
Academic Asst. w/ Tutors	1.45	.83	1.66	.96	2.01*
Using Technology to Study	4.11	1.28	4.80	1.43	6.59***
Passive Leisure					
Watching TV/Movies	4.10	1.45	3.84	1.44	-2.46*
Cell Phone/Social Media	4.34	1.48	4.54	1.40	2.55*
Video Games	2.57	2.00	2.23	1.70	-2.90**
Pleasure Reading	2.51	1.42	2.39	1.34	ns
Other hobbies	4.40	1.77	3.60	1.45	-5.50***
Socializing					
Att. Religious Gatherings	3.11	1.36	3.21	1.43	ns
Socializing with Friends	3.65	.95	3.45	1.26	-2.23*
Obligatory					
Mtgs. Required for School	2.91	1.26	2.74	1.42	ns
Exercising/playing sports	4.18	1.43	4.73	1.53	4.95***
Working at a Job	3.56	2.46	4.28	2.74	2.81**
Volunteering/Serving	3.01	1.41	2.52	1.40	-3.75***
Household Duties	3.06	.93	2.78	1.20	-2.68**

*$p < .05$, **$p < .01$, ***$p < .001$

Results of the paired samples *t*-test show significant differences among high school and college responses on all items except homework, pleasure reading, attending religious gatherings, and meetings required for school. These four items had such high *p*-values only Socializing $t(141) = 4.431$, $p < .001$ showed a significant difference when categories were totaled. University-Model® school students are spending significantly less time in class, receiving academic assistance from their parents, watching TV/movies, playing video games, participating in other hobbies, socializing with friends, volunteering/serving and performing household duties in college than they did in high school. Conversely, students are spending significantly more time studying, receiving academic help from tutors, on cell phones/social media, exercising/playing sports and

working at a job in college than in high school. These data will be used to answer research question 2 which seeks to determine if levels of time management practices can predict academic performance in college in terms of FYGPAs.

Time Management as a Predictor of FYGPA (RQ2, Part 1). To answer research question 2, a sum scale was created for each participant's answers in the two preparedness sections: time management and general preparedness. Time management questions were separated into four composite categories: academics, passive leisure, socializing and obligatory. Participants were asked to respond to each of the 18 questions twice, once for their senior year in high school and for their freshman year of college. The first analysis conducted was a correlation between the sum scores of each composite category, from high school and college, and FYGPA. Using the Pearson correlation coefficient it was determined that none of the composite category sum scores were significantly related to the FYGPA of participants. When each item was separately tested for a correlation with FYGPA, only time spent in class in college (r = .19, p = .024), time spent receiving academic assistance from tutors in college (r = -.24, p = .004), time spent pleasure reading in high school (r = .20, p = .019) and college (r = .17, p = .042), and time spent working at a job in college (r = .18, p = .036) were significantly related to FYGPA. To further understand these relationships, several multiple regressions were conducted to determine if time management significantly predicts FYGPA. Results showed that the four composite sum scores in high school (R^2 = .01, F(4,120) = .14, p = .968) and college (R^2 = .02, F(4,118) = .48, p = .748) were not significant predictors of FYGPA. Also, all high school time management variables together did not predict FYGPA, R^2 = .15, F(18,106) = 1.03, p = .439. However, all college time management

variables together accounted for 52.7% of the variance in FYGPA and significantly predicted FYGPA, $R^2 = .28$, $F(18,104) = 2.22$, $p = .006$. It was found that academic assistance with tutors in college ($\beta = -.31$, $p = .002$) and time spent at a job in college ($\beta = .20$, $p = .031$) significantly predicted FYGPA.

General Preparedness

The preparedness section asked participants to respond to 12 prompts for each level totaling 24 responses. Reponses were recorded using a Likert-style scale with 7 options ranging from "strongly disagree" to "strongly agree." The response scale, and some of the items, were generated from Thibodeaux, Deutsch, Kitsantas & Winsler's (2017) study, which used the Modified Strategies for Learning Questionnaire (MSLQ)—an instrument that has been successfully used in multiple studies to find a positive correlation between student responses and academic achievement (Pintrich & De Groot, 1990; Pintrich, Smith, Garcia, McKeachie, 1993). Participants were assigned separate scale scores based on their responses from their reflection on their senior year in high school and freshman year of college. Table 10 summarizes the descriptive statistics for participants' responses to the preparedness items.

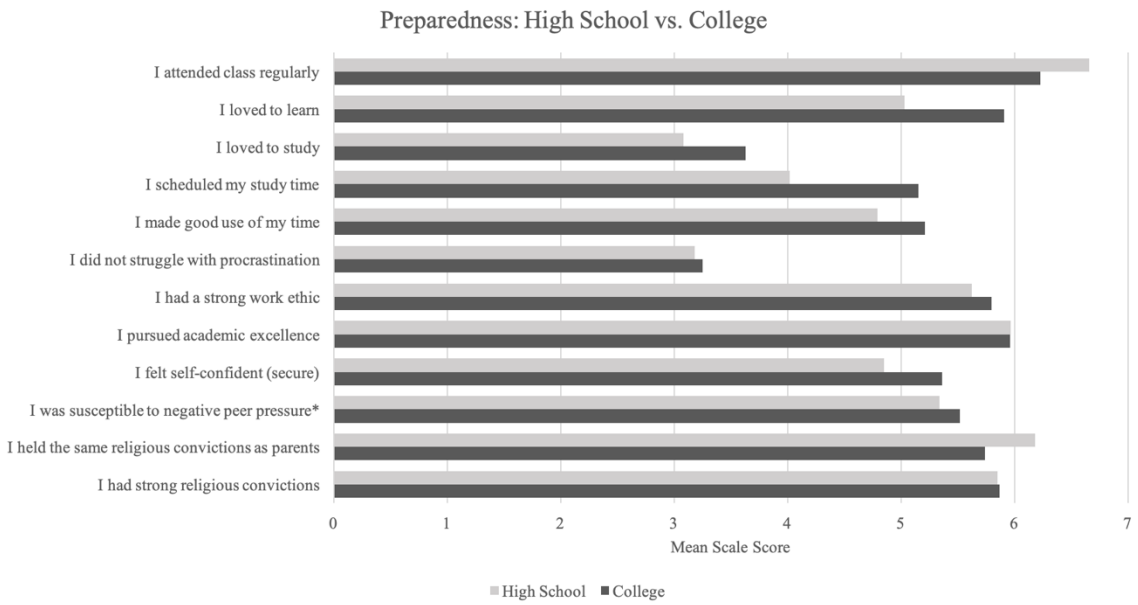
Table 10 *Descriptive Statistics: Mean Scale Scores, Preparedness Items*

Variable	Mean Scale Score HS High School			Mean Scale Score College		
	n	*M*	*SD*	*n*	*M*	*SD*
I attended class regularly	149	6.66	1.05	149	6.23	1.31
I loved to learn	149	5.03	1.75	149	5.91	1.15
I loved to study	148	3.08	1.84	149	3.63	1.86
I scheduled my study time	149	4.02	1.99	149	5.15	1.77
I made good use of my time	149	4.79	1.77	149	5.21	1.55
I did not struggle with procrastination	147	3.18	1.97	147	3.25	1.92
I had a strong work ethic	148	5.62	1.54	149	5.80	1.45
I pursued academic excellence	148	5.97	1.30	147	5.96	1.31
I felt self-confident (secure)	146	4.85	2.04	148	5.36	1.66
I was susceptible to negative peer pressure*	146	5.34	1.91	147	5.52	1.73
I held the same religious convictions as parents	148	6.18	1.23	149	5.74	1.50
I had strong religious convictions	149	5.85	1.46	149	5.87	1.54

*Scores were inverted to ensure answers were consistent with all other items.

Figure 4 shows the relationship between participants' answers in high school and college for each item.

Figure 4. *Preparedness Variables: High School vs. College*



A paired-samples *t*-test was conducted to test for significance among student answers from high school to college. Table 11 displays the results of this analysis.

Table 11 *Paired Samples T-test: Preparedness in High School vs. College*

	High School		College Fr.		
Variable	*M*	*SD*	*M*	*SD*	*t*-test
I attended class regularly	6.66	1.05	6.23	1.31	-4.89***
I loved to learn	5.03	1.75	5.91	1.15	7.15***
I loved to study	3.08	1.84	3.63	1.86	4.72***
I scheduled my study time	4.02	1.99	5.15	1.77	7.23***
I made good use of my time	4.79	1.77	5.21	1.55	3.22**
I did not struggle with	3.18	1.97	3.25	1.92	ns
I had a strong work ethic	5.62	1.54	5.80	1.45	2.07*
I pursued academic	5.97	1.30	5.96	1.31	ns
I felt self-confident (secure)	4.85	2.04	5.36	1.66	3.15**
I was susceptible to	5.34	1.91	5.52	1.73	ns
I held the same religious	6.18	1.23	5.74	1.50	-4.98***
I had strong religious	5.85	1.46	5.87	1.54	ns

*$p < .05$, **$p < .01$, ***$p < .001$

The results from the preparedness section of this instrument will be used to answer research question 2 to determine in students' self-reported levels of preparedness can predict achievement in college as measured by FYGPA.

General Preparedness as a Predictor of FYGPA (RQ2, Part 2). Participants were asked to respond twice each to a series of 12 items, once in reflection on their senior year in college, then their freshman year of college; these items were designed to measure students' levels of preparedness for entering college and maintaining academic success through their first year. Data were quantified using the code below in Table 12.

Table 12 *Coding Key to Quantify Preparedness Responses*

Answer Choice	Code
Strongly disagree	1
Disagree	2
Slightly disagree	3
Neither agree nor disagree	4
Slightly agree	5
Agree	6
Strongly agree	7

Codes were used to assign each participant a sum scale score from all 12 items. Similar to the time management variable, a correlation analysis was conducted to determine if relationships existed between high school and college items and FYGPA. Preparedness sum scale scores for high school ($r = .36$, $p < .001$) and college ($r = .45$, $p < .001$) were significantly related to FYGPA. Separately, all high school items were significantly related to FYPGA with the exception of feeling self-confident ($r = .09$, $p = .28$), susceptible to peer pressure ($r = .09$, $p = .28$), and holding the same religious convictions of their parents ($r = .11$, $p = .21$). However, in the college items, only

holding the same religious convictions of their parents (r = .05, p = .53) was not significantly related to FYGPA. Linear regressions were conducted to determine if high school and college reported levels of preparedness significantly predicted FYGPA. Sum scale scores from high school (R^2 = .13, F(1,131) = 19.31, p < .001) and college (R^2 = .16, F(1,136) = 25.42, p < .001) significantly predicted FGYPA. Multiple regressions were conducted to determine if all items collectively predicted FYGPA. The results of the regression indicated that the 12 high school variables accounted for 44.1% of the variance in FYGPAs scores of participants (R^2 = .19, F(12,120) = 2.41, p = .008). A separate multiple regression for college responses revealed college preparedness accounted for 53.5% of the variance in FYGPA (R^2 = .29, F(12,125) = 4.18, p < .001). Similar to the correlation analyses, none of the individual high school items significantly predicted FYGPA, and only attended class regularly in college (β = .07, p = .019) and strong religious convictions in college (β = .06, p = .047) significantly predicted FYGPA. Table 13 displays the results of these regressions.

Table 13 *Multiple Regression Analysis: Preparedness Predicts FYGPA*

	R	R^2	*df*	*F*	*p*
HS Preparedness: Sum Scales	.36	.13	1,131	19.31	<.001
Col Preparedness: Sum Scales	.40	.16	1,136	25.42	<.001
HS Preparedness: All Items	.44	.19	12,120	2.42	.008
Col Preparedness: All Items	.54	.29	12,125	4.18	<.001

Academic Performance and Preparedness by High School Attended

High School Attended as a Predictor of Academic Success (RQ3, Part I). Since multiple regression analyses have indicated that the beliefs regarding levels of preparedness in high school and college of University-Model® graduates significantly

predict academic performance in the first year of college as defined by FYGPA, further analyses will be conducted to learn more about how much the specific high school attended plays into preparedness levels in high school and college. Students completing the survey attended 15 different University-Model® high schools. Each school has been randomly coded 1 through 15 to protect the identity of each school. Additionally, schools were grouped according to the type of instructional pedagogy and curriculum employed to afford the opportunity to explore the impact these factors made on both the academic and general preparedness variables. These findings are detailed in the Ancillary section of this study.

ANOVA: Academic Preparedness by High School Attended

An ANOVA was conducted to determine if high school attended accounts for the variance among academic performance variables. HSGPA, $F(12,140) = 1.61$, $p = .096$, and FYGPA, $F(12, 140) = .93$, $p = .516$ did not significantly account for variance when controlled for high school attended. However, ACT scores, $F(12,105) = 2.08$, $p = .024$, were significant. Post hoc tests determined School 1 scored significantly higher than School 3 (Fisher LSD = .006), School 13 (Fisher LSD = .021), School 14 (Fisher LSD = .006) and School 15 (Fisher LSD = .044). School 2 reported significantly higher ACT scores than School 3 (Fisher LSD = .034) and School 14 (Fisher LSD = .030). School 4 scored significantly higher than School 5 (Fisher LSD = .018), School 7 (Fisher LSD = .039), School 10 (Fisher LSD = .012), School 13 (Fisher LSD = .006), School 14 (Fisher LSD = .002), and School 15 (Fisher LSD = .011). Lastly, School 7 reported significantly higher ACT scores than School 14 (Fisher LSD = .045).

High School Attended as a Predictor of Preparedness (RQ3, Part II). The purpose of research question 3 is to determine if specific schools vary significantly in preparing students for the transition to college. Schools were analyzed in three different ways for each level, high school and college: 1) all schools, 2) standard-curricular schools, and 3) classical schools. To answer research question 3, ANOVAs were conducted to determine if the variance among scaled means from preparedness variables can be attributed to the University-Model® high school attended. School 6 was removed from the analyses based on having one participant.

ANOVA: Time Management in High School by High School Attended.

The one-way analysis of variance among the four composite time management categories for high school responses reached significance in the academic category, $F(13,130) = 2.02$, $p = .024$ ($\eta^2 = .17$), and the social category $F(13,133) = 2.07$, p .020 ($\eta^2 = .17$). Among academic composite scores, School 13 spent significantly less time on academic tasks than Schools 1 (Turkey HSD = .012), 3 (Turkey HSD = .047), 4 (Turkey HSD = .029), and 5 (Turkey HSD = .010). No significance existed among responses to the time management composite categories passive leisure, socializing, and obligatory in high school.

ANOVA: Time Management in College by High School Attended.

Next, the ANOVA was conducted in the same manner except using participants' responses to the time management variables in college. Results revealed only composite social category significantly varied among means, $F(13,133) = 2.07$, $p = .020$ ($\eta^2 = .17$). Accounting for these results, it was discovered that School 1 spent significantly less time socializing in college than Schools 2 (Fisher LSD = .036), 5 (Fisher LSD = .004), 7

(Fisher LSD = .039), 12 (Fisher LSD = .015) and 13 (Fisher LSD = .004); School 15 spent significantly less time socializing in college than Schools 2 (Fisher LSD = .013), 3 (Fisher LSD = .036), 5 (Fisher LSD = .001), 7 (Fisher LSD = .014), 10 (Fisher LSD = .021), 11 (Fisher LSD = .036), and 12 (Fisher LSD = .006) and 13 (Fisher LSD = .002); and School 9 spent significantly less time socializing in college than Schools 5 (Fisher LSD = .026) and 13 (Fisher LSD = .047).

ANOVA: Preparedness in High School and College by High School Attended.

Lastly, the ANOVA was conducted based on students' summed scale score for all 12 general preparedness items in high school, then college, by University-Model® school attended. Results from this analysis showed no significance in high school preparedness responses among the 14 schools included in the analysis $F(13,125) = 1.63$, $p = .085$. Similarly, significance was lacking in college preparedness responses among schools $F(13,130) = 1.48$, $p = .132$. These results suggest that variance among results from the 12 preparedness items cannot be accounted for by specific University-Model® high school attended.

ACT Score Comparisons: Research Question 4

Research question 4 sought to compare standardized test scores from the study's population of University-Model® graduates to students from different educational models. Since the population means and standard deviations were made available to the researcher through direct communication with ACT researchers, two-independent sample *z*-tests were conducted to determine if the variance among mean scores within groups was significant. Tables 14 through 16 display the mean comparison between University-Model® school graduates and the three different subpopulations.

Table 14 *ACT Mean Composite Score Comparisons: Public School Students*

	University-Model® Graduates			Public School Students				
Year	*n*	*M*	*SD*	*n*	*M*	*SD*	*z*	*d*
2016	57	26.96	4.60	1,862,620	20.45	5.52	10.7*	1.28
2017	60	26.45	4.43	1,792,960	20.59	5.54	10.2*	1.17

*$p < .001$

Table 15 *ACT Mean Composite Scores Comparison: Non-public School Students*

	University-Model® Graduates			Non-public School Students				
Year	*n*	*M*	*SD*	*n*	*M*	*SD*	*z*	*d*
2016	57	26.96	4.60	207,626	23.81	5.43	5.17*	.63
2017	60	26.45	4.43	209,093	24.14	5.44	4.04*	.47

*$p < .001$

Table 16 *ACT Mean Composite Scores Comparison: Home School Students*

	University-Model® Graduates			Home School Students				
Year	*n*	*M*	*SD*	*n*	*M*	*SD*	*z*	*d*
2016	57	26.96	4.60	15,225	22.94	5.01	6.58*	.84
2017	60	26.45	4.43	15,452	23.12	5.11	5.81	.70

*$p < .001$

Mean composite self-reported ACT scores from University-Model® school graduates were greater than all subgroup populations, and significantly greater than all subgroups in both years except the 2017 homeschool subgroup.

Types of Colleges Attended by University-Model® School Graduates (RQ5)

Participants were asked to report the about of colleges they are attending in terms of type (private religious, private secular, or public) and the size of the college as it pertains to student enrollment.

Types of Colleges Attended. Figure 5 shows the types of colleges the participants are attending, and Table 24 shows the size of the schools.

Figure 5. *Types of Colleges Attended*

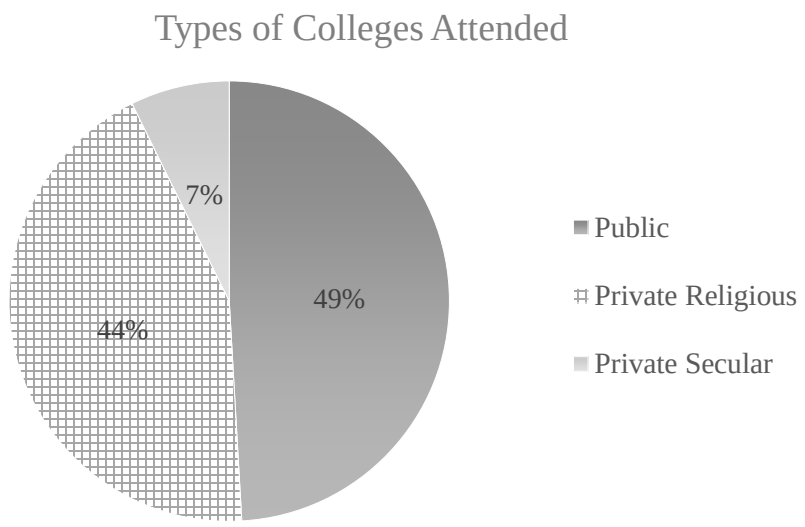


Table 17 displays descriptive academic statistics for participants based on the type of college attended.

Table 17 *Academic Descriptive Statistics: Types of Colleges Attended*

	ACT Score			HSGPA			FYGPA		
College Type	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
Private, non-religious	8	27.6	3.2	12	3.89	.35	12	3.35	.60
Private, religious	49	26.6	4.6	68	3.83	.39	67	3.50	.45
Public	58	26.9	4.5	75	3.75	.46	77	3.60	.45

Data Analysis: College Types.

A one-way between subjects ANOVA was conducted to determine if variance among FYGPAs could be explained by the types of colleges University-Model® graduates are attending. Results indicated type of colleges attended did not significantly explain the variance among any of the academic variables including ACT scores $F(2,112) = .22$, $p > .05$, HSGPA $F(2,152) = .11$, $p > .05$ and FYGPA $F(2,153) = .1.91$, $p > .05$. These results suggest types of colleges University-Model® graduates are attending do not

explain variance among academic variables. Since FYPGA is the measure used in this study to determine successful academic transitions to college, the impact of college types on FYGPA was of importance. Based on the results of the ANOVA, the types of colleges attended by University-Model® graduates do not significantly explain variance in FYGPAs. Also, of importance was the sizes of the colleges attended.

Sizes of Colleges Attended. Data was collected on the size in terms of student population of colleges attended by University-Model® school graduates. Table 18 displays the number of participants currently attended colleges by size.

Table 18 *Size of Colleges Attended*

Size	*n*	Percent
Small (Less than 2,000)	19	11.5%
Medium (2,000 to 7,499)	61	37.0%
Large (7,500 to 14,999)	28	17.0%
Very Large (More than 15,000)	57	34.5%

Table 19 displays descriptive academic statistics from University-Model® school graduates organized by the size of colleges attended.

Table 19 *Academic Descriptive Statistics: Sizes of Colleges Attended*

	ACT Score			HSGPA			FYGPA		
College Size	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
Small (<2,000)	14	24.6	5.0	18	3.82	.44	17	3.65	.41
Medium (2,000-7,499)	41	25.5	4.4	58	3.84	.33	56	3.50	.43
Large (7,500-14,999)	17	26.7	4.4	27	3.57	.54	26	3.37	.55
Very Large (>14,999)	43	28.9	3.5	52	3.84	.41	57	3.62	.46

Data Analysis: College Size.

A one-way between subjects ANOVA was conducted to determine if variance among academic variables could be explained by the types of colleges University-Model® graduates are attending. The variance among FYGPAs based on college size is of

particular importance as FYGPA is used in the current study to measure academic success in the first year of college.

Results indicated that variance among ACT scores is significantly related to the size of college graduates attend, $F(2,112) = 6.12$, $p = .001$. Post hoc tests were conducted to determine which sizes of schools varied significantly. ACT scores from students attending very large colleges were significantly higher than scores from students attending small colleges (Turkey HS, p = .007) and students attending medium-sized colleges (Turkey HS, p = .002). These results suggest that students with higher ACT scores are electing to attend very large colleges.

HSGPA scores varied significantly based on college size attended $F(3,151) = 3.27$, $p = .023$ ($\eta^2 = .17$). Specifically, HSGPAs from students attending large colleges are significantly lower than students attending medium colleges (Turkey HS, p = .022) and very large colleges (Turkey HS, p = .029). These results suggest that many students with lower GPAs in high school are electing to attend large colleges.

Results indicated college size does not significantly account for the variance among FYGPAs of University-Model® graduates $F(3,152) = 3.27$, $p = .08$. Based on the *p*-value being close to significant levels, a post hoc test was conducted to determine if FYGPA differences were significant among college sizes attended; however, no significant relationships were discovered. Additionally, students attending small colleges scored higher FYGPAs than students attending very large colleges; however, with the small sample size of graduates at small schools, these results were insignificant.

Ancillary Findings

Further ACT Mean Comparisons to the University-Model® Sample

Self-reported ACT mean composite scores from University-Model® school graduates were significantly greater than the public school and non-public school subgroups in 2016 and 2017, and significantly greater than the homeschool subgroup in 2016. To provide additional perspective, further analyses of were conducted. ACT mean composite scores from the 2016 graduating cohort within the sample (M = 26.96, SD = 4.6) were significantly higher ($p < .001$) than the population consisting of 2.09 million test takers from 2016 (μ = 20.8, σ = 5.6), (ACT, 2016). Similarly, the 2017 cohort of University-Model® school graduates reported a mean ACT score of 26.45 (SD = 4.4) which was also significantly higher than the 2017 population mean of 2.03 million test takers (μ = 21.0, σ = 5.6) (ACT, 2017). One-independent sample z-tests were used to calculate the difference in means since the population standard deviation was known. Table 20 summarizes these results.

Table 20 *Comparison of ACT Score Means: Z-test*

	University-Model®			Whole Population				
Year	*n*	*M*	*SD*	*N*	μ	σ	*z*-score	*d*
2016	57	26.96	4.60	2,090,342	20.8	5.6	8.32*	1.06
2017	60	26.45	4.43	2,030,038	21.0	5.6	7.54*	.97

*$p < .001$

Additionally, the University-Model® sample significantly outperformed the highest performing racial/ethnic group (Asian, μ = 24.0) in 2016, $t(56) = 4.86$, $p < .005$, $d = .64$, and the highest performing racial/ethnic subgroup (Asian, μ = 24.3) in 2017, $t(59) = 3.76$, $p < .005$, $d = .49$. Table 21 summarizes these findings.

Table 21 *Comparison of ACT Score Means: One-Independent Sample T-test*

	University-Model®			Asian Subgroup			
Year	*n*	*M*	*SD*	*N*	μ	*t*-test	*d*
2016	57	26.96	4.60	93,493	24.0	4.86*	.64
2017	60	26.45	4.43	96,097	24.3	3.76*	.49

*$p < .005$

Finally, when comparing the University-Model® sample to the most competitive population of ACT test takers (Asians with professional level aspirations) there was no statistically significant difference between the 2016 cohort ($\mu = 26.3$), $t(56) = 1.09$, $p = .28$ or the 2017 cohort ($\mu = 26.6$), $t(56) = -.262$, $p = .79$. Table 22 summarizes these findings.

Table 22 *Comparison of ACT Score Means: One-Independent Sample T-test*

	University-Model®			Asian Subgroup			
Year	*n*	*M*	*SD*	*N*	μ	*t*-test	*d*
2016	57	26.96	4.60	30,379	26.3	1.09*	.14
2017	60	26.45	4.43	31,240	26.6	-.26**	.03

*$p < .10$

Probability of FYGPA Success Levels of University-Model® Graduates

A recent study by ACT, Inc. (2017-b) gathered 416,668 FYGPAs from post-secondary institutions and matched them to corresponding ACT scores from test-takers' last recorded attempt. These data were aggregated by ACT score and used to calculate the probability that first-year college students would achieve a FYGPA greater than the five designated success levels. Success levels were based on students achieving a FYGPA of 2.0 or greater, 2.5 or greater, 2.67 or greater, 3.0 or greater, and/or 3.5 or greater. ACT, Inc. (2017-b) reported these data in a table, which was transposed by the researcher to SPSS were each of the five success levels were properly labeled. To compare the results of this study to the University-Model® graduate population in the

current study, the researcher computed five variables corresponding to the five FYGPA success levels for each ACT score reported in the University-Model® graduate sample for all 109 participants who provided both data sets. Variables were coded as 1 for students achieving each FYGPA success level, and a 0 for those not achieving each success level. The mean was taken from these binary results to produce a probability within each FYGPA success level for each ACT score reported. Data from both populations were copied into Microsoft Excel where line graphs were created to provide a visual of the data. Figure 6 represents the data from the ACT, Inc. (2017-b) population.

Figure 6. *Probability of FYGPA Success Levels by ACT Scores: ACT Data*

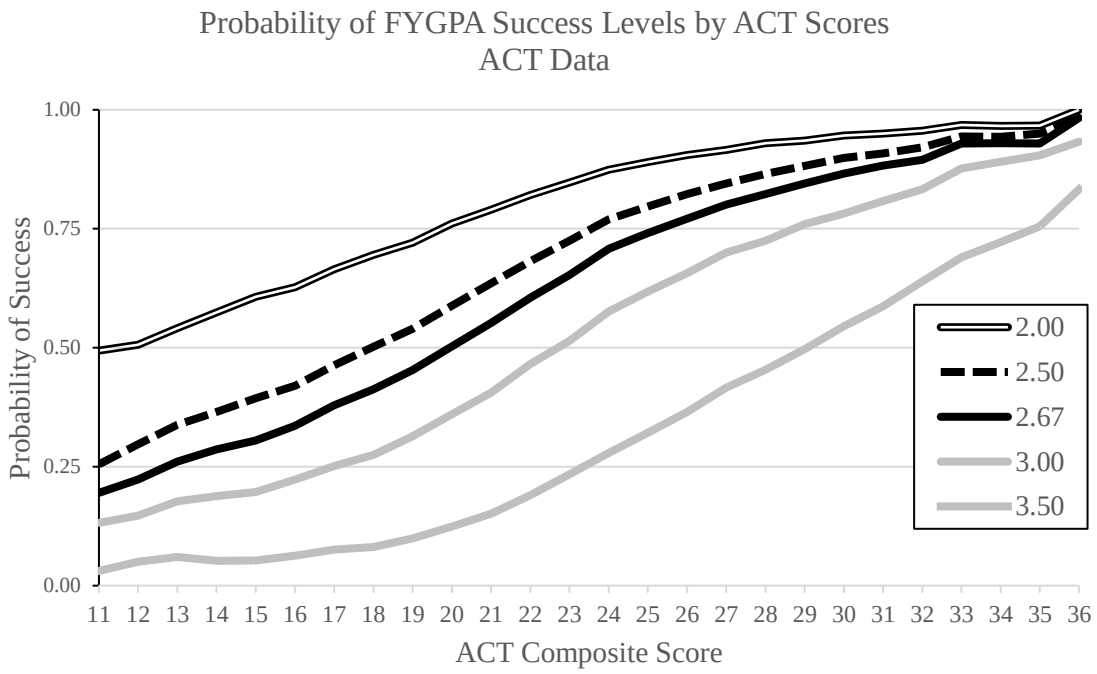
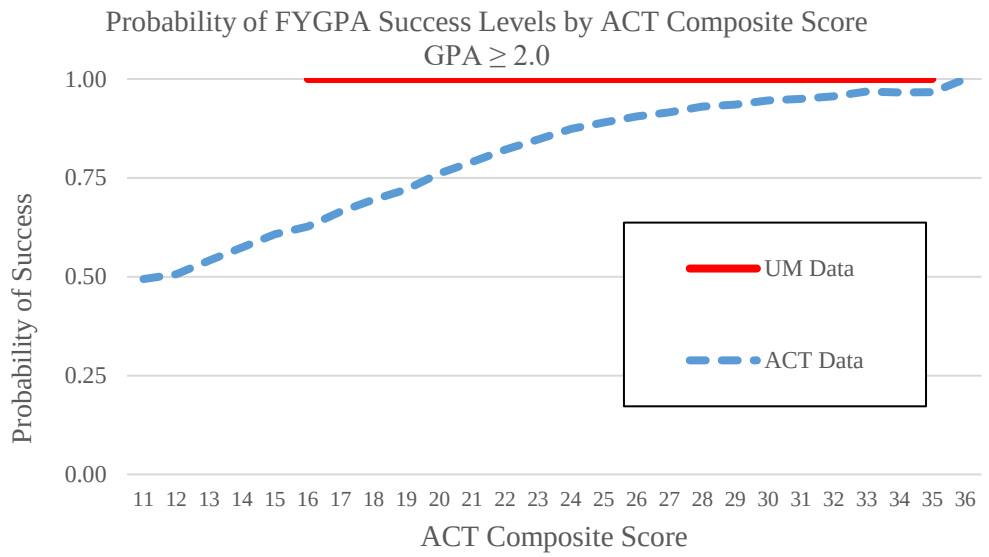


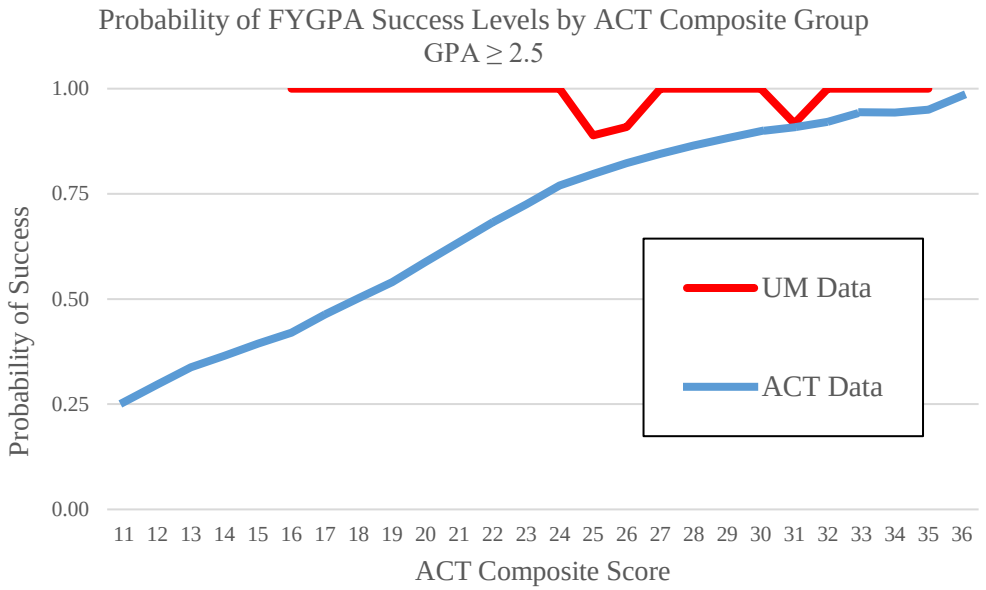
Figure 7 represents the resulting line graph comparing the current study's population to the ACT, Inc. (2017-b) population at the FYGPA of 2.0 or greater success level.

Figure 7. *Probability of FYGPA Success at 2.0 or Greater by ACT Scores*



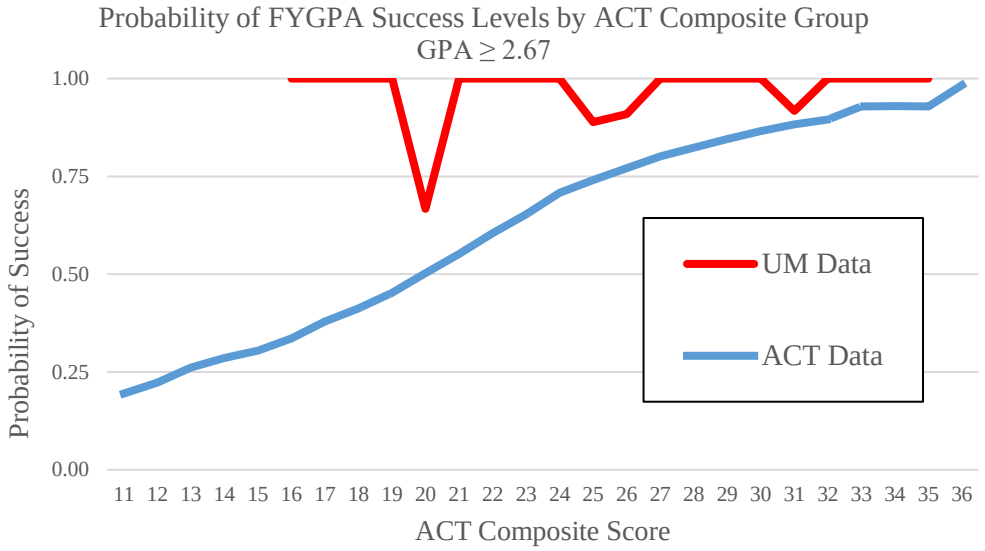
All University-Model® graduates reported a FYGPA of 2.0 or higher, and the probability that University-Model® graduates achieve FYGPA success at the 2.0 level or higher is significantly higher when compared to the ACT, Inc. (2017-b) population, $t(20) = 5.693$, $p < .001$, $d = 1.24$). Figure 8 displays the same comparison at the FYGPA success level of 2.5 or higher.

Figure 8. *Probability of FYGPA Success at 2.5 or Greater by ACT Scores*



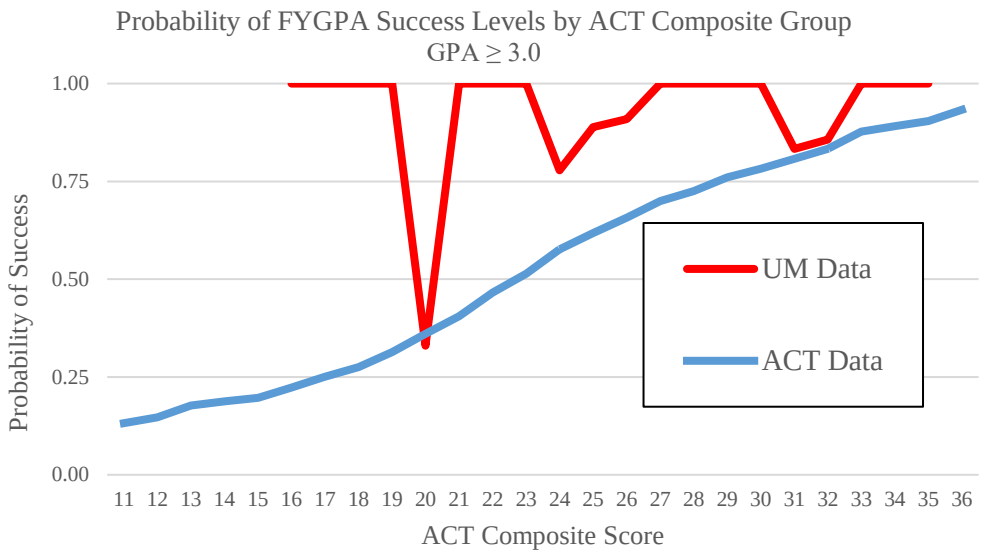
The probability that University-Model® school graduates achieve a 2.5 FYGPA or higher based on ACT scores is significantly higher than the ACT, Inc. (2017-b) population, $t(20) = 5.659$, $p < .001$, $d = 1.23$). These results are very similar to the results at the FYGPA 2.0 or higher level. Figure 9 displays these results at the FYGPA 2.67 or higher success level.

Figure 9. *Probability of FYGPA Success at 2.67 or Greater by ACT Scores*



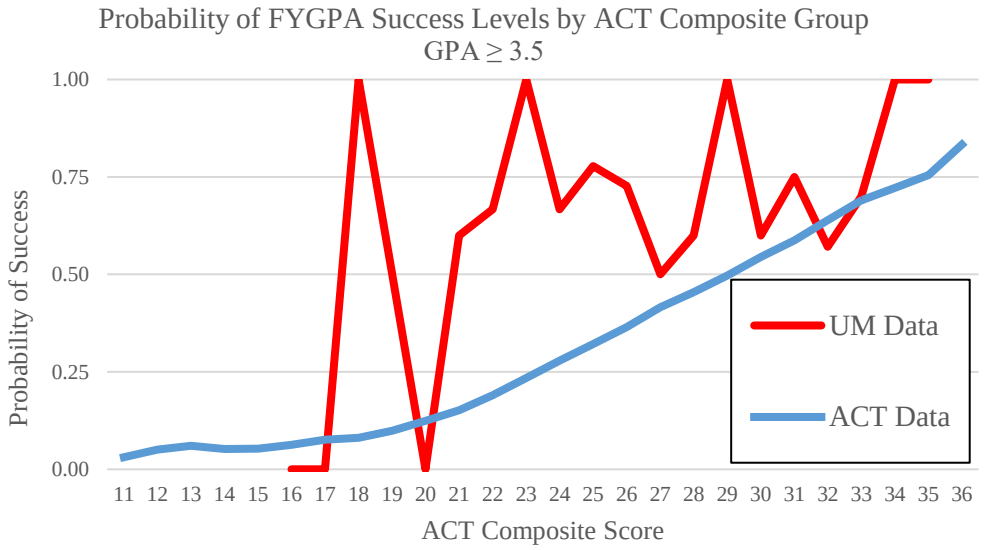
Similarly, the probability of success of University-Model® graduates achieving a FYGPA of 2.67 or higher based on ACT scores is significantly higher than the ACT, Inc. (2017-b) population, $t(20) = 5.925$, $p < .001$, $d = 1.29$). Figure 10 displays this comparison at the FYGPA success level of 3.0 or higher.

Figure 10. *Probability of FYGPA Success at 3.0 or Greater by ACT Scores*



At the FYGPA level of 3.0 or higher, University-Model® school graduates had a significantly higher probability of success, $t(20) = 5.890$, $p < .001$, $d = 1.29$). Finally, Figure 11 shows this comparison at the FYGPA success level of 3.5 or higher.

Figure 11. *Probability of FYGPA Success at 3.5 or Greater by ACT Scores*



The probability that University-Model® graduates will achieve success at the FYGPA level of 3.5 or higher based on ACT scores is significantly higher than the ACT, Inc. (2017-b) population, $t(20) = 4.036$, $p = .001$, $d = .88$). Overall, since these results compare high school graduates with the same ACT composite scores, they suggest University-Model® graduates are outperforming students of equal academic high school success (as measured by ACT scores) from other educational models. While these results, in a sense, control for academic aptitude while predicting success in the first year of college as measured by FYGPA, they are limited by nature of the University-Model® population's self-reported FYGPAs and the limited sample size ($n = 109$). Appendices x-x display these line graph comparisons as linear graphs; however, the small sample size resulting in even smaller ACT score distributions resulted in very small R^2 values.

Performance of Homeschooled Students on the ACT

While some studies have concluded homeschooled students outperform students from other models (Ray, 2015; National Home Education Research Institute, n.d.), data collected from ACT (2019) suggest that students reporting Home School as their school setting were significantly outperformed by the Non-public school group in 2016 ($z = 20.56$, $p < .001$, $d = .17$) and in 2017 ($z = 23.83$, $p < .001$, $d = .19$). While the effect size of these mean comparisons is small, the chance of a Type 1 error is very small. However, when comparing homeschooled students to public school students, homeschooled students are indeed outperforming public school students from the same graduating cohorts of 2016 ($z = 61.02$, $p < .001$, $d = .47$) and 2017 ($z = 61.24$, $p < .001$, $d = .47$).

High Schools Attended: Classical vs. Standard Schools

Schools were randomly coded using numbers 1-15. In order to explore differences among classical schools and schools employing a standard curriculum and pedagogy, classical schools were numbered 1 through 6, and standard schools were numbered 7 through 15. Table 23 displays various descriptive statistics by school.

Table 23 *Descriptive Statistics by School*

	Years Att.			ACT Score			HSGPA			FYGPA		
School	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
Classical All	67	5.7	2.4	51	27.8	4.3	62	3.8	.44	62	3.6	.54
1	27	6.4	2.2	22	28.8	3.7	26	3.8	.29	26	3.5	.58
2	10	4.7	3.1	10	27.8	4.5	10	3.8	.52	10	3.3	.76
3	9	6.6	1.7	5	22.8	5.7	7	3.9	.26	7	3.8	.31
4	10	5.9	2.6	6	31.2	1.9	8	3.6	.51	9	3.6	.41
5	10	5.0	2.4	8	25.6	3.0	10	3.4	.54	9	3.7	.35
6	1	2.0	n/a	-	-	-	1	4.3	-	1	4.0	-
Standard All	106	5.1	2.3	67	25.9	4.5	94	3.8	.41	94	3.5	.41
7	21	5.7	2.1	19	27.0	4.7	20	4.0	.25	19	3.5	.36
8	2	4.5	2.1	-	-	-	2	4.0	.07	2	3.7	.28
9	10	6.2	2.4	2	25.0	4.2	7	3.7	.39	9	3.5	.34
10	20	6.7	2.2	12	25.8	2.8	19	3.8	.49	18	3.4	.53
11	6	4.8	2.6	2	28.0	4.3	6	3.9	.24	4	3.8	.40
12	6	6.2	1.8	3	26.7	2.1	5	3.9	.18	5	3.8	.11
13	22	4.0	2.6	16	25.5	5.0	18	3.7	.50	20	3.5	.41
14	6	3.8	2.1	4	22.3	6.4	6	3.6	.41	5	3.5	.51
15	13	4.8	2.0	9	25.3	5.0	11	3.8	.51	12	3.6	.37

These data will be used to help answer research question 3 regarding the relationship between school attended and self-reported levels of preparedness among graduates of University-Model® schools. Tables 24-26 outline additional descriptive statistics sorted by school.

Table 24 *Descriptive Statistics by School: Time Management Scale Averages in High School*

	Academics			Pass. Leisure			Socializing			Obligatory		
School	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
Classical	58	3.91	.70	58	3.56	.90	58	3.40	.80	57	3.40	.87
1	27	3.81	.72	25	3.62	1.02	24	3.31	.88	24	3.12	.82
2	9	3.78	.53	9	3.18	.55	10	3.70	.54	9	3.38	.96
3	6	4.08	.69	6	3.37	.50	6	3.50	.55	5	3.36	.80
4	9	3.98	.65	8	3.60	.62	9	3.33	.90	9	3.73	.76
5	9	4.07	.93	9	4.0	1.18	8	3.31	.96	9	3.34	1.08
6	1	4.17	n/a	1	3.0	-	1	3.00	-	1	3.80	-
Standard	87	3.54	.74	84	3.59	.88	91	3.36	.94	84	3.31	.84
7	17	3.63	.87	15	3.84	.84	18	3.50	1.08	16	3.56	.82
8	2	3.42	.35	2	2.70	1.27	2	3.50	.00	1	2.60	-
9	9	3.63	.73	9	3.49	.79	9	2.94	.63	8	3.53	1.38
10	17	3.73	.85	17	3.52	.89	19	3.37	.80	19	3.44	.83
11	6	3.56	.39	6	3.73	.77	6	3.67	.68	6	3.3	.79
12	5	3.63	.53	5	3.68	1.49	5	3.60	1.39	5	2.72	.61
13	15	2.90	.52	15	3.65	.83	16	3.25	.89	15	3.23	.61
14	5	3.73	.30	5	3.08	.72	5	3.30	.76	4	2.85	.62
15	11	3.79	.70	10	3.66	.91	11	3.31	1.35	11	3.16	.82

Table 25 *Descriptive Statistics by School: Time Management Scale Averages in College*

	Academics			Pass. Leisure			Socializing			Obligatory		
School	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*
Classical	57	3.8	.70	58	3.26	.68	58	3.27	.91	57	3.3	.71
1	24	4.0	.79	25	3.23	.71	24	2.83	.88	24	3.4	.73
2	9	3.7	.61	9	3.07	.65	10	3.60	.70	9	3.0	.60
3	5	3.9	.53	6	2.90	.85	6	3.58	.49	5	3.4	.51
4	9	4.0	.64	8	3.45	.40	9	3.22	.79	9	3.2	.62
5	9	3.5	.69	9	3.58	.67	8	4.00	1.0	9	3.5	.91
6	1	3.6	n/a	1	3.20	-	1	3.00	-	1	4.2	-
Standard	87	3.6	.78	85	3.35	.89	90	3.36	1.0	85	3.4	.94
7	17	3.4	.59	16	3.50	.89	17	3.47	1.3	17	3.4	.84
8	2	3.6	.47	2	2.70	1.2	2	3.00	.00	1	2.8	-
9	9	3.8	.82	9	3.11	.62	9	2.94	.81	8	2.9	1.0
10	17	4.0	.76	17	3.25	.80	19	3.39	.84	19	3.5	.86
11	6	2.9	1.1	6	3.63	.80	6	3.58	1.2	5	3.9	.55
12	5	3.8	.97	5	3.32	1.2	5	4.00	1.4	5	3.5	1.9
13	15	3.4	.82	15	3.39	.85	16	3.75	.97	15	3.5	.85
14	5	3.6	.58	5	2.76	.38	5	3.40	.65	4	3.2	.70
15	11	3.8	.53	10	3.68	1.2	11	2.55	.93	11	3.3	.99

Table 26 *Descriptive Statistics by School: Preparedness Scale Averages, High School & College*

	High School			College		
School	*n*	*M*	*SD*	*n*	*M*	*SD*
Classical: All	57	5.27	.87	59	5.50	.82
1	23	5.24	.95	25	5.29	1.03
2	10	5.83	.42	100	5.88	.48
3	6	5.63	.61	6	5.68	.54
4	8	4.69	.71	9	5.46	.62
5	8	4.69	.71	8	5.53	.75
6	1	4.83	n/a	1	6.17	-
Standard: All	83	4.96	.90	86	5.17	.86
7	16	4.99	.96	17	4.75	1.01
8	2	5.58	.47	2	5.96	.06
9	9	5.06	.77	9	5.22	.83
10	16	4.94	.97	17	5.54	.82
11	6	5.10	.44	6	5.33	.58
12	5	5.25	.76	5	5.37	1.06
13	14	4.52	1.18	5	5.08	.98
14	5	5.52	.69	5	5.08	.49
15	10	4.84	.66	10	5.12	.52

Additionally, since 6 of the 15 schools embrace a classical pedagogy and curriculum, these schools will be labeled 1 through 6 to determine if the different educational approach has an impact on the variance of time management practices and general readiness of University-Model® graduates. To provide context for this analysis, Table 27 displays descriptive statistics concerning the variables to be used separated by students graduating from classical University-Model® schools and University-Model® schools employing standard pedagogy and curricula.

Table 27 *Descriptive Statistics & Z-test to Compare Means: Standard vs. Classical Curriculum & Pedagogy*

	Standard Schools			Classical Schools				
Variable	*n*	*M*	*SD*	*n*	*M*	*SD*	*z-score*	*d*
ACT Score	67	25.9	4.5	51	27.8	4.3	-2.33*	.43
HSGPA	94	3.82	.41	62	3.75	.44	.32	.16
FYGPA	94	3.53	.41	62	3.56	.54	-.37	.06
Preparedness Scale Avg								
High School	83	4.96	.90	57	5.27	.87	-2.04*	.35
College	86	5.17	.86	59	5.50	.82	-2.33*	.39
Time Mgt Scale Avg								
Academics HS	87	3.54	.74	58	3.91	.70	-3.05**	.51
Academics Col	87	3.66	.78	57	3.87	.70	-1.68	.28
Passive Leisure HS	84	3.59	.88	58	3.56	.90	-.20	.03
Passive Leisure Col	85	3.35	.89	58	3.26	.68	.68	.11
Socializing HS	91	3.36	.94	58	3.40	.80	-.28	.05
Socializing Col	90	3.36	1.07	58	3.27	.91	.58	.09
Obligatory HS	84	3.31	.84	57	3.40	.87	-.61	.11
Obligatory Col	85	3.42	.94	57	3.39	.71	.22	.04

*p < .05 **p < .01 ***p < .001

Proponents of classical schools claim their approach to learning, centered around the teaching of original liberal arts including grammar, logic, and rhetoric, embeds higher levels of rigor, and thus academic achievement, than a standard curriculum. While the current study's data supports these claims (only time spent socializing in college and time spent completing obligatory tasks had higher mean scale scores for standard school graduates), only ACT scores (z = -2.33, p < .05) and time spent on academic tasks in high school (z = -3.05, p < .01. d = .51) were significantly higher among classical school graduates than schools employing a standard curriculum. In terms of participants' beliefs regarding preparedness, classical school graduates reported being significantly more prepared in high school (z = -2.04, p < .05. d = .35) and college (z = -2.33, p < .05. d =

.39). That HSGPAs of students attending standard high schools are greater, although not significantly greater, than students attending classical high school, but they report feeling significantly less prepared suggests that classical schools are more difficult than standard high schools but result in students feeling better prepared academically.

Enrollment Retention Within University-Model® Schools

Data regarding the number of years graduates attended the University-Model® school from which they graduated were collected to determine if longevity within the model was related to academic performance. While it was determined that only ACT scores were related to years within the model ($r = .20$, $p = .032$), frequency distributions from these data suggest attrition rates among year-to-year enrollment at University-Model® schools are quite low. In fact, 30.1% of participants attended the school from which they graduated over 7 years, and 72.3% of participants attended all four years of high school. These results are consistent with Barker's (2012) research which determined that over 97% of parents of University-Model® schools were satisfied with their teen's progress. With the reported recent decline in private school enrollment, University-Model® school communities should be encouraged by these data.

Correlation Among Years Attended High School and Preparedness Variables

As previously discussed, if University-Model® are better preparing its graduates for the transition to college, longevity within the model should correlate to better prepared students. While not part of the original study design, correlation analyses were conducted to determine if the number of years spent attending a University-Model® school attended significantly predicted preparedness in high school and college. Results indicated that positive significant relationships existed for time spent completing

homework in high school, $r = .21$, $p = .009$ and use of technology to complete homework in high school, $r = .23$, $p = .006$. These results, all dealing with homework habits seem to indicate that the longer a student spends in the model, the more time is spent completing homework in high school. Since students spend a significant amount of time at home due to the structure of University-Model® schools, effectively managing their at-home time is paramount to academic success in high school and college, and this relationship confirms that the longer students progress through the model, the better they become at managing this time to complete homework. Conversely, the negative relationship between years spent at a University-Model® school and time spent seeking homework help from parents further validates these results by showing that students with less time spent in the University-Model® high schools are not as prepared to be independent learners in college.

ACT vs. SAT

While SAT data was rendered unusable for the study, results showed that 75.1% ($n = 130$) reported taking the ACT, and 73.2% ($n = 123$) reported taking the SAT. Additionally, 49.1% ($n = 85$) took both tests. One would likely consider students taking both exams to be more academically ambitious; however, students taking both exams ($M = 26.6$, $SD = 4.67$) scored almost identical to the entire sample ($M = 26.7$, $SD = 4.48$). These results were similar for this group of students taking both exams in terms of HSGPA ($M = 3.79$, $SD = .40$) and FYGPA ($M = 3.55$, $SD = .42$). Z-scores confirmed a lack of significance between scores from the subpopulation of students taking both exams and the total sample.

ANOVAs: College Size and Type

A post hoc test identified a significant difference among means in which University-Model® graduates are spending significantly more time watching movies/TV in very large schools compared to large schools (Fisher LSD = .02). Additionally, an ANOVA was conducted to determine if school type accounted for variance among responses to the 12 preparedness items. Answers to "I attended class regularly" were significant when controlling for college type attended, $F(2,71) = 12.55$, $p < .001$. Post hoc test confirmed that University-Model® graduates attending private, non-religious colleges are attending class significantly less than those attending private, religious colleges (Turkey HSD < .001) and those attending public colleges (Turkey HSD < .001). Also, the same analysis identified significance among college freshman responses to "I did not struggle with procrastination" when controlling for college type, $F(2,70) = 12.60$, $p < .05$. Post hoc tests revealed that students attending public colleges are struggling with procrastination more than those attending private, religious colleges (Turkey HSD < .05). Lastly, college size significantly accounts for the variance among responses to "I had a strong work ethic," $F(3,70) = 2.77$, $p < .05$. Post hoc tests revealed University-Model® school graduates attending very large schools reported having a significantly stronger work ethic than students attending medium sized colleges.

CHAPTER V – DISCUSSION

The purpose of this study was to gather academic data, beliefs regarding preparedness and time management habits from recent graduates from University-Model® high schools. Tests have indicated these graduates are well-prepared academically, believe they are prepared for the transition to college, and are managing their time effectively in the first year of college. Results from the study will be discussed in terms of the academic and non-academic variables collected and their related impact of the success level of this educational model.

Academic Preparedness (RQ1)

ACT Scores

The present results indicate that, overall, University-Model® schools are significantly outperforming all other models in terms of academic preparedness as measured by the ACT composite scores. That University-Model® high school graduates academically outperformed public school graduates in 2016 (z = 10.7, d = 1.28) and 2017 (z = 10.2, d = 1.17), private school graduates in 2016 (z = 5.17, d = .63) and 2017 (z = 4.04, d = .47), and homeschooled students in 2016 (z = 6.58, d = .84) and 2017 (z = 5.81, d = .70) on the ACT, suggests these graduates are academically well-prepared for college. Additionally, University-Model® graduates outperformed all reporting subgroups with the exception of the highest reported subgroup, Asian students with professional aspirations. It should be noted that the focus of this study did not control for socioeconomic factors such as ethnicity or family income. However, since University-Model® schools embed greater levels of parental involvement than traditional models, these results further validate previous theories regarding parental involvement

(Brofenbrenner, 1979; Epstein, 1987) and support multiple studies which have shown that parental involvement is the largest single indicator of student academic success (Heymann & Earl, 2000; Xu, 2004; Xu & Corno, 2003; Henderson & Berla, 1994; Oyerinde, 2014). Nevertheless, to explore the extent to which these statistical differences uphold against more competitive norm groups, the Ancillary Findings section of this study further explored mean comparisons between the sample of University-Model® graduates and more competitive subgroups reported annually by the ACT. Despite failing to control for these variables, performance of University-Model® graduates on the ACT can be considered impressive based on their mean scores outpacing all reported subgroups except Asians with Professional Aspirations, the highest performing subgroup reported.

High School Grade-Point Average (HSGPA)

The University-Model® school sample of 2016 self-reported a mean HSGPA of 3.85 (SD = .38), and the 2017 group self-reported a similar HSGPA mean (M = 3.75, SD = .45). Upon registering for the ACT, students are prompted to provide their average grade across 30 specific subjects; this data is used to calculate a HSGPA score for each participant (Hoo & Huang, 2016). Similarly, the College Board collects HSGPA data from SAT test takers (College Board, 2016). While these data are not readily available for every year, some data were available for a comparison of means. The College Board reports the mean HSGPA for 2016 SAT test-takers is 3.38 (College Board, 2016). Self-reported mean HSGPA scores from the 2016 University-Model® sample (M = 3.85, SD = .38) were significantly higher than the general population of SAT test-takers $t(66) = 10.16$, $p < .001$, $d = 1.24$. A recent study analyzing the connection between ACT scores

and HSGPA to predict FYGPA reported the highest performing ethnic group (Asian, M = 3.51, SD = .53) in 2017. The University-Model® 2017 sample's self-reported mean HSGPA (M = 3.75, SD = .45) was significantly higher than the Asian subgroup with a medium effect when performing a two independent sample t-test $t(87) = 4.99$, $p < .001$, d = .45 (ACT, Inc., 2018-b). In summary, self-reported HSGPA scores from the University-Model® schools sample were significantly greater than all available population means from the same cohorts of students.

Specific High School Attended

Another factor explored in the study was variance among several variables associated with specific high school attended; it was discovered that high school attended did not account for variance among most variables to a significant extent. Of the academic variables, only variance among ACT scores was accounted for by the specific high school attended, and only composite academic time management scores in high school and composite scores for time spent socializing in high school and college was significantly related to high school attended. Additionally, high school attended did not account for any of the variance among general preparedness responses. However, when schools were separated into two groups based on pedagogy and curricula (classical and standard) differences in mean scores were significant. Classical schools significantly outperformed standard schools on the ACT, but HSGPAs and FYGPAs did not differ. Interestingly, the mean HSGPA of standard schools was greater than those of classical schools, but classical school graduates reported significantly higher levels of preparedness, thus describing a subpopulation of classically educated high school graduates as better prepared for college based on a more rigorous high school experience.

ANOVA results suggest the University-Model® high school attended significantly accounts for the variance among ACT scores; more specifically, post hoc tests revealed this variance was almost exclusively attributed to classical schools outperforming schools employing a standard curriculum. These results confirm previously mentioned results, however the lack of significance in high school attended accounting for variance among FYGPA suggests that students from non-classical high schools are closing the academic gap upon entering college resulting in successful transitions to college as measured by FYGPA.

First Year College Grade-Point Average (FYGPA)

The University-Model® school sample self-reported a mean FYGPA of 3.54 (SD = .47). Multiple research projects have collected FYGPA data from colleges. One such project by the College Board (2008) consisted of 151,316 students from 726 four-year post-secondary institutions. This sample consisted of a mean FYGPA of 2.97 (SD = .71). Another study conducted by ACT included over 137,000 students from 259 two- and four-year institutions entering college across the years of 2003 through 2007; this sample's FYGPA was 2.7 (ACT, 2013). A more recent study conducted by ACT gathered FYGPA scores from 187,110 ACT test-takers from 2009 through 2013 reported its sample mean to be 2.74 (SD = .97) (Huh & Huang, 2016). Z-tests indicate the University-Model® graduates with the study's population are significantly outperforming the College Board (2008) population ($z = 15.13$, $p < .001$, $d = .95$), and the sample of ACT test-takers from 2009 to 2013 (Huh & Huang, 2016) ($z = 22.22$, $p < .001$, $d = 1.05$). While these data do not compare students within the same cohorts of college freshman,

the large effect size indicates University-Model® graduates are transitioning well to college as measured by FYGPA.

HSPGA and ACT Scores as a Predictor of FYGPA

Multiple correlational studies have examined the ability of ACT scores and HSGPA to separately predict FYGPA (Allen & Robbins, 2010; Sawyer, 2013). Allen & Robbins (2010) reported that ACT scores are related to FYGPA ($r = .49$, $p < .01$) and HSGPA is related to FYGPA ($r = .51$, $p < .01$), and Sawyer (2013) similarly reported that ACT scores are related to FYGPA ($r = .44$, $p < .01$) and HSGPA is related to FYGPA ($r = .48$, $p < .01$). Other studies have consistently supported the fact that HSGPA is a slightly better predictor of FYGPA than ACT scores; however, ACT scores, when measured incrementally, are better predictors of FYGPA (Sawyer, 2013). Studies show that HSGPA and ACT scores are jointly stronger predictors of FYGPA than individually (Sanchez & ACT, Inc., 2013; Radunzel & Noble, 2012). While these results are of value, the purpose of this study was to explore the broader question of what factors in high school predict success in the first year of college within University-Model® high schools. Results of this study, consistent with existing research, concluded that HSGPA and ACT scores predict success in college as defined by FYGPA ($R^2 = .42$, $F(2,103) = 4.5$, $p = .013$). However, a correlational analysis revealed separately that ACT scores of University-Model® graduates ($r = 0.22$, $p < .05$) was less of a predictor of FYGPA success than previous studies by Allen & Robbins (2013), ($r = 0.49$, $p < .01$) or Sawyer (2013) ($r = 0.44$, $p < .01$). While HSGPA can vary among schools based on rigor, and it is often conflated with motivation and responsibility among students, ACT scores are typically a more accurate depiction of one's academic aptitude than HSPGAs. Therefore,

that ACT scores among University-Model® graduates are less of a predictor of FYGPA than other similar studies (Allen & Robbins, 2013; Sawyer, 2013) suggests that the academic performance (and thus aptitude) of its high school graduates is not the reason for high levels of success in the first year of college within the University-Model® population. This weaker correlation among University-Model® graduates suggests other factors, rather than academic performance, are contributing to the success of University-Model® graduates in the first year of college. Upon further exploring these findings through the analysis and comparison of a study by ACT, Inc. (2017-b), it was determined that University-Model® graduates with identical ACT scores to students within the comparative study's population, have a significantly greater probability of success in the first year of college. These results, by controlling for academic aptitude as defined by ACT scores, suggest that since graduates of equal academic aptitude from University-Model® high schools are outperforming the general population in terms of FYGPA, factors beyond academic aptitude are contributing to high levels of FYPGA success among University-Model® high school graduates.

Preparedness Levels of University-Model® School Graduates (RQ2 & RQ3)

Combined with the aforementioned strong academic descriptive statistics of University-Model® graduates, these results, consistent with Conley's (2011) theories towards a more holistic approach to CCR, suggest there are additional factors beyond academics contributing to the academic success of University-Model® graduates in college. One such factor analyzed—longevity within the model as defined by number of years graduates spent in the model prior to high school graduation—was determined not to be a predictor of academic success in college. Additionally, time management

practices and general beliefs regarding preparedness of University-Model® graduates were explored to learn if these non-academic factors are contributing to the high levels of success University-Model® graduates are experiencing in the first year of college. Mean differences highlighted significant changes from time management practices of University-Model® graduates in high school to college, and when compared to similar study by Thibodeaux, et. al. (2017) the time management practices of University-Model® graduates in their first year of college differed significantly from the comparative study's population; most differences positively reflected on the current study's population. However, results showed few relationships between the time management variables and FYGPA. Only time spent in class, time spent receiving academic assistance from tutors, time spent reading for pleasure, and time spent at a job were related to FYGPA performance. It was discovered that a strong connection exists between the beliefs of University-Model® graduates' regarding their general preparedness for college and FYGPA. The only specific items that did not related to FYGPA were feeling self-confident in high school and not being susceptible to peer pressure in high school; holding the religious beliefs of their parents in high school or college did not relate to FYGPA. These results suggest that University-Model® graduates are heading off to colleges with an overall feeling of preparedness. Additionally, these beliefs seem to be accurate based on the aforementioned strong academic performance in the first year of college of University-Model® graduates.

Preparedness for College

Interestingly, participants reported spending nearly equal amounts of time completing academic-related tasks in high school (M = 33.7) and in college (M = 35.3).

College freshmen graduating from traditional high schools would expect to spend less time completing academic tasks college than in high school since they spent at least 35 hours per week attending classes alone without accounting for homework and studying. Another interesting finding reveals University-Model® graduates are reporting spending less time engaging passive leisure activities in college than in high school. This speaks to the flexible scheduling within University-Model® schools providing ample opportunities for its high school students to engage in passive leisure activities.

That University-Model® school students are spending significantly less time in classes in college but studying and using technology to complete assignments significantly more in college than in high school helps paint a picture of a well-adjusted college freshman and potentially helps explain higher reported FYGPAs than populations in previous research studies. Additionally, the lack of significance results between University-Model® school graduates' habits of attending religious gatherings in high school compared to college helps validate the commitment to faith of its graduates, which is a defining characteristic of all UMSI schools. A recent study has confirmed speculation among religious leaders that up to 70% of students raised in homes practicing the Christian faith abdicate the practice of gathering for faith-based services upon entering college (LifeWay Research, 2017).

Thibodeaux, et al (2017) results can be compared to the University-Model® school sample due to the similarity in instruments. Thibodeaux, Deutsch, Kitsantas & Winsler's (2017) population consisted of 589 first-year college students from a large, public, Mid-Atlantic university. The population demographics consisted of 65% white students, 85% native-born Americans, and 75% had English as a first language. The

average annual family income reported was $75,000, the average age of participants was 18 and 97% were fully enrolled students. To compare the populations, since the two questionnaires had a different number of questions within each group, a mean scale score was calculated based on the sum scale score within each composite category divided by the number of questions in each category. Table 14 displays the results of a *t*-test designed to compare the University-Model® graduate population to the population in Thibodeaux's, et. al. (2017) study.

Table 28 *Comparison of Mean Scale Scores of University-Model® Graduates and Thibodeaux, et. al. (2017)*

Variable	Mean Scale Score University-Model® Schools			Mean Scale Score Thibodeaux, et. al., 2017			
	n	*M*	*SD*	*n*	*M*	*t-test*	*d*
Academics	144	3.75	.75	251	5.27	-24.23*	2.0
Passive Leisure	143	3.31	.81	251	2.79	7.68*	.6
Socializing	148	3.32	1.0	251	6.75	-41.47*	3.4
Obligatory	142	3.41	.85	251	7.03	-50.71*	4.3

*p < .001

These results suggest the difference in means is statistically significantly large in all four categories. University-Model® graduates are spending significantly less time on academic-related tasks ($d = 2.0$). Since it's assumed the amount of time attending classes is similar, it appears University-Model® graduates are devoting less time to tasks such as studying and completing homework, which is consistent with the significantly higher HSGPAs, ACT scores, and FYGPAs that University-Model® graduates are achieving compared to most other norm groups. This is also consistent with results suggesting that University-Model® graduates are spending significantly more time engaging in passive

leisure activities than Thibodeaux, et. al.'s (2017) population (*d* = .6) which is perhaps a factor of having more free time due to less time devoted to academic tasks. University-Model® graduates are spending significantly less time socializing (*d* = 3.4) and completing obligatory tasks (*d* = 4.3) than the comparison group. One possible explanation for the large effect in mean differences among groups regarding the obligatory category is due to the failure to control for socioeconomic status, creating a greater need for the Thibodeaux, et. al.'s (2017) population, to seek employment while in college. While the current study did not gather socioeconomic data, Wearne (2016) reported that 89% of families with students enrolled in University-Model® schools reported a yearly income over $75,000. Compared to Thibodeaux, et. al.'s (2017) population, which averaged a family income of $75,000, it's likely the University-Model® population in this study has a greater mean family income. While studies have shown family involvement is the best predictor of student academic success, socioeconomic status is related to academic achievement (Heymann & Earl, 2000; Xu, 2004; Xu & Corno, 2003; Berla, 1994; Oyerinde, 2014.). While socioeconomic status may play a role in the large effect size pertaining to obligatory tasks, it's also possible that a student population with significantly higher academic achievement in high school will have a higher number of scholarships, reducing the need for employment through college.

Additionally, that University-Model® graduates are spending significantly less time in college than in high school watching movies/TV, playing video games, and participating in other hobbies runs contrary to the stereotype of a typical college freshman. It was to be expected that University-Model® graduates are regularly

attending class significantly less in college than in high school under the supervision of their parents; however, a mean scale score of 6.23 is the highest among all variables and falls between “agree” and “strongly agree” implying that the study’s population is still very much engaged and attending classes regularly. University-Model® graduates report they significantly love to learn and study more in college than in high school. Results of an ANOVA determined classical school students within the University-Model® are spending significantly more time on academic tasks in high school than schools employing a standard curriculum.

Types of Colleges Attended by University-Model® School Graduates (RQ5)

Lastly, data concerning the types and sizes of colleges attended by University-Model® graduates were collected and analyzed to determine if variance among academic variables were attributed to colleges attended. While college type did not account for variance among HSGPA, ACT scores, and FYGPA, the sizes of colleges attended did account for variance among mean HSGPAs and ACT scores, but not FYGPAs. A closer look at these results suggest that most of this variance is attributed to academically stronger students in high school electing to attend very large colleges, and those attending very large colleges are performing quite well in the first year of college.

Research question 5 was designed to determine if the types and sizes of colleges attended by University-Model® graduates could be a factor in the difference among FYGPAs. ANOVAs identified that college types do not significantly account for variance among FYGPAs of University-Model® graduates. Based on the significantly higher FYGPAs of University-Model® graduates compared to previous studies, these results suggest that University-Model® graduates are transitioning well to all types of

colleges. The lack of significant variance among schools' academic responses in college as opposed to high school is it likely attributed to the homogenous structure and rigor among colleges compared to more variability among high schools in both areas.

Summary of Analyses

University-Model® schools are a relatively new and heretofore unproven educational model. The aim of this study was to gather information regarding the effectiveness of this model in preparing its graduates for the transition to college—something proponents suggest is an intrinsic strength of the model (Turner, 2001). Results from this study describe a very academically strong group of graduates who are significantly outperforming students from other educational models in terms of HSGPA, ACT scores, and FYGPA. While HSGPAs and ACT scores of University-Model® graduates were proven to predict FYGPA, results from the sample are less significant than other similar studies that have been conducted among general populations. These results suggest that the high school academic performance of University-Model® graduates is less of factor in performance in the first year of college than traditional models. Furthermore, when controlling for ACT scores, University-Model® graduates are significantly outperforming the ACT population in terms of the probability of achieving FYGPA success at all benchmark levels.

Limitations & Recommendations for Future Research

Until now, the voice of University-Model® graduates had not been heard, nor had the model been academically validated. The willingness of practitioners within the model to support the project point to their eagerness to provide the opportunity to quantitatively validate their work, which will help make this fertile ground of research

more accessible to future researchers. The path generated by this project has left countless avenues for future exploration within the University-Model® in both breadth and depth.

Since the study was limited to established schools founded before 2005, the findings of this study represent the most successful schools, and likely, the most successful graduates. Due to the recent genesis of the model, there are young and budding schools within this model throughout the country. However, since students graduate each year from younger, less-established schools, the question remains whether these schools are as successful as established schools in preparing graduates for college in terms of academics and general preparedness. Additionally, since the study was limited to 2016 and 2017 graduates, a much wider net could be cast to gather a greater sample size. Also, while this study shed light on the social and spiritual health of current college students graduating from University-Model® high schools, it remains to be seen how well-adjusted its established graduates are in terms of these social and spiritual factors but also in terms of general well-being and financial stability. While it might prove daunting to track down graduates who are over a decade removed from their high school, the tightness of these communities combined with the emergence of social media make this a real possibility.

The study was limited to self-reported data from all participants; further validation of these results is needed in terms of archival data from University-Model® graduates. While adding this as an option for students to report on standardized tests is dependent on the growth of the model, seeking high school records and college transcripts is a potential route available now.

Participants were asked to report data from their high school experience, from which they were several years removed. While the study was delimited to 2016 and 2017 graduates to minimize this impact, there exists the possibility that some respondents failed to accurately reflect their experiences. While it is reasonable to expect most graduates accurately recall their HSGPA and ACT scores, the preparedness variables from high school likely presented more of a challenge. To improve upon this design, researchers could give the instrument to current University-Model® high school seniors then administer the same instrument, to the same students, during their freshman year of college. While working with high school students requires the additional step of parental approval, the accuracy of the results would be worth the extra effort.

Due to the College Board changing the scoring scale of the SAT in 2016, reported SAT scores were not reliable enough to be included in this study. This unfortunate mistiming limited standardized test scores to the ACT. While many of the 113 students also took the ACT, lacking these data disallowed further validation of all analyses including academic variables and excluded certain participants from these analyses. Likely, this limitation would not occur should the study be duplicated with graduates beyond 2017. Finally, since we know students graduating from University-Model® high schools are generally from families with a higher than average socioeconomic status (SES), and that previous research has indicated a strong connection between SES and student performance, further studies should be conducted to account for this variable.

Conclusion

Overall, this study has shown that University-Model® graduates are academically well prepared for the transition to college, feel confident that their high school program has adequately prepared them for college, and appear to be making wise decisions regarding their time management practices in college. FYGPA was used to measure academic success of the transition to college; and University-Model® graduates are significantly outperforming students with identical ACT scores as measured by FYGPA. Regression results suggest that students within the model earning higher HSGPAs and ACT scores are performing better in the first year of college, but overall the connection between the high school academic variables and FYGPA is weaker within the University-Model® population than in the greater population. These results seem to further validate claims made by proponents of the model that suggest its blended approach to education, combining attributes of homeschooling with traditional schooling, is producing academically strong, well-prepared, and well-adjusted college freshmen.

APPENDIX A – University-Model® School Graduate Questionnaire

Background Information

What is the name of the University-Model School from which you graduated?

Write the name of the high school from which you graduated.

What year did you graduate from high school?

- 2016
- 2017
- Other

How many years did you attend the University-Model school from which you graduated?

Less than 2	2	3	4	5	6	7	More than 7
○	○	○	○	○	○	○	○

Did you take the ACT?

- Yes
- No

What was your highest ACT composite (overall, including all subtests) score?

Did you take the SAT?

- Yes
- No

What was your highest SAT composite (overall, including all subtests) score?

What was your high school GPA?

What was your college First Year (Freshman) GPA? (GPA at the end of your first full year of college)

What type of college do you attend?

- Private, non-religious
- Private, religious
- Public

What is the size of your college in terms of student enrollment?

- Small (Less than 2,000 students)
- Medium (2,000 to 7,499 students)
- Large (7,500 to 14,999 students)
- Very Large (over 15,000 students)

Time Management

Record the amount of time you spent each week on the following activities in your
1) senior year of high school, then in your
2) freshman year of college

	None	< 1 hour	1-2 hours	3-5 hours	6-10 hours	11-15 hours	16-20 hours	> 20 hours
IN CLASS								
High School	○	○	○	○	○	○	○	○
College	○	○	○	○	○	○	○	○
STUDYING								
High School	○	○	○	○	○	○	○	○
College	○	○	○	○	○	○	○	○
HOMEWORK								
High School	○	○	○	○	○	○	○	○
College	○	○	○	○	○	○	○	○
OTHER REQUIRED SCHOOL MEETINGS								
High School	○	○	○	○	○	○	○	○
College	○	○	○	○	○	○	○	○
ACADEMIC ASSISTANCE WITH PARENTS								
High School	○	○	○	○	○	○	○	○
College	○	○	○	○	○	○	○	○

ACADEMIC ASSISTANCE WITH TUTORS								
High School	○	○	○	○	○	○	○	○
College	○	○	○	○	○	○	○	○
USING TECHNOLOGY TO COMPLETE HOMEWORK								
High School	○	○	○	○	○	○	○	○
College	○	○	○	○	○	○	○	○
WATCHING TV / MOVIES								
High School	○	○	○	○	○	○	○	○
College	○	○	○	○	○	○	○	○
CELL PHONE / SOCIAL MEDIA								
High School	○	○	○	○	○	○	○	○
College	○	○	○	○	○	○	○	○
VIDEO GAMES								
High School	○	○	○	○	○	○	○	○
College	○	○	○	○	○	○	○	○
PLEASURE READING (NOT REQUIRED BY SCHOOL)								
High School	○	○	○	○	○	○	○	○
College	○	○	○	○	○	○	○	○
EXERCISING / PLAYING SPORTS								
High School	○	○	○	○	○	○	○	○
College	○	○	○	○	○	○	○	○

OTHER HOBBIES NOT REQUIRING PHYSICAL EXERTION								
High School	○	○	○	○	○	○	○	○
College	○	○	○	○	○	○	○	○
ATTENDING RELIGIOUS GATHERINGS								
High School	○	○	○	○	○	○	○	○
College	○	○	○	○	○	○	○	○
SOCIALIZING WITH FRIENDS								
High School	○	○	○	○	○	○	○	○
College	○	○	○	○	○	○	○	○
WORKING A JOB								
High School	○	○	○	○	○	○	○	○
College	○	○	○	○	○	○	○	○
VOLUNTEERING / SERVING (NO PAY)								
High School	○	○	○	○	○	○	○	○
College	○	○	○	○	○	○	○	○
HOUSEHOLD DUTIES / CHORES								
High School	○	○	○	○	○	○	○	○
College	○	○	○	○	○	○	○	○

reparedness

Preparedness

Indicate to what degree you agree with the following statements as they apply to your
1) senior year of high school, then your
2) freshman year of college.

	Strongly Disagree	Disagree	Slightly Disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
I ATTENDED CLASS REGULARLY							
High School	○	○	○	○	○	○	○
College	○	○	○	○	○	○	○
I LOVED TO LEARN							
High School	○	○	○	○	○	○	○
College	○	○	○	○	○	○	○
I LOVED TO STUDY							
High School	○	○	○	○	○	○	○
College	○	○	○	○	○	○	○
I SCHEDULED MY STUDY TIME							
High School	○	○	○	○	○	○	○
College	○	○	○	○	○	○	○
I MADE GOOD USE OF MY STUDY TIME							
High School	○	○	○	○	○	○	○
College	○	○	○	○	○	○	○
I DID NOT STRUGGLE WITH PROCRASTINATION							
High School	○	○	○	○	○	○	○
College	○	○	○	○	○	○	○

I HAD A STRONG WORK ETHIC							
High School	○	○	○	○	○	○	○
College	○	○	○	○	○	○	○
I PURSUED ACADEMIC EXCELLENCE							
High School	○	○	○	○	○	○	○
College	○	○	○	○	○	○	○
I FELT SELF-CONFIDENT / SECURE							
High School	○	○	○	○	○	○	○
College	○	○	○	○	○	○	○
I WAS SUSCEPTIBLE TO NEGATIVE PEER PRESSURE							
High School	○	○	○	○	○	○	○
College	○	○	○	○	○	○	○
I HELD THE SAME RELIGIOUS CONVICTIONS AS MY PARENTS							
High School	○	○	○	○	○	○	○
College	○	○	○	○	○	○	○
I HAD STRONG RELIGIOUS CONVICTIONS							
High School	○	○	○	○	○	○	○
College	○	○	○	○	○	○	○

APPENDIX B Letter to Administrators Seeking Permission to Conduct the Study

Name, Address, etc.

RE: Permission to Conduct Research Study

Dear Administrator,

I am writing to seek your approval to conduct a research study involving some of your former students. I am currently a Ph.D. candidate in Educational Administration at the University of Southern Mississippi in Hattiesburg, Mississippi, and my study is entitled "An Examination of Selected Performance Indicators of University-Model Schools." To conduct the study, I will attempt to track down 2016 and 2017 graduates of University-Model schools to gather academic performance data as well as ask them questions regarding how well their matriculation through a University-Model school has prepared them for college.

If you agree to provide for me the contact information for these students, please sign below and indicate the name and contact information of your counselor or other designee who will be responsible for compiling and sending the information. If approved, I will send detailed instructions to your designee to provide for me the email addresses, phone numbers, and names of the colleges attended for each of your 2016 and 2017 graduates.

This project has been reviewed by the Institutional Review board, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research participant should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-0001, (601) 266-5997.

If you have any questions I can be reached at david.herndon@usm.edu or dherndon@augustinems.com. I have attached documents showing my approval to conduct the study.

Sincerely,

David L. Herndon
Ph.D. Candidate
Southern Mississippi University

Approved by:	Counselor/Designee
_____	_____
SIGNATURE	NAME
_____	_____
TITLE	PHONE #
_____	_____
DATE	EMAIL

APPENDIX C - Instructions for Counselors at Targeted University-Model® Schools

Instructions for Counselors at Targeted University-Model Schools

Date

Name, Address, etc.

RE: Directions to submit contact information for 2016 and 2017 UM graduates

Dear Counselor,

The lead administrator at your school granted permission for me to contact you regarding a research study I'm conducting involving some of your former students. I am currently a Ph.D. candidate in Educational Administration at the University of Southern Mississippi in Hattiesburg, Mississippi, and my study is entitled "An Examination of Selected Performance Indicators of University-Model Schools." To conduct the study, I will attempt to track down 2016 and 2017 graduates of University-Model schools to gather academic performance data as well as ask them questions regarding how well their matriculation through a University-Model school has prepared them for college.

In order to conduct the study, I need current contact information for the 2016 and 2017 graduates from your school. I have attached a pre-designed spreadsheet to assist you with compiling this information. Please fill in all known pieces of contact information and send the file back to me at your earliest convenience. I've provided a sample entry to assist you.

This project has been reviewed by the Institutional Review board, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research participant should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-0001, (601) 266-5997.

Thank you so much for your time. If you have any questions, please feel free to contact me at david.herndon@usm.edu or dherndon@augustinems.com.

Sincerely,

David L. Herndon
Ph.D. Candidate
Southern Mississippi University

APPENDIX D – Spreadsheet for Data Collection

	A	B	C	D	E	F
1	**Student Last Name**	**Student First Name**	**Graduation Year**	**Cell Phone**	**Email Address**	**College Currently Attending**
2	Doe	John	2015	6018888888	johndoe@gmail.com	Texas Christian University
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

APPENDIX E – Email Invitation to Eligible Schools

☆ **David Herndon** Sent - dhernd...augustinems.com January 15, 2019 at 7:31 AM DH

University Model Research Study: Invitation to Participate

To: [redacted]

[redacted]

I'm conducting a research study on recent graduates of University Model high schools, and your school fits the criteria outlined in my proposal. My study has been approved by my dissertation committee, the IRB at the University of Southern Mississippi, and I have Barbara Freeman's blessing on behalf of UMSI to proceed (see attached documentation). If your school can assist me, please read on.

ABOUT THE STUDY: My study will seek to quantify the transition from UM high schools to colleges of recent UM graduates in terms of time management, study habits, academic performance, socializing, and other matters. As a leader of a fellow UM school, I know there is very little research available to validate our model, and this will be a huge step in doing just that—but in order to have this data, I'll need your help.

WHAT I NEED FROM YOUR SCHOOL: Simply, I need you to provide me with some basic contact information from your recent graduates. Here's all I would need from you:

- Agree to participate (there's a form I'll send you)
- I'd send directions for your counselor (or designee) to complete a spreadsheet template with your graduates from May 2016 and May 2017. At a minimum, I'd need an email address, but names, phone numbers, and colleges attending would also be helpful.
- If possible, I'd love for your school to send a message to these folks (in January) notifying them that I'll be contacting them to complete a survey, and sharing with them the value of participating.

In January, I'll reach out to these graduates via email to complete the survey. It will only take them about 5-10 minutes. Their information will be kept in the strictest confidence, and their identity will be never be revealed. Those who complete the survey will receive a $10 gift card to iTunes, Google Play, or Amazon.

Please let me know 1) if your school is willing to participate, and 2) to whom on your staff I can send the information (a contact person). I'm available to answer any questions you have—through email or over the phone. I've left my cell phone below.

Thanks so much!

Soli Deo Gloria,

David L. Herndon
Headmaster
St. Augustine School
Ridgeland, MS 39157
dherndon@augustinems.com
[redacted]

APPENDIX F – Letter of Support, UMSI (formerly NAUMS)

103 North 1st Street
Midlothian, TX 76065
(972) 525-7005
UMSI.ORG

NAUMS, INC.
UNIVERSITY-MODEL®
SCHOOLS
INTERNATIONAL

November 30, 2017

Institutional Review Board
The University of Southern Mississippi
118 College Drive #5147
Hattiesburg, MS 39406-0001

To Whom It May Concern,

The purpose of this correspondence is to document that I have given permission for David L. Herndon to conduct a research project concerning University-Model® schools within the membership group of University-Model® Schools International. I understand that conducting this research is subject to approval by the University of Southern Mississippi IRB.

Regards,

Barbara N. Freeman

Barbara Freeman, M.Ed.
Chief Executive Officer
NAUMS, Inc. | University-Model Schools International

Barbara Nicholson Freeman, M.Ed. CEO NAUMS, Inc.
Office: 972.525.7005 | Toll-free: 888.485.8525 | Fax: 888.506.6597 | Email: bfreeman@umsi.org

APPENDIX G – Data Request Form, ACT

Data Request Form

In order to have your request appropriately considered, please complete the following request form.

Date: 3/19/19

Requestor

Company/Institution/Organization	The University of Southern MIssissippi
Contact Name	David L. Herndon
Contact Title	Student, Graduate School
Mailing Address	[redacted]
City	
State	
Zip	
Contact Phone Number	
Contact Email Address	david.herndon@usm.edu

Description of data request

ACT Product(s)	ACT Score Reports, 2016 & 2017
Description of requested data	Need population scores broken down by school type: public, private, homeschool, etc.
Records pertaining to	All ACT takers from 2016 and 2017: Whole population data with standard deviations
Year(s)	2016 & 2017
Intended use of the data	I'm conducting research for my doctoral dissertation. I've sampled 120 current college students and gathered ACT self-reported scores. I plan to compare these results via t-tests to determine if they have significantly different means.

Request details

1. **Requested delivery date:** 3/19/19
2. **Are you requesting aggregate or individual data?** aggregate
3. **What is your relationship to the assessed individuals?** None, just researcher

   For jurisdictional release requests, attach documentation of jurisdiction over institutions requested.
4. **Is the request associated with external funding?**

   ☐ Yes ☒ No
5. **Are you requesting data that pertains solely to your state, district, organization, or institution over which you have jurisdiction?**

   ☐ Yes

   ☒ No, (Explain): Requesting whole population data
6. **Are you requesting personally identifying information on individuals (e.g., name, date of birth)?**

   ☐ Yes ☒ No, skip to question 12
7. **Indicate how personally identifying information will be used:**

Return this completed form to either your contact at ACT, Inc. or to research.services@act.org

a. What personally identifying information is requested:

☐ Name ☐ DOB

☐ Individual Identification Code (Please specify type):

b. If it will be matched to other data, identify the source of the other data:

8. Are you requesting that ACT match the data sources?

☐ Yes ☐ No

9. Individually identifying information is used to match multiple data sources, but once this has occurred such data should be stripped from a file before analyses or research are conducted, please explain how this process will be conducted between data sources:

10. Access to data – List all individuals (and their titles) who will have access to the data:

Name	Title	Name	Title

11. Specify how long the requester will retain the ACT data file and how the file with personal or institutional identifiable data will be disposed of or returned:

12. ACT staff you have consulted regarding this request:

Christine Phillips

13. Data elements requested (Separate with commas):

Population data from 2016 and 2017 broken down by school type: public, private, homeschool, etc.

14. Is there a research project that will be jointly conducted between entity and ACT?

☐ Yes ☒ No

15. If you are requesting data for a research study, please provide a description of the study to be conducted, including purposes of the study, procedures to be used, conclusions to be made on the basis of the data, data analysis, etc.

I've surveyed recent graduates from University-Model® schools and collected, among other things, self-reported ACT scores. One of my research questions is to compare mean scores of my sample population to the whole population data from students from other school backgrounds. These results will be used to conduct t-tests to compare means. If standard deviations are available, I'd be able to conduct more rigorous mean comparisons. The outcome will be part of my doctoral dissertation on if University-Model® schools prepare their graduates for college. I've attached my approval from the USM IRB.

16. If you are requesting data for a research study or analyses, how will the results be disseminated?

a. Recipient: Dissertation will be published through the USM Graduate School.

b. Method of Dissemination: Through USM Graduate School.

c. Will results be used to establish relationship between ACT tests and other tests? If yes, explain:

Only within the ACT population.

17. Check the test(s) and subject(s) to be used in the study (check all that apply):

☒ ACT ☐ EXPLORE ☐ PLAN

☐ Aspire ☐ QualityCore ☐ WorkKeys

☐ COMPASS ☐ Other (please specify):

☐ Subject(s):

Return this completed form to either your contact at ACT, Inc. or to research.services@act.org

APPENDIX H – IRB Letter of Approval

THE UNIVERSITY OF
SOUTHERN MISSISSIPPI

INSTITUTIONAL REVIEW BOARD
118 College Drive #5147 | Hattiesburg, MS 39406-0001
Phone: 601.266.5997 | Fax: 601.266.4377 | www.usm.edu/research/institutional.review.board

NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months.
  Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 18080601
PROJECT TITLE: Performance Indicators of University Model Schools
PROJECT TYPE: Doctoral Dissertation
RESEARCHER(S): David Herndon
COLLEGE/DIVISION: College of Education and Human Sciences
DEPARTMENT: Educational Research and Administration
FUNDING AGENCY/SPONSOR: N/A
IRB COMMITTEE ACTION: Exempt Review Approval
PERIOD OF APPROVAL: 08/21/2018 to 08/21/2019
Edward L. Goshorn, Ph.D.
Institutional Review Board

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