

5-2013

# The Effect of Daily Released-time Religious Education on Academic Achievement

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THE EFFECT OF DAILY RELEASED-TIME RELIGIOUS EDUCATION ON  
ACADEMIC ACHIEVEMENT

by

Trace W. Hansen

A thesis submitted in partial fulfillment  
of the requirements for the degree

of

MASTER OF SCIENCE

in

Agricultural Systems Technology  
(Family and Consumer Sciences Education and Extension)

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2013

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## ABSTRACT

The Effect of Daily Released-time Religious Education on Academic Achievement

by

Trace W. Hansen, Master of Science

Utah State University, 2013

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Department: Agricultural Systems Technology and Education

Various methods, programs, and efforts to educate students in effective and efficient ways have been employed and studied for many years in the United States. Many teachers, administrators, and communities seek to gain a better understanding of and implement programs that will help achieve the academic goals of their respective organizations. Previous research indicates a correlation between some types of classes, programs, and characteristics of students and their academic achievement. Data indicating academic information for three hundred and fifty suburban secondary school students were collected and analyzed to support or refute previous research in this area of study. Grade point averages of these students were analyzed based on the characteristics of gender, age, core and non-core course selection, and enrollment in released-time religious education (RTRE) courses. Results indicated that selected characteristics of students were positively correlated with increased academic achievement. Such characteristics included: involvement in RTRE, the number of non-core courses taken,

and the number of core courses taken. Students who were enrolled in fewer courses generally exhibited higher grade point averages. Results also indicated that the age and gender of students had little if any effect on their academic performance.

(52 pages)

## PUBLIC ABSTRACT

### The Effect of Daily Released-time Religious Education on Academic Achievement

Trace W. Hansen  
Utah State University

Various methods, programs, and efforts to educate students in effective and efficient ways have been employed and studied for many years in the United States. Many teachers, administrators, and communities seek to gain a better understanding of and implement programs which will help achieve the academic goals of their respective organizations. Previous research indicates a correlation between some types of classes, programs, and characteristics of students and their academic achievement. Data indicating academic information for three hundred and fifty suburban secondary school students were collected and analyzed to support or refute previous research in this area of study. Grade point averages of these students were analyzed based on the characteristics of gender, age, core and non-core course selection, and enrollment in released-time religious education (RTRE) courses. Results indicated that selected characteristics of students were positively correlated with increased academic achievement. Such characteristics included: involvement in RTRE, the number of non-core courses taken, and the number of core courses taken. Students who were enrolled in fewer courses generally exhibited higher grade point averages. Results also indicated that the age and gender of students had little if any effect on their academic performance.

## ACKNOWLEDGMENTS

Foremost I would like to thank Michelle, Lexie, and Jace for their constant support, patience, prayers, and loving encouragement—without which, none of this would have become a reality. For his guidance, vision, long hours, dedication to his students, ability to mentor, and meticulous attention to detail, I would like to thank Dr. Brian Warnick. I sincerely thank Dr. Becki Lawver and Julie Wheeler for their ability to teach effectively and to help their students realize and come closer to their full potential, and for the many hours spent pouring over outlines and ideas. I would also like to thank the school district involved for their cooperation and provision of the information utilized in this study.

Trace W. Hansen

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## CHAPTER I

### INTRODUCTION

A topic which has been of interest to many researchers, schools, administrators, and community members in recent years centers on the factors which influence the academic achievement of students (Borman, 2002). Many schools have begun adopting programs and courses, both in and out of school, that are designed to promote positive student behavior, as well as improve academic achievement (Coalition for Evidence-Based Policy, 2003). An understanding of which factors positively influence the academic achievement of students is crucial to help students succeed academically.

The amount and breadth of research which has been done to determine the factors which influence academic performance of students are vast and varied. Two factors reported to have a positive impact on students' academic achievement are gender and age (Zimmerman & Martinez-Pons, 1990). Another factor of impact on academic achievement reported in 2012 by the National Endowment for the Arts was that participation in certain elective courses assists students in achieving academically. They suggested that "students who had arts-rich experiences in high school showed higher overall GPAs than did students who lacked those experiences" (p. 13).

A large effort has been made in recent years to increase the academic achievement of students by increasing secondary school graduation requirements in core classes such as English, mathematics, and science (Teitelbaum, 2003). The proposal that increasing core class graduation requirements will increase the academic achievement of

students, however, is not accepted universally. Carlson and Planty (2011) asserted that an increase in graduation requirements does not positively influence students' academic achievement in part because "a significant number of students are being allowed to graduate without meeting their state's graduation credit requirements in mathematics, science, or both subjects" (p. 609). Others found that that increased graduation requirements in core classes didn't increase academic achievement because many students chose core classes which technically fulfilled the graduation requirements, but which were less demanding academically (Chaney, Burgdorf, & Atash, 1997).

In addition, research has indicated that involvement in extracurricular activities, such as science contests, music activities, and school sponsored sports, has improved students' academic achievement (House, 2000). There are types of extracurricular activities, however, such as photography and involvement in political organizations, which are not strongly associated with academic attainment (Olszweski-Kubilius & Lee, 2004). It is therefore imperative that we learn which factors and which types of extracurricular activities tend to influence students academically, and increase effort in these areas.

One area which has not been the center of research on the factors which may influence academic achievement is that of enrollment in released-time religious education (RTRE). RTRE programs date back to at least the 1920s (Morris, Krisberg, & Dhanoa, 2003). Normally, public schools which agree to a released-time option for students send their students to off-campus premises for the equivalent of one class period for religious instruction. Parents are usually required to give consent for their students to participate

in such a program. Regarding structure, released-time programs typically follow similar parameters, although some parameters vary, depending on the location and size of the program.

In a 2007 study, Hodge emphasized that, in a time when students are increasingly experiencing pressure to raise their test scores and academic levels, “results revealed that released-time participation was not associated with lower academic outcomes” (p. 168). A qualitative study conducted by Ashcroft (2011) indicated that public school administrators support student involvement in RTRE and believe it actually helps students academically. Research focused on the quantitative effects of enrollment in daily religious education, as it relates to academic achievement, will provide a better understanding of the notion that such participation does not hinder students’ academic achievement.

### **Statement of the Problem/Purpose**

The purpose of this study was to compare academic achievement levels of students who were enrolled in daily RTRE with those who were not enrolled. The possible effect of gender, age, and number of non-core public school courses on academic achievement was also considered.

The objectives of this study were to:

1. Describe the personal characteristics of the age and gender of students;
2. Describe students’ academic achievement as measured by grade point average;

3. Describe the number of non-core courses taken or enrolled in by students;
4. Predict the academic achievement of students based on the characteristics of students and the number of elective courses taken;
5. Determine whether enrollment in RTRE impacts academic achievement;

Null Hypothesis: There will be no significant difference in the grade point average between students who were enrolled in RTRE and those students who were not.

### **Assumptions**

The assumptions of the current study were as follows:

1. The use of grade point average is a valid method of assessing the academic achievement of students who are enrolled in public school classes.
2. A sample of 350 students from one suburban school district is sufficient to effectively investigate the effects of RTRE on students' academic achievement. This assumption is based on the recommendations of Krejcie and Morgan (1970).
3. Daily attendance in public school classes coincides with attendance in RTRE courses. It is assumed that if a student met attendance requirements necessary to complete public school courses, he or she expectedly met attendance requirements to complete daily religious education course requirements.
4. A student is enrolled in a daily religious education class which is set up as a released-time program in which students are released for religious instruction during regular public school hours.

5. The length of daily RTRE courses is equivalent to that of a class period in the public schools.

### **Limitations**

The following limitations are present during this research:

1. The study examines academic outcomes in two schools in one suburban school district in Utah. Consequently, the results cannot be generalized to other school districts or regions.
2. Data collected in the study do not consider control variables such as socioeconomic status, family structure, previous academic performance, parental involvement, motivation, or other variables which could influence a student's academic achievement.
3. The collection of data does not specify which religious education program students were enrolled in, nor does it detail their attendance information.
4. The sample targeted as participants for this study were students enrolled in three or more public school courses in a given trimester as identified by the school district. Some public schools included in this study have a daily schedule of five classes, while others have six. The minimum requirement of enrollment in three classes was applied to all schools, despite this difference.
5. The collection of data excludes any students who did not meet attendance requirements in public school courses, which expectedly indicates these students did not meet attendance requirements for RTRE courses.

6. Because school districts may use different methods or standards to determine what they consider the “core” classes to be, the results of the non-core objective may not be generalized to all school districts.
7. The data received, the interpretation of which courses are considered core and non-core courses, and the accuracy of the data provided was beyond the control of the researchers.



## CHAPTER II

### REVIEW OF LITERATURE

#### **Theoretical Framework**

The theory of self-regulated learning (SRL), as proposed by Zimmerman (1990), served as a framework to more fully understand which factors affect the academic achievement of students. Zimmerman's assertions center on understanding which factors influence students' success in learning. He identifies a self-regulated learner as a person who is an active participant in his or her own learning process (Zimmerman, 2001). He also described the study of SRL as the examination of how students become masters of their own learning. In terms of academics, Zimmerman (1990) has suggested that students who are self-regulated learners are more likely to achieve than students who are not. In support of Zimmerman's theory of SRL, Boekaerts stated that SRL "is a powerful construct in that it allows researchers, firstly, to describe the various components that are part of successful learning" (1997, p. 447).

Another area of emphasis of this theory explained by Zimmerman (1990) explores the way the concepts of SRL are implemented administratively in the school system. He stated that a SRL-based perspective "has profound implications for the way teachers should interact with students and the manner in which schools should be organized" (p. 4). Such implementation, he asserts, can affect the way students select, organize, and create advantageous learning environments for themselves. Schunk, a major contributor to the understanding of the theory of SRL, added that in order for students to become

self-regulated learners, they must become involved in goal-oriented activities such as establishing productive work environments (1995). He also asserted that “environmental factors can assist in the development of self-regulation” (2001, p. 124).

In order for school administrations to create and foster an environment which enables students to become self-regulated learners, we must gain an improved understanding of which types of programs and courses will achieve this. Such an understanding will empower school administrations to not only implement such programs and courses, but it will also enable them to educate students about which programs and courses would be most advantageous to the student’s academic achievement, and thus help students become better self-regulated learners. Based on the assertions of Zimmerman’s theory of Self-Regulated Learning, such action in school administration would augment the likelihood of an increase in student academic achievement.

### **Extracurricular Activity Participation and Academic Achievement**

Understanding the factors which positively influence the academic achievement of students can provide a better foundation for the types of programs which should be instituted to promote such achievement. In a study by Blomfield and Barber (2010), the association between participation in extracurricular activities and the positive development of adolescents was examined. Specifically, this study measured students’ academic achievement in the form of academic exam scores. The study indicated that there was a significant difference in academic success as well as academic aspiration by those students who participated regularly in extracurricular activities. Blomfield and

Barber reasoned that this was because participation seemed to increase students' commitment to their school. This study concluded that participation in extracurricular activities was a foundation for producing a variety of positive behaviors, such as academic achievement and school connectedness because such participation forms a context of support much like that of a family and peers. In order to facilitate the positive development of adolescents, this study suggests that schools and communities implement extracurricular programs in their schools or communities.

In a unique study on the the effect of extracurricular activity participation on academic achievement, Howard and Ziomek-Diagle (2009) explored how participation in extracurricular activities can influence the academic achievement of high school students they termed as “underperforming” and “uninvolved.” The study defined “uninvolved” as any student not actively participating in any school sponsored extracurricular program (p. 41). The study found that there was a significant difference in academic performance when an uninvolved and underperforming student began participating in extracurricular activities. The authors concluded that school administrators and counselors should sponsor, create, or advocate for extracurricular programs that appeal to students who are uninvolved and underperforming academically. Such actions, they suggested, will significantly improve the academic performance of these students.

In an effort to promote positive academic achievement in students, Caskey (2006) conducted a study which investigated the effect of involvement in multiple extracurricular activities on academic achievement. In this study, Caskey suggested that extracurricular activity participation not only increases academic achievement in

students, but he also asserted that it mitigates students' negative behavior. A research team collected academic grades in four core classes (math, language arts, science, and social studies). The results indicated a significant difference in grade-point averages of students participating in multiple extracurricular activities when compared to students who were either not involved or had limited involvement in extracurricular activities. The author concluded that although it may be difficult or against school policy to include younger students in each extracurricular activity offered to students in higher grade levels, much effort should be exerted to include young students in some type of extracurricular activities in order to advance the academic achievement of these students.

Utilizing the vast stores of research which indicate the positive effect of involvement in extracurricular activities on academic achievement, Shulruf (2011) conducted a meta-analysis focused on proving the reliability of such claims. A set of keywords were compiled and used to organize such research studies. The author clustered similar activities into eight categories: sports, performing arts/cheerleading, vocational clubs, academic clubs/journalism, student council, vocational club, mentoring, and non sports activities. This allowed the author to streamline data analysis and correctly calculate the effect of involvement in each activity. The findings from the data analysis indicated a positive relationship between participation in extracurricular activities and academic achievement.

Although there is ample research to support the positive benefits which can be associated with involvement in extracurricular activities, some research has pointed out that such participation may produce unwanted negative effects as well (Broh, 2002;

Melman, Little, and Akin-Little, 2007). Due to the abundance of research which suggests the positive effect of involvement in extracurricular activities on academic achievement, one may be led to assume that the more time spent participating in extracurricular activities, the greater the likelihood of increased academic achievement by the student. In order to better create, implement, or maintain extracurricular activities, careful consideration should be given to the levels and types of extracurricular involvement in order for such participation to have a positive effect on students.

In order to increase awareness of some possible negative effects of over-involvement in extracurricular activities, Melman et al. (2007) conducted a study which focused on the relationship between the amount of time spent in extracurricular activities and the number of self-reports of anxiety and depression among those students. Participants in the study were given a behavioral assessment to determine their level of anxiety and depression. These students were also distributed a questionnaire to assess which students were involved in extracurricular activities. A third questionnaire was administered to evaluate the amount of time each student was involved in his or her respective extracurricular activities. The analyzed data indicated that there is a positive correlation between the number of hours spent participating in extracurricular activities and the low levels of self-reported anxiety. One interesting conclusion reached in the study was the suggestion that moderate levels of participation in extracurricular activities, rather than high or low levels of participation, are most beneficial to students.

To maximize the positive influence of involvement in extracurricular activities on academic achievement, Broh (2002) conducted a study to investigate which types of

extracurricular activities seem to promote academic achievement of students. In this study the author used data from a nationally representative, longitudinal study of 24,599 students which was sponsored by the National Center for Education Statistics and the U.S. Department of Education. Broh separated the various extracurricular activities into eight categories including interscholastic sports, intramural sports, non-school sports, student council, cheerleading, school music groups, school drama, and vocational clubs. Using both grade-point average and standardized test score information, results pointed out that participation in interscholastic sports appears to be the most academically beneficial form of extracurricular participation. Participation in school musical groups offered similar, but not as significant results. The other areas of extracurricular participation offered limited academic benefits. Results also indicated that participation in intramural sports impair academic achievement because, as Broh suggested, “intramural athletes do not gain any of the tested individual or social benefits that mediate the positive relationship between interscholastic participation and achievement, and what is more important, they lose ground on a critical link to academic achievement: locus of control” (p. 84).

Liscomb (2007) helped support and quantify Broh’s findings on the possible effect of extracurricular involvement and academic achievement. Liscomb used empirical analysis of the National Education Longitudinal study of 1988, just as Broh did, as a basis for his study. This study examines the extracurricular participation habits, as well as test scores of students while they are involved in the extracurricular activities of sports or clubs, as well as the test scores for the same students when they are not

involved in such activities. Results indicated that there was a two percent increase in math and science test scores when a student is involved in sports. Another indication from the data was that students involved in clubs averaged a one percent increase in math test scores.

### **Non-Core Course Involvement and Academic Achievement**

In the early 1980's, The National Commission on Excellence in Education (NCEE) published a report titled "A Nation at Risk: The Imperative for Education Reform" (U.S. Department of Education, 1983). In this report, the NCEE depicted the educational system in America as being unable to produce future workers who could compete in the 21<sup>st</sup> century economy. The NCEE recommended that secondary education graduation requirements in core classes be increased to require four years of English, one half year of computer science, and three years of mathematics, science, and social studies classes. This recommendation was based on the premise that if schools adopt such graduation requirement regulations, the academic achievement of students would increase. Forty-two states responded to the NCEE recommendation by increasing graduation requirements in mathematics, science, or both (Clune, White, & Patterson, 1989).

Some researchers have endeavored to disprove the verity and effectiveness of the NCEE's recommendations. Chaney et al. (1997) examined the relationship between graduation requirements and student achievement by utilizing data from both the 1990 National Assessment of Educational Progress (NAEP) as well as the 1990 High School

Transcript Study. The results of the study indicated that an increase in core class requirements for graduation does not increase academic achievement in students for three reasons. First, some students took more core classes than the number required for graduation, so we can assume they were motivated by other factors. Second, many students did not use the extra courses to advance their academic skills. These students simply took courses that fulfilled the requirements, but were less demanding academically, so their academic achievement was unchanged. Third, “students who failed an advanced course while trying to fulfill the graduation requirements still performed at least as well as those who advanced without failing” (p. 242).

In order to further refute the recommendations of the NCEE, Teitelbaum (2003) performed a study to measure whether an increase in graduation requirements also increased student achievement in math and science. Using the National Educational Longitudinal Study of 1988, Teitelbaum measured whether student test scores changed respective to the corresponding change to graduation requirement policy. One conclusion reached in this study was that the NCEE’s goal to improve student proficiency in math and science was not met. The data indicated that factors such as race and student socioeconomic status appeared to affect student achievement, but that student test scores “did not differ by the number of credits students were required to complete to graduate” (p. 43).

An increase in the number of core classes students are required to take in order to graduate will inevitably result in fewer opportunities to take elective courses. This could greatly affect the types and numbers of elective courses—including released-time



religious education—offered by schools. The effect of elective course participation on the academic achievement was explored by the National Endowment for the Arts (2012). This study was conducted by examining the test scores, grades, and graduation rates of students using four different longitudinal studies. The results of the study showed that “children and teenagers who have high levels of arts engagement or arts learning show more positive outcomes in a variety of areas [including grades, test scores, graduation rates, and school engagement measures] than their low-arts-engaged peers” (p. 24).

### **Gender and Academic Achievement**

Much research has focused on the effects of gender and the academic achievement of students in secondary education. In 2009 the National Center for Education Statistics conducted an assessment of the academic achievement of high school students graduating that year (Nord et al., 2011). The assessment analyzed data from two sources. The first source was the National Assessment of Educational Progress, which measures the academic achievements of students over time and poses questions designed to measure the knowledge of 4<sup>th</sup>-, 8<sup>th</sup>-, and 12<sup>th</sup>-grade students; the second was the 2009 High School Transcript Study, which provides academic transcript information for secondary education graduates for the same year. The study found that “male graduates generally had higher National Assessment of Educational Progress mathematics and science scores than female graduates completing the same curriculum level” (p. 2). The following year, the assessment suggested that male students’ test

scores are also generally higher in the subject of geography (National Center for Education Statistics, 2011).

A group of researchers from the Max Planck Institute for Human Development focused on finding whether differences exist in levels of academic achievement based on gender and mathematics and science standardized achievement tests (Nagy, Trautwein, Baumert, Koller, & Garrett, 2006). Participants in the study included 1,148 students (60% female) from 46 schools in Germany. The results of the study revealed significant gender differences on test score measures gathered in Grade 10, further supporting the National Center for Educational Statistics' assertion of the existence of gender differences in academic achievement, the study showed that males outperformed females on the science and mathematics achievement tests.

In contrast to the research previously cited, some research indicates that males may not have higher levels of academic achievement than females. Zimmerman and Martinez-Pons conducted a study in which individual students were administered both a verbal and a mathematics efficacy test to measure their level of understanding in these two areas (1990). The sample included 90 students, half of which were male. One of the conclusions drawn by Zimmerman and Martinez-Pons from this study was that males did score higher in the verbal category, but females scored higher in the mathematics category. These findings oppose the idea suggested by the National Center for Educational Statistics, Nagy et al., and others.

### Age and Academic Achievement

Another factor which many researchers claim has an influence on the academic achievement of students is the age of students (National Center for Education Statistics, 2011; Witte, Wolf, Carlson, & Dean, 2012). There are, even within the realm of those who support such a claim, differing opinions as to *how* age affects the academic achievement of students—whether increasing age has a positive or negative effect on students' academic competency.

One position on the topic of whether age influences academic achievement which is held by many is well illustrated in a study performed by the National Center for Education Statistics' in 2010 (2011). The National Assessment of Educational Progress was administered to 7,000 4<sup>th</sup>-grade students, 9,500 8<sup>th</sup>-grade students, and 10,000 12<sup>th</sup>-grade students. The area of assessment was geography. Students in each grade were given a series of questions designed to measure their knowledge in three major areas: space and place, environment and society, and spatial dynamics and connections. A *Basic* level from the assessment indicates that the student has partially mastered the knowledge and skills necessary for proficient work at each grade level. In the 2010 geography study, 79% of 4<sup>th</sup>-grade students, 74% of 8<sup>th</sup>-grade students, and 70% of 12<sup>th</sup>-grade students scored at or above the *Basic* level. Such scores, the researchers suggest, indicate that the increase of age has a negative effect on the academic achievement of students.

Research done by other groups, however, has asserted that the opposite is true. In 1990, a study was conducted to find whether age impacts the academic achievement of

students (Zimmerman & Martinez-Pons). The participants in the study included students in the 5<sup>th</sup>, 8<sup>th</sup>, and 11<sup>th</sup> grades; these students were individually tested by an interviewer who asked the students questions designed to measure basic mathematical and verbal knowledge for their age group. Verbal results revealed significantly higher scores for 11<sup>th</sup> graders than 8<sup>th</sup> graders, who in turn had significantly higher scores than the 5<sup>th</sup> graders. In the area of mathematics, the results were similar, although no statistically significant difference was found in the basic knowledge of 11<sup>th</sup>- and 8<sup>th</sup>-grade students.

It seems that in regard to the question whether age affects academic accomplishment of students, the consensus is that it does. The question which is insufficiently studied, however, is *how* age affects academic achievement. Further research is needed to support either a positive or negative relationship between increasing age and academic achievement.

### **Released-time Religious Instruction and Academic Achievement**

Certain types and levels of participation in extracurricular activities are more academically beneficial than others. One area which has not been researched in as much depth as others is the effect of enrollment in released-time religious education (RTRE) courses on academic achievement. Hodge (2007) examined the effect of released-time enrollment on academic achievement. The author collected results from several standardized tests for 1,288 students in Oakland, California. Only 86 of these students were regular participants in RTRE. Using analysis of covariance, differences in test scores between students enrolled in RTRE and their peers were compared. Results

showed that there was not a statistically significant difference academically between those enrolled in RTRE and their peers. One concluding point of discussion addressed in this study was that participation in RTRE may improve, rather than hinder, academic achievement.

Ashcroft (2011) also contributed helpful information in regard to the perceived effect of enrollment in RTRE on the academic achievement of students. In a qualitative study, Ashcroft investigated the relationship between RTRE programs and Utah public high schools as viewed through the principals from each institution. In order to collect data about this relationship, Ashcroft conducted interviews with six principals of Utah public schools and six principals of released-time religious education programs. One of Ashcroft's findings through these interviews was that public school principals believed that released-time religious instruction not only improved behavior of students, but some even asserted that involvement in daily religious education helped students perform better academically. This notion was recognized, although not discussed with as much emphasis, by principals whose religious beliefs did not coincide with those of the daily religious education program.

### **Synthesis and Summary**

Countless studies have sought to determine the factors which increase academic achievement of students. Data supports the notion that implementation of certain types and amounts of these factors actually increase academic performance of students. Little research has been done, however, in regard to the effect of RTRE on academic

accomplishment. Hodge (2007) asserted that such participation does not hinder academic performance of students, while Ashcroft's findings (2011) suggested that some public school administrators suggested that enrollment in daily religious education might actually improve academic performance. While Ashcroft's work was qualitative in nature, additional quantitative research is needed to support these findings. Such data could help public school administrators more accurately determine the academic value of the implementation of a RTRE program in their school.

## CHAPTER III

### PROCEDURES

#### **Participants**

This descriptive-correlational study utilized multiple regression analysis to determine the effect of enrollment in released-time religious education (RTRE) on students' academic performance when controlling for gender, course load, and age. The academic information of 2,434 students was provided by a suburban school district in Northern Utah. Individual grades for all courses taken by these students were provided for the 2011-2012 school year. The information systems manager for the school district provided the database containing the academic information needed for the study.

Based on the recommendations of Krejcie and Morgan (1970), and utilizing a random number generating database, a sample of 350 students was selected for this study. These students were composed of 173 males and 177 females. Of the sample, 175 were enrolled in an RTRE course and 175 were not enrolled in such a program. In the same sample, 137 students were in 10<sup>th</sup> grade, 112 students were in 11<sup>th</sup> grade, and 101 students were in 12<sup>th</sup> grade. Students' names were assigned pre-coded identification numbers for confidentiality of information and no identifiable information was released to the researchers.

Parameters for sample selection also included the following: The study separated the academic data of students by gender, grade level, and the number of core and non-core courses taken; each student in the RTRE group was enrolled in a minimum of three

classes in addition to a RTRE class; students who were enrolled for only one trimester of RTRE were not included in the study; students included in the sample were enrolled in RTRE for at least the required number of days to earn credit for public education classes during the trimester; measures were taken to ensure that students who were enrolled in early morning non-released-time religious education classes were not included in the sample.

### **Data Collection**

The school district provided the data set used for this study. Data from August, 2011 to May, 2012 was used. Because students in the selected schools are typically enrolled in RTRE for only two of three trimesters, information for these students was restricted to only include academic results for the trimesters in which each student was enrolled in RTRE. The medium used to determine the effect of released-time religious education on academic achievement is grade point averages. After employing this medium, this study compares findings for the two groups of students separately. Grades in the data set were only included in the trimester in which students were enrolled in RTRE. The utilization of grade point averages, combined with the information number of core and non-core courses each student is enrolled in, takes into consideration students who took fewer classes than others and helped ensure accuracy in data collection.

Any academic information for students who received grades of P (Pass), W (Withdrawal), N (Null), or I (Incomplete), were removed from the sample. These designations are unusable because they do not provide sufficient information to



determine student academic achievement. In addition, academic information for students who receive the grade designation of NG (No Grade) was removed as well. NG is merely a place keeper for RTRE, home release, or study hall, where the student does not have a course for which they are receiving a grade.

### **Data Analysis**

This study utilized regression analysis to determine the effect the independent variables of age, gender, enrollment in RTRE, and number of elective courses have on the dependent variable of academic achievement. This allowed the calculation of possible variances in the grade point average of these students based on each stated factor. Any missing data was not included in the analysis of its corresponding factor.

The data analysis began with a fairly homogenous sample of ( $n = 350$ ) high school students from a suburban school district; these students were sorted into two groups: students enrolled in RTRE, and students not enrolled in a released-time program. Each grade level was assigned a point value (A = 4 points, A- = 3.67 points, B+ = 3.33 points, B = 3 points, B- = 2.67 points, C+ = 2.33 points, C = 2 points, C- = 1.67 points, D+ = 1.33 points, D = 1 point, D- = 0.67 points, and F = 0 points). This study compared the grade point average for each group of students using an independent samples  $t$  test in order to indicate possible statistical significance of RTRE enrollment on academic performance.

A similar test was administered to examine whether gender played a role in the effect of RTRE on the academic achievement of students. Grade point averages for 177

female students enrolled in an RTRE program were compared to 173 female students not enrolled in an RTRE program. These groups of students were from the same sample previously mentioned. A similar comparative test was also administered to the males in both groups which were enrolled in RTRE and those who were not enrolled. Analogous tests were also performed to test the possible effect of the dependent variables of age and number of elective courses taken.

The data were tested for homoscedasticity by plotting the data for each variable on a scatter plot. In order to check the percentages the model predicts, a test was run for multicollinearity. This was done by checking the  $r$ -squared values from the model. Interaction effects between independent variables were also explored and all data appeared to appropriately fit the data analyses selected for each research objective.

## CHAPTER IV

### RESULTS AND FINDINGS

The purpose of this study was to compare academic achievement levels of students who are enrolled in daily released-time religious education (RTRE) courses with those who are not enrolled in RTRE, and to determine the possible effect of gender, age, and number of non-core public school courses on academic achievement. The results of this study could help public school administrators more accurately determine the academic value of the implementation of a RTRE program in their school. The data were separated into groups of student type, gender, age, and core and non-core course selection, as necessitated by the testing of each objective.

Five objectives were identified to fulfill the purpose of this study. The objectives were to:

1. Describe the personal characteristics of the age and gender of students;
2. Describe students' academic achievement as measured by grade point average;
3. Describe the number of non-core courses taken or enrolled in by students;
4. Predict the academic achievement of students based on the characteristics of students and the number of elective courses taken;
5. Determine whether enrollment in RTRE impacts academic achievement;

**Objective 1: Describe the Personal Characteristics of the Age and Gender  
of the Students**

The group of students from the suburban school district who met the criteria for the study included 2,434 students. From this group a random sample of high school students was selected ( $n = 350$ ) from grade levels 10-12. Of these students, 173 are male and 177 are female. The distribution of grade levels is 137 students from 10<sup>th</sup> grade, 112 from 11<sup>th</sup> grade, and 101 from 12<sup>th</sup> grade. The number of students enrolled in RTRE from the sample is 175, and 175 students were not enrolled in RTRE. Table 1 provides the frequencies and percentages of the students based on previously mentioned characteristics.

Table 1

*Characteristics of Students Enrolled in a Suburban School District in Northern Utah*

Type of student	Frequency	%
Male	173	49.4
Female	177	50.6
10 <sup>th</sup> Grade	137	39.1
11 <sup>th</sup> Grade	112	32.0
12 <sup>th</sup> Grade	101	28.9
Enrolled in RTRE	175	50.0
Not enrolled in RTRE	175	50.0

**Objective 2: Describe the Students' Academic Achievement as Measured  
by Grade Point Average**

First, the mean grade point average of students enrolled in daily RTRE was found to be  $M = 3.57$  ( $SD = .47$ ) in non-core courses,  $M = 3.15$  ( $SD = .60$ ) in core courses, and the mean grade point average for all courses for these students was  $M = 3.29$  ( $SD = .5$ ). Those students who were not enrolled in RTRE had a mean grade point average of  $M = 2.91$  ( $SD = .74$ ) in non-core courses,  $M = 2.37$  ( $SD = .93$ ) in core courses, and the total mean grade point average for both all courses was  $M = 2.63$  ( $SD = .69$ ).

Data were also collected to assess the academic achievement of students based on grade level. Students in 10<sup>th</sup> grade had a mean grade point average of  $M = 3.16$  ( $SD = .69$ ) for non-core courses,  $M = 2.73$  ( $SD = .93$ ) in core courses, and a mean grade point average of  $M = 2.94$  ( $SD = .70$ ) in all courses. Students in the 11<sup>th</sup> grade earned a  $M = 3.34$  ( $SD = .71$ ) mean grade point average in non-core courses,  $M = 2.78$  ( $SD = .81$ ) in core courses, and an overall mean grade point average of  $M = 2.97$  ( $SD = .68$ ) for all courses. Students in 12<sup>th</sup> grade merited a mean grade point average of  $M = 3.26$  ( $SD = .68$ ) in non-core courses,  $M = 2.78$  ( $SD = .85$ ) in core courses, and a combined mean grade point average of  $M = 2.98$  ( $SD = .67$ ) for all courses.

The academic achievement data for the students, separated by gender, were then considered. Males had a mean grade point average of  $M = 3.14$  ( $SD = .70$ ) in non-core courses,  $M = 2.62$  ( $SD = .86$ ) in core courses, and an overall mean grade point average of  $M = 2.84$  ( $SD = .68$ ) for both core and non-core courses. The mean grade point average

for females in the sample was  $M = 3.34$  ( $SD = .68$ ) in non-core courses,  $M = 2.90$  ( $SD = .86$ ) in core courses, and a combined mean grade point average of  $M = 2.84$  ( $SD = .68$ ).

Table 2 provides the grade point averages of the students based on selected characteristics.

Table 2

*Academic Achievement of Students Based on Characteristics*

Characteristics of students	<i>n</i>	Non-core GPA			Core GPA			Total GPA		
		<i>M</i>	<i>SD</i>	<i>Range</i>	<i>M</i>	<i>SD</i>	<i>Range</i>	<i>M</i>	<i>SD</i>	<i>Range</i>
RTRE	175	3.57	.47	(1.78-4.00)	3.15	.60	(1.09-4.00)	3.29	.50	(1.38-3.89)
Non-RTRE	175	2.91	.74	(1.00-4.00)	2.37	.93	(0.00-4.00)	2.63	.69	(1.06-3.89)
10 <sup>th</sup> Grade	137	3.16	.69	(1.34-4.00)	2.73	.93	(0.00-4.00)	2.94	.70	(1.09-3.89)
11 <sup>th</sup> Grade	112	3.34	.71	(1.00-4.00)	2.78	.81	(0.84-3.84)	2.97	.68	(1.25-3.89)
12 <sup>th</sup> Grade	101	3.26	.68	(1.56-4.00)	2.78	.85	(0.34-3.84)	2.98	.67	(1.06-3.89)
Male	173	3.14	.70	(1.34-4.00)	2.62	.86	(0.00-4.00)	2.84	.68	(1.09-3.89)
Female	177	3.34	.68	(1.00-4.00)	2.90	.86	(0.00-4.00)	3.08	.67	(1.06-3.89)

**Objective 3: Describe the Number of Non-Core Courses Taken or Enrolled in by Students**

Students enrolled in daily RTRE were enrolled in an average of  $M = 2.28$  ( $SD = 1.31$ ) non-core courses during the two trimesters in which they were enrolled in RTRE.

The range for this group was one to seven non-core courses. The same students were enrolled in an average of  $M = 3.93$  ( $SD = 1.51$ ) core courses during the two trimesters in which they were enrolled in RTRE. The range for this group was one to eight core courses.

Students who were not enrolled in RTRE enrolled in  $M = 3.78$  ( $SD = 1.91$ ) non-core courses. The range for this group was zero to nine non-core courses. The same students were enrolled in an average of  $M = 4.41$  ( $SD = 1.78$ ) core courses. The range for these students was zero to nine core courses. This information is summarized in Table 3.

Table 3

*Number and Range of Non-Core and Core Courses Taken by Student Type*

Student type	<i>n</i>	Number of courses taken				Total
		Non-core ( <i>M</i> )	Range	Core ( <i>M</i> )	Range	
RTRE	175	2.28	(1-7)	3.93	(1-8)	3.10
Non-RTRE	175	3.78	(0-9)	4.41	(0-9)	4.09
Total		3.03		4.17		

#### **Objective 4: Predict the Academic Achievement of Students Based on the Characteristics of Students and the Number of Elective Courses Taken**

The type of analysis run for Objective 4 was a stepwise linear regression. Three variables were found to be significant in predicting overall grade point average. These included student type (RTRE versus non-RTRE), the number of core credits taken, and the number of non-core credits taken. These three variables explained 52.1 percent of the

variance ( $r = .722$ ,  $r^2 = .521$ ). The number of core credits and non-core credits returned negative Beta Coefficients ( $\beta = -.524$  for noncore and  $\beta = -.229$ ).

**Objective 5: Determine if Enrollment in RTRE Impacts Academic Achievement**

In order to determine the possible impact of RTRE enrollment, the total grade point averages of RTRE students and non-RTRE students were compared. The combined (non-core and core course) grade point average of RTRE students was 3.29 ( $SD = 0.50$ ) and the combined grade point average of non-RTRE students was 2.63 ( $SD = 0.69$ ). In this data comparison, the  $t$  score was 10.053 and enrollment in RTRE exhibited statistical significance of  $p < .01$ . This information is summarized on Table 4.

Table 4

<i>Impact of Student Type on Academic Achievement</i>					
	<i>n</i>	Total GPA		<i>t</i>	<i>p</i>
		<i>M</i>	<i>SD</i>		
RTRE	175	3.29	0.50	10.053	< .01
Non-RTRE	175	2.63	0.69		



## CHAPTER V

### CONCLUSIONS AND RECOMMENDATIONS

#### **Discussion**

The discussion and conclusions of this study were based upon the academic information provided by a suburban school district in Northern Utah. Generalizing the results of this study beyond the identified population should be done with prudence. As a result of this study, the following conclusions were made.

One consideration of the study was to determine whether age affects the academic achievement of students. When the independent variable of age was considered, the core, non-core, and total mean grade point averages of each age considered were not significantly different for 10<sup>th</sup>-, 11<sup>th</sup>-, or 12<sup>th</sup>-grade students. Based on these results, age does not seem to affect the academic achievement of students. Previous research in this area has indicated that there is either a positive or negative relationship between age and academic achievement of students (National Center for Educational Statistics, 2011; Zimmerman & Martinez-Pons, 1990). Although the results of our study in regard to age indicate that age is not a predictor of academic achievement, this conclusion is similar to some of the findings of Zimmerman and Martinez-Pons (1990), which indicated that there was not a statistically significant difference in the basic knowledge of 11<sup>th</sup>- and 8<sup>th</sup>-grade students.

Another point of emphasis in the study was the possible effect of gender on the academic achievement of students. The National Center for Educational Statistics

(2011), Nagy et al. (2006), and others asserted that males were more likely to achieve higher grade point averages and standardized test scores than females. As we examined this possible connection, we found that females had a slightly—but not significantly—higher core, non-core, and total mean grade point average than males in the sample. Our findings coincide more closely with those of Zimmerman and Martinez-Pons (1990), which affirmed that females scored higher in core categories. With the results of this study considered, there seems to be no statistically significant effect of gender on the academic performance of students.

After examining the possible effect of enrollment in released-time religious education (RTRE) courses on the academic achievement of students, we found that RTRE students' mean grade point averages were significantly higher than those of non-RTRE students. These findings are supported by Hodge's (2007) and Ashcroft's (2011) findings that enrollment in RTRE is not associated with lower academic achievement, and promotes positive academic achievement of students.

There are, however, other factors that contribute to the higher mean grade point average of RTRE students. Through regression analysis, three factors were found to be significant predictors of the grade point average of students: enrollment in RTRE, number of core courses taken, and number of non-core courses taken. Thus, the difference in mean grade point average of RTRE students and non-RTRE students may not necessarily be attributed to enrollment in RTRE alone.

The data also suggested that on average, RTRE students take fewer courses (both core and non-core) than do students not enrolled in RTRE. Instead of RTRE having an

effect on the academic achievement of students, one could assert, based on these results, that the fewer courses a student takes, the more likely he or she is to have a higher grade point average. This notion supports the claims of Chaney et al. (1997) that an increase in core classes taken does not increase the academic achievement of students. This mean grade point average of RTRE students could be higher in part, as Chaney et al. have suggested, because some students enrolled in RTRE may have been motivated academically by other factors than RTRE; another possible explanation they suggest which supports the findings of this study is that some RTRE students may enroll in less demanding courses that still fulfill their academic course requirements.

### **Conclusions**

Age and gender do not seem to be significant factors or predictors of the academic achievement of students. Although the data suggests that there is a statistical correlation between enrollment in RTRE and higher grade point averages of students, a practical significant correlation should not be assumed. The three factors which were found to be predictors of academic achievement—enrollment in RTRE, number of core courses taken, and number of non-core courses taken—only explained 52.1% of the variance. There are many other possible factors not considered in this study. Research into which factors make up the remaining 47.9% could provide additional, helpful information to communities, administrators, parents, and students.

## **Recommendations**

There may be yet another explanation for the increase in grade point average of students enrolled in RTRE; this difference could also be attributed to the assumption that such students would likely have less homework and fewer tests, simply because they are enrolled in fewer courses. Fewer academic demands on a student could affect a student's ability to achieve academically. We recommend that further research be performed to investigate whether an increase or decrease in the number of periods students attend daily has an effect on their academic achievement.

For the current research study, many of the students— both RTRE and non-RTRE students—differed in the number of courses they had taken during the school year. Based on the implications and findings of this study, we also recommend that this study be replicated using RTRE and non-RTRE students who are enrolled in the same number of core and non-core courses. This would help equalize the educational experience for the students in the study. Such research could investigate whether there is a certain number of courses which can be taken in order to produce the greatest probability of academic success for both RTRE and non-RTRE students.

Another recommendation for further study is the effect of school structure on the academic achievement of students. The results of this study may have been different if these suburban schools were on a semester system, rather than a trimester system. A quantitative study in regard to the implementation of semesters versus trimesters could further substantiate the rationale for implementation of one system instead of another.

Qualitative studies which investigate the possible effect of social factors on the academic achievement of students could also provide useful insight in this area. Such a study could investigate which, if any, social factors seem to impact most the academic achievement of students. Possible influencing factors we recommend for consideration in such a study include friends, types of media exposure, amount of media exposure, and the level of perceived parental support in academics.

Considering the implications of this study, many of the factors which could prove influential a student's academic achievement could be found quantitatively. We recommend that the independent variables for such a study include: parental academic achievement in core, non-core, and combined grade point average, the socioeconomic status of students, and the familial orientation of these students. Continued research in these and many other areas could contribute greatly to our understanding of the factors that influence the academic achievement of students.

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APPENDIX

Appendix: School District Consent Form for Data Provision

May 22, 2012

Mr. Trace Hansen

Dear Mr. Hansen:

This letter indicates our willingness to provide data from our student information system for your use for your Masters Thesis. The data we plan to provide meets the following guidelines:

1. Data remains anonymous - meaning all student information provided be identified by a random number making it unlikely that data can be tracked back to original student records.
2. Data provided will include grade counts (no course names included) for all grades received each term for all students scheduled in at least two released time class periods and three additional class periods in those same terms during the 2011-12 school year.
3. Data will be provided in the following format in a csv file:  
School Year, random student identifier, grade level, term, gender, grade value, count
4. The control set of data will include the same data elements for students not scheduled for any released time class period during the regular school day as well as scheduled before the regular school day begins during the 2011-12 school year.
5. This data set cannot be used for any reason other than the purposes of this thesis and should be destroyed using secure methods upon completion of the thesis. (The) School District should not be associated nor identified in any way other than in general terms.

Please contact me if you have any questions or concerns involving the terms of this agreement regarding this data set.

Sincerely,

Information Systems Manager