

THE RELATIONSHIP BETWEEN
ATTENDANCE POLICIES AND
STUDENT GRADES

by

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A DISSERTATION

Submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy in the
Department of Educational Leadership,
Policy, and Technology Studies
in the Graduate School of
The University of Alabama

TUSCALOOSA, ALABAMA

2012

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ABSTRACT

The relationship between attendance policies and student grades in college courses was investigated. Specifically, a calculated grade point average was determined for all academic classes taught at Shelton State Community College between 2000 and 2008. These grade point averages were compared descriptively and statistically in an effort to document any changes in student grades that occurred before and after 2003. For this study, 2003 was a critical year since that was the year that Shelton State Community College moved from a mandatory, punitive attendance policy to a policy that only documented student attendance. Therefore, any changes in student grades before and after 2003 should correlate with changes in the institution's attendance policy. Furthermore, this project investigated the relationship between class standing (freshman or sophomore), demographics and student grades.

The findings indicated a positive correlation between a punitive attendance policy and student grades. Moreover, there was a positive relationship illustrated between freshman grades and punitive attendance policies. The data further proved that sophomores achieved higher grades than freshmen and the higher grades were not related to the change in attendance policy. Finally, this study indicated that demographics was not related to student grades.

Current literature is mixed regarding the relationship between attendance and student grades. (Gump, 2005; Hammen & Kellend, 1994). This study provided weight to the view that attendance was related to student grades. Specifically, a positive relationship between a punitive attendance policy and final grades was observed. Student experience level was also implicated as a factor that was correlated with college grades. In general, grades in freshman biology classes were higher when the institution was using a punitive attendance policy. However, grades in

sophomore classes did not change as the college moved from a punitive to a non-punitive attendance policy. Finally, this project indicated that student demographics were not related to final course grades.

DEDICATION

This dissertation is dedicated to all of those who supported, guided and helped me through the long process of completing a Ph.D. Most importantly, I want to thank all of the members of my family for their understanding and patience throughout this process. I especially wish to thank my loving wife Laura for her continued patience, help and support as I pursued the completion of this degree. Without the help and guidance that she provided, this would not have been possible. Also, I would like to thank the two greatest children in the world, Davis and Laura Beth, for their understanding and great behavior as I worked toward completion of the Ph.D. Without the love and guidance of Laura, Davis and Laura Beth, this accomplishment would have never been possible-Thank You!

LIST OF ABBREVIATIONS AND SYMBOLS

ACT	American College Test
ANOVA	Analysis of variance between samples
BIO 103	Principles of Biology I
BIO 201 and 202	Human Anatomy and Physiology
BIO 220	Microbiology
BT	Bridge Task
COMPASS	Computer Adaptive Placement Test
f	Fixation index
GPA	Grade Point Average
NBME	National Board of Medical Examiners
p	Probability associated with the occurrence under the null hypothesis of a value as extreme as or more extreme than the observed value
r	Pearson product-moment correlation
t	Computed value of t test
z	Statistical measurement to compare one value to a collection of data

ACKNOWLEDGMENTS

I am honored to have this opportunity to thank all of those faculty members, friends, and colleagues who have helped me either directly or indirectly in the successful completion of this project. I most graciously wish to thank my committee co-chairs; Dr. Nathaniel J. Bray and Dr. Claire Major for their guidance, input, support, and patience as I worked to complete this document. Also, I wish to thank my committee members: Dr. Beverly Dyer, Dr. Phil Harris and Dr. Ted Major for their input and willingness to adjust their schedules to accommodate meetings related to my dissertation and defense. Finally, I want to thank Dr. Amelia Ward in the University of Alabama Biology Department for providing me with the opportunity to complete additional biology hours which helped me to improve my rank and standing in my position at Shelton State Community College. Again, thank you to everyone who supported me in this process.

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CHAPTER I: INTRODUCTION

Researchers who study student success rates in higher education have suggested that a wide variety of factors work together to influence a student's final course grade (Goolsby, Dwinell, Higbee, & Bretscher 1988; Devadoss & Foltz, 1996; St. Claire, 1999). Current research indicated that a student's maturity level, attitude, educational background, motivation and work ethic all played a role in affecting grades (Devadoss & Foltz, 1996; St. Claire, 1999; Park & Kerr, 1999; Krohn & O'Connor, 2005).

In a study examining student absenteeism in freshman economics classes, Romer (1993) indicated that "one-third of college students are not in class on any given day" (p. 167). Likewise, Friedman, Rodriguez and McComb (2001) interviewed faculty members in a variety of fields to determine that "25 percent or more students usually are absent from classes on any given day" (p. 124). Based on research such as this, a controversy has emerged related to the role that attendance policies play in influencing student grades. Some evidence suggested that attendance could be a major contributing factor related to student grades (Jones, 1984; Marbuger, 2001; Gump, 2005). Support for this view can be observed in a project by Moore (2005) who noted that "students who attended class regularly had a greater probability of making a high grade in the course than did students who missed lots of classes" (p. 37). However, other research projects have indicated that attendance had little if any relationship with student grades (Buckles & McMahon, 1971; Hammen & Kelland, 1994; Gatherer & Manning, 1988). St. Clair (1999) provided voice for this view stating that "research has not consistently revealed a positive

relationship between attendance and achievement” (p. 172). With accrediting agencies like The Southern Association of Colleges and Schools placing a strong emphasis on student retention, (SACS Webpage, Retrieved June 20, 2009) it is imperative that researchers further examine and illustrate the relationship between attendance policies and student grades.

Unfortunately, the literature is even more mixed in relation to the attitudes of students and faculty members regarding the correlation between attendance and grades. Research projects examining student attitudes relative to attendance have indicated that most students believe attendance is important for success in college classes (Sleigh, Ritzer & Casey, 2002; Moore, Jensen, Hatch, Duranczyk, Staats, & Koch, 2003). However, many of these same students believed that it was acceptable to miss class for reasons such as boredom with the class, needing time to complete other assignments and nice weather (Gump, 2004; Hassel & Lourey, 2005; Gump, 2005). Faculty attitudes are equally as mixed with regards to the relationship between attendance and student grades. Some college professors were steadfast in their view that mandatory attendance policies were necessary in college classes to ensure that students were consistently present in class. These instructors believed that such policies would actually lead to an improvement in student grades in their classes (Druger, 2003; Clump, Bauer & Whiteleather, 2003; Higbee & Fayon, 2006). Other college faculty members argued that such mandatory attendance policies were unnecessary since they typically did not improve student grades (Cross, Frary & Weber, 1993; Powell & Shugart, 1994; Higbee & Fayon, 2006). Furthermore, many of these faculty members noted that mandatory attendance policies forced students who do not want to be there to attend, thus creating an environment that was not conducive to learning (White, 1992; Brauer, 1994). Some faculty argued that students need to learn responsibility; therefore, there was no need for an attendance policy (Cross, Frary & Weber, 1993). The only way to

resolve these differences of opinion was to conduct research that clearly addressed the relationship between attendance policies and student grades.

Clearly, the relationship between class attendance and student grades is a confusing topic given the mixed results of the studies examining the issue. However, the overall attendance policy-student grade topic can be narrowed to three major questions. First, is student absenteeism really a problem in the modern college classroom? As noted earlier, the works by Romer (1993) and Friedman, Rodriguez and McComb (2001) indicated that student absenteeism was a critical issue in the college classroom. These works suggested that college professors could expect to have a minimum of one-fourth of their class absent each time their class meets. This is a substantial number considering the fact that some of those students who miss class required outside help from the instructor in an effort to get caught up in the class. Such a high rate of absenteeism puts students at risk of falling behind in classes and it could create a teaching environment that was not conducive for effective learning. From an instructor's point of view, such high rates of absenteeism affected the classroom environment and it greatly diminished the ability of the professor to utilize creative learning strategies (such as group activities, class projects) since he could not depend on students to regularly attend class meetings.

Secondly, one must ask if establishing and enforcing mandatory attendance policies encouraged students to attend class on a more consistent basis. Moore et. al. (2003) discovered that students were more likely to attend class when some type of attendance requirement was in place. Specifically, they indicated that students are especially willing to attend class if attendance was calculated as part of the final grade. Likewise, Shimoff and Catania (2001) illustrated that simply recording daily attendance reduced absenteeism in an introductory psychology class. Shimoff and Catania monitored attendance at every class meeting by asking students to sign in as

they entered the classroom. However, attendance was not used in any way to effect final student grades. From their work, they concluded that even the simple task of requiring students to sign in at each class meeting increased student attendance and grades. Based on this information, it appeared that a compulsory attendance policy could be used to reduce absenteeism in the college classroom.

Finally, was attendance related to grades in college classes? As noted earlier, the results in this area were mixed at best. Some studies suggested that regular attendance was related to student grades (Moore, 2005; Barrington & Johnson, 2006; Fidanza, 2006). However, other projects indicated that attendance was not related to grades (St. Claire, 1999; Rodgers, 2002). In addition, some studies suggested that quizzes and other attendance related measurements had a positive relationship to student grades (Hovell, Williams & Semb, 1979; Wilder, 2001). In an effort to add documentation to the attendance-grade relationship, this final question was examined as the primary focus for the current project. Specifically, this study attempted to determine if there was a relationship between attendance policies and grades.

As indicated, the literature examining the relationship between attendance and student grades was mixed; however, some projects did offer evidence on the overall relationship between student attendance and classroom grades. In many of these projects, college faculty members based their support or lack of support for attendance policies on their daily classroom experiences. Some college professors have openly shared their opinions on the topic of attendance, even though they do not have empirical data to support their views (Druger, 2003; Moore, Jensen, Hatch, Duranczyk, Staats & Koch, 2003; Higbee, 2006). These professors believed that regular class attendance was an important factor in at least increasing the probability for success in college level classes. Some of these instructors suggested that

attendance played a greater role in student grades than any other variable. Other college faculty members argued that attendance was one of any number of factors that influenced student grades (Hammen & Kelland, 1984; Higbee & Fayon, 2006). In addition, some argued that attendance had absolutely no relationship to grades (Gatherer & Manning, 1998; Krohn & O'Connor, 2005). Again, such issues needed to be addressed with research methods that would illustrate clearly the relationship between attendance policies and student grades. As a result of the mixed study findings on the topic of student attendance, it was clear that a study needed to be conducted to examine the direct correlation between attendance policies and student grades. This project compared student grades before and after the implementation of a non-punitive attendance policy. Statistical data from this project provided documentation on the relationship between attendance policies and student grades. Moreover, this work examined the correlation between demographics, student experience level, and student grades. A thorough review of the attendance, demographic and student experience data provided evidence on how these factors were related to student grades.

Background

The Alabama Two Year College System consists of 22 community colleges that served 271,723 students during the 2007 academic school year (the Alabama College System Webpage, Retrieved March 18, 2008). Approximately 55% of these students (139,900) were enrolled in academic transfer courses (the Alabama College System Webpage, Retrieved March 18, 2008). The remaining 45% of the students were enrolled in a variety of areas including technical programs, adult education programs and workforce development courses. Overall, these academic students were enrolled in a total of 1,839,712 credit hours of course work (the Alabama College System Webpage, Retrieved March 18, 2008). As far as student gender was

concerned, females comprised 64% of the total enrollment in the Alabama Two-year College System during the 2007 school year. Moreover, 65% of the students in the system were white, 25% of the students were African-American and 10% of the students were categorized as being from other origins (the Alabama College System Webpage, Retrieved March 18, 2008). Furthermore, 54% of the students enrolled in institutions supervised by the Alabama Department of Postsecondary Education were 24 years old or younger (the Alabama College System Webpage, Retrieved March 18, 2008). Finally, the system as a whole, maintained a student to faculty ratio of 14:1 (The Alabama College System Webpage, Retrieved March 18, 2008), which indicated that class sizes were relatively small compared to most four year institutions.

Prior to 2003, the institutions that comprised the Alabama College System were allowed to implement an attendance policy that counted attendance as part of the final course grade. In other words, a faculty member could deduct points from a student's grades for missing class. Such policies encouraged students to attend class or risk losing points towards their final grade. In 2002, the Chancellor of the Two-Year College System instructed institutions throughout the state to develop attendance policies that were less punitive in nature (J. Jolly, personal communication, November 13, 2006). The new policy prevented instructors from counting attendance in the final grade calculation. This change in philosophy was primarily the result of concerns related to accreditation and internet-based classes. As Dr. Jim Jolly, Dean of Instruction at Gadsden State Community College noted, "there are possible concerns with accreditation in that attendance is not required for online courses so comparing to show that an online BIO 103 and in-class BIO 103 produce the same outcomes negates the need for requiring attendance" (J. Jolly, personal communication, November 13, 2006). In addition, the attendance policy change in the Alabama Two-Year College System occurred since the system was "moving to be a

competency-based system” (J. Jolly, personal communication, November 13, 2006). As noted above, while research suggested mixed results on whether regular attendance could improve a student’s grades, at least some projects have indicated a positive correlation between attendance and grades (Hughes, 2005). Despite this relationship, instructors in the Alabama Two-Year College System were required to implement a non-punitive attendance policy in 2003.

Correspondence between the Chancellor of Postsecondary Education and the Instructional Officers of Alabama’s two year colleges suggested that “changing Financial Aid guidelines had an impact on the formation of attendance policies that did not encourage class attendance” (N. Colagross, personal communication, December 29, 2006). Simply put, by describing Alabama’s colleges as “nonattendance taking institutions,” then all burden of repayment of financial aid is placed on the student, not the institutions. In other words, a less punitive attendance policy protected the institution and the Department of Postsecondary Education from potential loss of funding through the federal financial aid program. For these reasons, the Chancellor, as head of the Department of Postsecondary Education, instructed college leaders to implement attendance policies that did not directly count attendance towards the final course grade (Nancey Colagross, personal communication, December 29, 2006). Since no State Board of Education criteria existed for establishing a system-wide attendance policy for Alabama’s two-year colleges, the Department of Postsecondary Education was allowed to suggest an attendance policy for schools in the system. The current attendance policy in place at community and technical colleges throughout the state of Alabama requires instructors to document attendance in some fashion at every class or lab meeting. However, grade calculations cannot include an attendance component. The documentation portion of this policy is in place to fulfill federal financial aid obligations. This action essentially led to the implementation of

attendance policies that only encouraged class attendance as opposed to policies that allowed attendance to be counted in the final grade determination.

The current and past attendance policies of Shelton State Community College clearly illustrate the shift in attendance policies within the Alabama Two-Year College System. The institution's current, less strenuous attendance policy is as follows: Students are expected to attend all classes for which they are registered, to be prompt and to remain in class/lab the entire time. Attendance will be recorded at every class/lab meeting. On the final grade report, instructors are required to identify the last day of attendance for all students who receive a grade of "F" or "U." Students who are unable to attend class regularly, regardless of the reason or circumstance should withdraw from the class. Withdrawal from class can affect eligibility for federal financial aid (Aaron, 2008). This policy is far less punitive than the original attendance policy. Essentially, this policy is a mechanism to document attendance for financial aid reasons (M. Heinrich, personal communication, October 10, 2008). In this policy, attendance cannot be counted as a part of the final grade calculation. The punitive attendance policy was written as follows: students are expected to attend all classes for which they are registered. If a student is unable to attend a class regularly, regardless of the reason or circumstance, he/she should withdraw from that class before an excessive absence is assigned. Student absences are calculated from the first day of class. In a class that meets two days a week, the fifth absence is considered excessive and in a class that meets three days a week, the seventh absence is considered excessive. Excessive absences will result in a grade of F or WF for the class (Haynes, 2002). Not only was this policy punitive relative to attendance, but it was required that all faculty members utilize this policy in their classes. Policies like this one are no longer allowed to be implemented in colleges throughout the state of Alabama since they are deemed punitive (M.

Heinrich, personal communication, October 10, 2008). As clearly indicated, this policy allowed instructors to calculate attendance as a part of the overall course grade. Students who regularly missed class under this attendance policy failed the course due to excessive absence. Based on the Chancellor's decree, community colleges in the Alabama two-year system converted their traditional attendance policies to less punitive policies. Starting in the 2003 spring semester, Shelton State Community College in Tuscaloosa, implemented a policy that did not count attendance as part of the final grade. Based on the administration's willingness to quickly change attendance policies and since Shelton State maintained a large enrollment compared to other Alabama community colleges, it provided an opportunity to examine the relationship between attendance policies and student grades.

Obviously, there are major differences between the two attendance policies. The initial policy required students to attend class or face the possibility of failing the course for less than adequate attendance. Clearly, the current policy effectively eliminated mandated attendance as a direct determinant in the final grade calculation. With this policy, faculty could only use indirect attendance measures (quizzes, group activities, short in-class assignments) to factor attendance as part of the final grade. Although the current policy is not popular among faculty in the Alabama Two-Year College System, it did achieve the former Chancellor's two primary goals. First, the policy addressed issues relating to outcome based data for accreditation purposes and secondly, the policy provided the system with documentation of student attendance for federal financial aid matters.

Many instructors in the Alabama Two-Year College System wondered if the change from a punitive attendance policy to a less threatening policy would encourage students to cut class more frequently than in the past. This policy change has provided an opportunity for a direct

study of the relationship between attendance policies and final course grades. In this study, final course grades will be examined for all academic classes at Shelton State Community College both before and after the implementation of the current, non-punitive attendance policy. Any trends that are observed in the statistical data should illustrate whether a relationship exists between attendance policies and student grades.

Statement of Problem

A number of studies have indicated at least a moderate correlation between class attendance and student grades (Wiley, 1992; Sharma, Mendez & O'Byrne, 2005; Moore, 2005). However, some studies have suggested that grades are not related to attendance (Hammen & Kellend, 1994). Due to the mixed results of studies on the relationship between attendance and grades, there was a need for additional evidence in support of one of the two attendance-grade views. Therefore, this project attempted to provide evidence on the relationship between attendance policies, student demographics and student experience level on student grades in college classes.

For this project, the critical issue was whether student grades declined after the Alabama Department of Postsecondary Education mandated a non-punitive attendance policy and did this subsequent decline in student grades occur due to the move from a punitive policy to a non-punitive attendance policy. This work attempted to illustrate how attendance policies and course grades were related by comparing overall student grades for each academic course at Shelton State Community College before and after the implementation of a non-punitive attendance policy. To further verify the relationship between attendance policies and final course grades, this project examined student grades based on student age (freshman or sophomore) and

demographics. This information helped to identify whether attendance policies were related to student grades or if other issues contributed to student outcomes.

Purpose of the Study

The purpose of this study was to examine the relationship between student attendance policies and final course grades. Specifically, this project examined student's final course grades from all academic classes offered at Shelton State Community College between 2000 and 2008. This examination focused on the total number of A, B, C, D, F, and W grades achieved by students in the academic divisions of Shelton State during the 2000 to 2008 timeframe. This test period included time before and after the implementation of a noncompulsory attendance policy. Carnegie classified as a rural, medium size two-year college, Shelton State Community College offered an excellent opportunity to examine the relationship between attendance policies and student grades in a variety of freshman and sophomore level courses (Hardy & Katsinas, 2006). Furthermore, Shelton State was one of the first two-year colleges in Alabama to move to a non-punitive attendance policy.

In this work, three primary problems were addressed. First, this project examined the correlation between attendance policies and final course grades. This was accomplished by descriptively and statistically examining the final course grades in these classes between 2000 and 2008. The time period selected for this study included time before and after the implementation of the non-punitive attendance policy initiated by the Alabama Department of Postsecondary Education. This information provided an illustration of the relationship between attendance policies and student grades. Next, this work attempted to determine whether an attendance policy that required students to attend class had a greater positive relationship on final course grades than policies that did not count attendance towards the final grade. Specifically,

this portion of the study attempted to determine if a strict attendance policy was related to higher grades in college classes compared to a policy that only suggested that students should attend. Finally, this work examined whether there was a stronger relationship between student demographics (gender, race, experience level) and grades or attendance policies and student grades.

The information gathered in this project indicated the type of relationship that existed between attendance policies and student grades. The Alabama Department of Postsecondary Education's move to a non-compulsory attendance policy offered a great opportunity to study how attendance policies related to student grades. If there was a distinct positive or negative shift in grades after the implementation of the less punitive attendance policy, then a correlation between attendance policies and grades would be indicated. However, if there was no statistical change in student grades before and after the change in attendance policy, then attendance policies would be regarded as having a minimal relationship to grades.

Significance of this Project

Since the literature is mixed in regards to the relationship between attendance and grades, it has become necessary to conduct research of this important issue. A study of the correlation between attendance and grades should provide documentation on how these variables are related. If it is determined that attendance is not a critical variable in the learning equation, then administrators and faculty members can develop and institute academic policies that do not consider student attendance in any way.

A thorough examination of the influence of attendance policies on final course grades is significant for several reasons. First, a project of this nature should indicate whether attendance policies and final course grades are related. Along these same lines, this study should show

whether attendance policies were a major constituent in determining a student's final grade. Likewise, this study should document any differences in academic grades based on student experience level (freshman or sophomore). Moreover, this work should illustrate any relationships that exist between student demographics, attendance policies and final grades. Next, this investigation should generate evidence that can be used in establishing classroom policies that provide students with the best chance of successfully completing a class. Finally, this project should provide a framework that future researchers can use to assess the overall relationship between attendance policies and final course grades.

CHAPTER II:

LITERATURE

A number of researchers have conducted studies on various aspects of student attendance in college classes (Hammen & Kelland, 1994; St. Clair, 1999; Gump, 2005). These projects provided documentation on a variety of issues relating to student attendance in a wide array of college level classes. However, this review examined two major topics relating to attendance patterns in institutions of higher education. Initially, this review focused on studies that illustrated a correlation between student attendance and final course grades. The studies in this portion of the work verified a link between poor class attendance and lower grades. Secondly, projects that indicated that student attendance did not impact grades in the classroom will be reviewed. These projects suggested that a variety of factors, not just attendance, were related to grades. Obviously, these are two critical areas for the current study since this project attempted to determine the correlation between attendance policies and final course grades. Furthermore, the statistical information gathered in the present study should provide solid documentation for one of these opposing views.

A Positive Relationship Between Attendance and Grades

Research projects examining the influence of attendance on student grades in higher education date back to the 1920s (May, 1923; Turner, 1927; Jones, 1931). Since these early days of educational research, a number of researchers have attempted to examine the general relationship between class attendance and student grades in college classes. Specifically, these studies attempted to illustrate a correlation between student attendance at regular class meetings

and final course grades. The literature provided a reasonable number of works from a variety of academic fields that indicated that attendance was related to final course grades. Several works that documented a connection between class attendance and student's final course grades are discussed below.

Moore (2005) examined the influence of attendance on final course grades in a four credit hour Principles of Biological Sciences class. Specifically, he recorded attendance at every meeting throughout the semester; however, points were not awarded nor deducted for attendance or absence. The data from this project indicated that all of the students who received an A in the course attended class more than 80% of the time. In contrast to this, the majority of the students who made a D or an F in the class missed more than 50% of the allotted class meetings. Based on this, the author concluded that "these data strongly indicate that class attendance enhances learning; on average, students who came to the most classes got the highest grades, despite the fact that they received no academic credit for attending class" (p. 370). This work indicated a positive correlation between regular class attendance and academic success, even when attendance did not count in the final grade calculation. In a second, related work, Moore (2005) provided additional proof for this point. In this project, Moore examined the connection between attendance and final course grades in several Principles of Biology classes. He compared attendance records from his courses to the overall grade point average of the students in the classes. Based on a statistical examination of this data, Moore determined that "attendance accounted for 64.4% of the variation observed in student's grades" (p. 39). This researcher also concluded that "students who attended class regularly had a greater possibility of making a high grade in the course than did students who missed lots of classes" (p. 40). Although Moore's data is only statistical in nature, it did illustrate a correlation between attendance and grades.

In a related work, Sharma, Mendez and O’Byrne (2005) explored the connection between attendance and grades in physics tutorial sessions. Specifically, the researchers in this project statistically compared student attendance patterns at the tutoring sessions with final course grades. The data from this work indicated that students who attended the tutorials were more likely to make a higher grade in the class. Based on this statistical trend, Sharma, Mendez and O’Byrne (2005) determined that “there is evidence that students with higher attendance rates at workshop tutorials, on average, performed better on their examinations” (p. 1387). As in the works by Moore, these authors have illustrated a positive correlation between student attendance and classroom performance by college science students. Likewise, Fidanza (2006) compared student attendance patterns with final course grades in several sections of a Plant Science course. Statistically, this researcher observed a positive relationship between consistent attendance and class grades. Collectively, these studies indicated that regular class attendance in both the lab and lecture portion of a science class was correlated with higher grades.

Several studies have illustrated a similar connection between final course grades and class attendance in college level psychology classes. Jones (1984) used four models to test for a relationship between grades and attendance among students enrolled in psychology courses. In this work, all four models predicted at least a minimal relationship between class attendance and final course grades (p. 134). Furthermore, Buckalew, Daly, and Coffield (1986) tested the influence of initial class attendance on student grades in a general psychology class. In their study, these researchers asked their psychology students to sign an attendance sheet on the first day of class. Next, this initial attendance was compared to final grades in the class. Based on this comparison, Buckalew, Day, and Coffield concluded that first class day attendance “appears to

be a strong index of later academic performance in psychology classes (p. 64). Although these works are theoretical in nature, they did suggest a relationship between attendance and grades.

Van Blerkom (1992) provided actual classroom evidence for the works of Jones (1984) and Buckalew, Daly, and Coffield (1996) by comparing student exam grades to attendance patterns in multiple sections of introductory psychology courses. Van Blerkom maintained extensive attendance records for more than 900 students in this study. Analysis of variance using ANOVA statistics indicated a significant correlation between attendance and exam grades. Students who attended class on a regular basis consistently scored higher on exams in these psychology classes. Based on this data, Van Blerkom concluded that attendance was a critical factor in influencing student grades and learning. This conclusion was verified by Gunn (1993) who also examined the effects of attendance on student's grades in freshmen psychology classes. In this project, student's final grades were statistically compared to the number of absences for each student in the psychology class. Gunn noted that the data indicated "a positive relationship between attendance and grades" (p. 202). Moreover, he noted that at least "forty-three percent of the variance in final grades was accounted for by the attendance factor" (p. 202). At a minimum, these two works showed a positive statistical correlation between attending class and improved grades; thus verifying Jones' model results for psychology classes.

Launius (1997) monitored attendance in four sections of her introductory psychology course. At the end of the semester, attendance was compared to student's final course grades using correlational analysis. This statistical examination indicated that there was a positive relationship between attendance and grades on class assignments. Specifically, Launius noted that "the more absences a student had, the poorer their performance was likely to be on regularly scheduled objective exams and outside assignments" (p. 90). From this work, it appeared that

performance on all assignments was adversely affected when students skipped class. Finally, Shimoff and Catania (2001) detailed the effects of attendance on student grades in a large lecture section of introductory psychology. In this work, the authors divided the class into two groups. Attendance was monitored in each course meeting in one group, but not in the second group. Student attendance rates were then compared to grades achieved on quizzes in the class. Following a statistical examination of this data, Shimoff and Catania concluded “that quiz performance was significantly better for students whose attendance was recorded than for students whose attendance was not recorded” (p. 194). In this case, simply asking students to record their attendance appeared to improve grades on quizzes in the class. Collectively, these studies indicated that regular attendance can increase grades in introductory-level psychology classes.

Researchers have also examined the impact of class attendance on student’s grades in general business courses. As before, several of these projects have indicated a positive link between class attendance and student grades. Anikeef (1954) was one of the first to study attendance patterns in business classes. In this project, the author correlated student’s grades with the number of classes that they missed. The data indicated that students who made an A in the class had the least number of absences. Likewise, students who made a D or an F in the class had the greatest number of absences. Specifically, Anikeef noted that “a statistically significant inverse relationship is found between number of absences and final grades (p. 247). In other words, attendance had a positive effect on student grades. Wiley (1992) observed similar results in a freshman level introduction to business class. This researcher examined a variety of factors that could possibly influence student success rates in higher education. Wiley compared student attendance records with final course grades. From this information, she indicated that higher

grades were associated with lower rates of absenteeism. This also indicated that attendance patterns could influence a student's final grade in an introductory level business class. Hancock (1994) experimentally examined the influence of attendance on exam performance in six sections of a sophomore level business statistics class. In this project, attendance was monitored and used in the final grade determination in three sections, whereas, grades were based entirely on exam performance in the remaining three classes. A comparison of averages on the exams in the class illustrated that grades were as much as 2.47 points lower in the sections where attendance was not taken. In this case, skipping class had a negative impact on exam performance. This data led Hancock to conclude that "policies directly discouraging absenteeism serve valid educational purposes" (p. 357). Collectively, these studies indicated that class attendance was positively related to grades in college business courses.

Romer (1993) conducted one of the first studies on the effects of attendance on course performance in an economics class. He specifically utilized a *t*-test and a simple regression to analyze the connection between class attendance and final grades in several freshman level economics classes. Romer's statistical data indicated that skipping class plays a significant role in hurting student's grades. His *t*-statistic illustrated that "a student who attends only a quarter of the lectures on average earns a 1.79 (C-), while a student who attends all of the lectures on average earns a 3.44 (B+)" (p. 171). This statistical information clearly illustrated a negative correlation between student absence and grades in an economics class. Romer's view that attendance affects student performance in economics classes was further substantiated by Cohn and Johnson (2006). These two researchers employed a series of statistical analyses to compare student attendance records with academic grades in economics classes. From their mathematical examinations, Cohn and Johnson concluded that attendance could influence overall student

grades. They indicated that “there is strong evidence in support of the hypothesis that class attendance in principles of economics has a positive payoff” (p. 229). In other words, regular class attendance could improve a student’s grade in economics classes. Once again, these works together indicated a correlation between attendance and final course grades.

Additional support for the previous two studies was provided by Marburger (2001) who collected and maintained extensive attendance records for his principles of microeconomics class. These attendance records were compared statistically to correct answers on class exams. Furthermore, Marburger used z scores to determine the percentage of incorrect responses on exams if every student had attended each class. From his calculations, this author discovered that exam scores would have been higher if students had attended every class meeting. For example, Marburger stated that “the mean percentage of correct responses on the first exam was 65.7 percent.” (p. 102). However, he noted that “had each student attended every class period, the mean would have risen to 68.1%” (p. 102). Clearly, skipping class reduced the average test score in this microeconomics class. Following this work, Marburger (2006) further examined the relationship between attendance and student grades by investigating the effects of mandatory attendance policies on student exam scores. In this work, Marburger collected attendance records on a daily basis in two sections of macroeconomics. He enforced a strict attendance policy in one section and only maintained attendance records in the second class. Next, the researcher established a system whereby he compared exam questions missed by students with the dates that they were absent from class. From this examination, Marburger was able to show that students who missed class were more likely to miss exam questions from that class period. Specifically, he noted that “students who were absent during a class period were 9 to 14% more likely to respond incorrectly to a question pertaining to material covered in their absences than

were students who were present” (p. 154). Again, missing class was negatively correlated with grades.

Researchers have also closely examined the effects of attendance on final course grades in various college developmental courses. Studies in this area were critical at providing data that could be used to increase retention in these important classes. Thomas and Higbee (2000) used student surveys in combination with a variety of statistical measures to examine the relationship between a number of factors and student grades in developmental math classes. This work suggested that attendance was the only critical variable in related to student grades. Thomas and Higbee noted that statistically “the number of days absent was significantly related to students’ homework average, computer test average, classroom test average, final exam grade, and course grade” (p. 225). Obviously, it appeared to these researchers that attendance, more than any factor, had an influence on student grades in developmental math classes. This work by Thomas and Higbee is further verified by Moore (2003) who examined the effects of absence on student grades in developmental education. Like Thomas and Higbee, Moore used student surveys and final course grades to determine the relationship between class attendance and course grades. In his work, Moore discovered that students who attended more than 80% of the class meetings had the greatest chance of making an A or B in the class. Likewise, students who attended class only 60% of the time were much more likely to make a D or an F in the class. This information led Moore to determine that “class attendance enhances learning” (p. 47). Again, higher grades were positively correlated with class attendance. Chung (2004) provided additional support for the critical relationship between student attendance and grades in a developmental logic course. He utilized sign-in sheets to monitor class attendance at each lecture session and in each optional lab meeting. T-test statistics were used to compare the effects of attendance on a variety of variables,

including grades. Statistically, Chung found a moderate relationship (0.42) between attendance and exam grades in his developmental logic class. Although he illustrated a negative relationship between absence and exam performance, Chung indicated that student attendance may not be the only variable that affects exam scores. He believed that many factors could work along with attendance to alter a student's grade.

Researchers have also shown that attendance in computer sciences classes have a positive effect on student performance. Urban-Lurain and Weinshank (2000) utilized a number of "bridge tasks" or special data on each student to determine if a relationship existed between attendance and grades. Bridge tasks included such factors as the student's computer experience, their year in school and attendance patterns. Urban-Lurain and Weinshank calculated an ANOVA on attendance versus bridge tasks. The data suggested that "there is a strong relationship between percentage of classes attended and the highest BT passed" (p. 4). This information led the two researchers to determine that "the strongest predictor of student performance is overall class attendance" (p. 8). Verification for these results is presented by Barrington and Johnson (2006) who examined the effects of attendance at regularly scheduled computer science labs on final course grades. Their research was conducted over a two-semester time-frame. In this study, attendance was monitored in class and in the lab sessions. As in the previous studies, student attendance records were compared to final course grades. These researchers calculated a Spearman's correlation coefficient of .641, which indicated that attendance and class grades were related. Specifically, Barrington and Johnson concluded that "higher lab averages were earned by those students who attended lab more often" (p. 1). These projects identified attendance as a critical factor that is related to student grades in computer science classes.

A large number of researchers have examined the impact of attendance on student grades in other subject areas as well. Sade and Stroud (1982) compared the performance patterns of sophomore and junior medical students who consistently missed class with those who did not. From their statistical comparison, these researchers discovered that students who attended class regularly had higher grade point averages and performed at a higher level on board examinations. Sade and Stroud attributed this success to consistent student attendance. Snell and Mekies (1995) used Chi-Square analysis to monitor the connection between attendance and student grades in five social science classes. They specifically compared the number of A and B grades in the class with all other grades. Their Chi-Square value was determined to be 41.313, therefore, Snell and Mekies concluded that “a relationship exists between attendance and earning a grade of A or B” (p. 129).

In continuing, Devadoss and Foltz (1996) examined a variety of factors that related to attendance and student grades in several agricultural economics courses. They developed statistical class attendance and class performance models to measure how these variables are related. Information from these models suggested that a number of factors work together to influence grades in college classes, however, a significant negative relationship was identified between absenteeism and class grades. In short, missing class was correlated with lower grades in the class. Gump (2005) observed similar patterns in multiple Introduction to Japanese Culture courses. He compared the final grades and attendance patterns of more than three hundred students in these courses over a period of four semesters. Gump illustrated that A students had the lowest average rate of absenteeism, whereas, students who made D or F in the classes had the highest rate of absenteeism. Likewise, correlation coefficients for this work suggested that class attendance and final grades were statistically related. Therefore, Gump concluded that “students

with fewer absences did better overall” (p. 22) in his classes. Gizachew (2007) used least square estimators to examine the relationship between attendance and student performance in several political science courses. This work was conducted over a six-year period and it examined how other factors, such as gender and test scores effected final course grades. Gizachew clearly indicated a statistical relationship between high rates of absenteeism and low grades. Although these studies were theoretical in nature, they did provide evidence of a positive correlation between class attendance and student grades.

The previous studies have illustrated that a correlation between class attendance and final course grades exists. A number of other researchers have further documented this point by employing regular quizzes as part of the grading system for their classes. For example, Hovell, Williams and Semb (1979) utilized three distinct quiz patterns to observe the effects of regular quizzing on student attendance and grades in their undergraduate psychology courses. As part of their research, these workers compared student attendance rates on previously announced quiz days with non-quiz meetings. They indicated that attendance rates were much higher during quiz periods (approximately 90% attendance) versus non-quiz days (55% attendance). Furthermore, Hovell, Williams and Semb compared final student grades with attendance patterns. From this portion of their research, Hovell, Williams and Semb noted that students maintained higher overall grades in classes that had the greatest number of quizzes. In other words, quizzes increased student attendance at class meetings and this subsequent higher attendance rate appeared to increase student grades. In a similar fashion, Wilder (2001) used extra credit quizzes to measure student attendance and its impact on grades in a psychology of learning class. He administered random, unannounced lecture quizzes once a week during a twelve-week research period. Attendance patterns and course grades from this portion of the class were compared to a

two week baseline period at the beginning of the semester. Student attendance and course grades were compared statistically using a correlation coefficient. From the attendance portion of this project, Wilder indicated “that the use of random, extra credit quizzes increased student attendance by about 10%” (p. 120). Moreover, his correlation coefficient was measured at .73, thus indicating a positive relationship between attending class and student grades. Wilder, like Hovell, Williams and Semb illustrated a positive connection between student attendance and grades on regular class quizzes.

The previously discussed positive impact of quizzes on student attendance and grades has been further verified by several researchers. First, Shimoff and Catania (2001) compared quiz grades and attendance patterns in two sections of introductory psychology. In this project, attendance was strictly monitored in one section but not in the second class. Average quiz grades were statistically compared between the two course sections. Shimoff and Catania observed a significant statistical difference in quiz grades between the two sections. These researchers proved “that quiz performance was significantly better for students whose attendance was recorded than for students whose attendance was not recorded” (p. 194). Next, Thompson (2002) compared attendance, quiz grades and student grades in a mass-media law class. The quizzes in this class were used to test the student’s knowledge of assigned reading materials. At the end of the semester, Thompson compared class attendance and exam grades using a statistical correlation. In his work, Thompson observed a correlation of .70 for the majority of his classes; which indicated a moderate link between student attendance and class grades.

Finally, Clump, Bauer, and Whiteleather (2003) monitored the correlation between student grades on unannounced quizzes, attendance patterns and overall class performance in a General Psychology course. Specifically, they compared grades of students who were present for

the quizzes with those who were not. Statistically, Clump, Bauer, and Whiteleather observed that being present on quiz days had a positive impact on at least two of the three exams given in the class. Furthermore, they noted that students who attended class on the quiz days had higher grades compared to those who missed at least one of the quizzes. Clump, Bauer, and Whiteleather concluded that “attending class significantly increased the number of correct answers on a unit test over the material and on overall test scores” (p. 3). Again, these projects suggested that regular class quizzes could affect student attendance, which in turn could influence student grades in a variety of subject areas. From these studies it was clear that simply using quizzes as a means to increase student attendance in college classes was positively related to final course grades.

All of the above projects indicated at least a moderate positive correlation between class attendance and student grades. In general, these works illustrated a pattern in which students achieved higher grades on class activities when they regularly attended class. Other researchers have reviewed the literature in an effort to determine if attendance policies actually were beneficial at improving student grades in higher education. Petrus (1996), for example, examined the validity of arguments for and against maintaining student attendance policies. From this review, the researcher determined that the “arguments in favor of an attendance policy outweigh arguments against such a policy” (p. 388). Moreover Petrus believed that a reasonable attendance policy does improve student learning and grades. Finally, he stated that the use of attendance policies shows that an institution is committed to providing students with a “quality education” (p. 390).

Likewise, Druger (2003) expressed his support for the use of attendance policies in the college classroom. He stated “that class attendance is critical for learning” (p. 350). This

researcher viewed college as a series of experiences for students. Druger believed that attending class regularly offers students the chance to encounter new experiences. As he stated, some experiences would be better than others, but nevertheless students should face these experiences. By attending class and facing these experiences, Druger noted that students would learn since “we don’t easily forget experiences” (p. 350). Further, Moore et al. (2003) maintained that students could only be successful when they chose to participate in their own education. These college professors supported the idea that regular class attendance had a positive influence on final course grades; therefore, they believed that attendance should be monitored in some way. Moore, et. al. suggested that simply taking attendance would reduce student absenteeism because students would recognize that the instructor viewed attendance as an important part of the class. They also saw attendance policies as a possible means for helping those students that are “truly at-risk students...those represented by data near the center” (p. 328) of the grade spectrum. In other words, they believed that regular, monitored attendance would be the one policy that would help those students who are academically borderline to succeed at the college level. Finally, Cleary-Holdforth (2007) completed an extensive review of the literature examining a variety of issues relating to student attendance patterns in higher education. From this review, she noted that there were mixed results related to the relationship between attendance and grades. However, Cleary-Holdforth pointed out that college faculty should support policies that “facilitates and encourages student attendance” (p. 11), which in her view, would improve grades. As observed, these college professors believed that there was a direct link between student attendance and classroom performance in higher education.

As these studies indicated, there is empirical support for the idea that student attendance patterns can influence grades in the college classroom. Many professors would contend that

projects like those listed above illustrated a strong need for attendance policies that reduced student absenteeism and encouraged students to attend and participate in their classes. Although there is evidence for the idea that attendance can influence student grades, some researchers have actually conducted studies that have suggested that attendance may not be related to student grades at all.

Attendance Is Not Related to Grades

The previously mentioned studies suggested that student attendance had a positive relationship with final course grades in a variety of subject areas at the college level. However, the research is not as clear as it seems when it comes to this important topic. There is substantial evidence that suggested that student attendance patterns play little or no role in affecting student grades in college classes. The following works provided evidence that indicated that attendance may not be a critical variable in influencing student grades.

Hyde and Flournoy (1986) examined attendance effects on medical student grades in a microbiology, immunology and general pathology class. These researchers developed a survey that was given to the students at the end of the term. This survey was used to determine the proportion of lecture classes attended by the students. The information gathered from these surveys was compared to “the students’ lecture attendance, course grades, class rank at the end of the first year of medical school and scores on the NBME examinations” (p. 175). Hyde and Flournoy observed that students who attended more than 80% of the classes appeared to be the best performers in the class; however, more than half of the students who attended less than 20% of the class meetings were in the top 20% of their class. Students in this group also performed effectively on the national standardized exam that was used in this study. From this, Hyde and Flournoy concluded that lecture attendance is not as important as some believe since a

“significant number of students who did not attend lectures did well statistically” (p. 175) in the class and on the national standardized exam. They contended that some students can learn class information without regular attendance. Additional evidence for this perspective was provided by Hammen and Kelland (1994). They monitored the correlation between class attendance and grades in an introductory human physiology class. This project compared the number of student absences at the end of the term with the total number of points accumulated by each student in the class. In this course, attendance was recorded using standard sign-in sheets; however, attendance was not calculated as part of the final grades. The relationship between student attendance and final class grades was compared using linear regression. From their data, Hammen and Kelland found that “the average daily attendance was 85% of enrollment” (p. S106). Next, they discovered an extremely weak statistical relationship between absences and final course grades ($r = -.3$). Moreover, these two researchers noted that grades were not substantially different when comparing students who attended regularly with those who did not. Due to this, Hammen and Kelland concluded that class attendance “was not a decisive factor in learning human physiology” (p. S105). In a similar study, Gatherer and Manning (1998) investigated the relationship between student attendance and examination grades in a freshman level biological sciences program. They statistically compared the student attendance records and exam grades of 152 students who were enrolled in their biology program. Their findings suggested that there was a very weak correlation between attendance and exam grades. Unlike the previously discussed works, attendance appeared to have little or no effect at all on student grades in these classes. However, their data suggested that class attendance was more valuable for ethnic minorities compared to non-minority groups. Overall, these studies indicated that class attendance was not related to student grades in science based college classes.

Examinations of the effects of attendance on grade performance have also been conducted in economics classes. These studies have indicated that attendance may not have a major influence on student grades. McConnell and Lamphear (1969) were among the first researchers who suggested that attendance was not a major factor in influencing final grades. In this work, McConnell and Lamphear compared final course grades between students in a standard lecture format economics class with students who took the class without lectures. Students from both groups were required to attend ten tutorial sessions during which problems relating to the class were discussed. At the end of the semester, these workers statistically compared student grades from the lecture group with those of the lecture-less section. The data from this comparison revealed that the lecture-less group performed at a slightly higher rate than the lecture class. This led McConnell and Lamphear to conclude that there were no significant differences in grades between the two groups. In other words, students who did not have to attend lectures did just as well as those who did; therefore, class attendance was not related student grades. In a similar study, Buckles and McMahon (1971) compared attendance patterns and student grades in an introductory economics course. They randomly assigned students into one of two sections of the economics class. In one section, the students were given text material to master for the class, but they did not have to attend class. Students in the second section were given the same text information; however, they had to attend class meetings. At the end of the semester, students in both sections were given a standardized exam to measure how much material the students had actually learned. A regression analysis was conducted to measure the effects of attendance on test scores. From their statistical data, Buckles and McMahon noted that “the variable representing attendance or nonattendance of classes did not have a statically significant coefficient in any of the regression equations” (p. 139). Due to this, these authors

concluded that attending lectures did not improve student scores; therefore, attendance was not a major factor related to grades in the class. In a similar study, Browne et al. (1991) compared student grades on a national, standardized economics exam between students who attended a standard economics class with those who did not attend a structured lecture class. Their data indicated that students who attended less structured classes did just as well as those who attended traditional principles of economics classes on the Test of Understanding College Economics. From this work, the authors concluded that class attendance was not correlated with student grades.

Additional studies in economics classes have yielded similar results. Durden and Ellis (1995) administered a questionnaire to their Principles of Economics students. The students were asked to self report their rates of absenteeism on the questionnaire. Regression analysis was used to compare absenteeism and student grades in this study. Their statistical data indicated that students who miss only a few classes performed at a level equal to those who do not miss any classes at all. However, Durden and Ellis did identify a “threshold effect” (p. 346) at which student absence became a major factor in influencing student grades. Their data suggested that the rate of absenteeism became “important only after a student has missed four classes during the semester” (p. 345). In their opinion excessive absenteeism had the greatest impact on student grades, not moderate levels of absenteeism. Likewise, Krohn and O’Connor (2005) studied the relationship between student absence and examination grades in a macroeconomics class. They employed a variety of statistical measurements to compare student attendance patterns with examination results. Their statistical data suggested that attendance patterns were not related to exam grades in any way. This led Krohn and O’Connor to conclude that there was no relationship between attendance patterns and student grades on economics exams. These works

indicated that attendance patterns were not correlated with grades on exams in college economics classes.

A number of other researchers have observed similar results in various business courses. Park and Kerr (1990) utilized a statistical model system to calculate the effects of a variety of factors that might influence student grades in a money and banking course. One factor that they examined was the effect of student attendance on grades. The statistical data from this work actually indicated that “missing classes would enhance the student’s odds of getting an A over a C or a B” (p. 107). In their work, missing class actually appeared to improve a student’s grade in the class. Furthermore, Park and Kerr determined that a student’s cumulative GPA and percentile rank on a college entrance exam had the greatest effect on influencing student performance. Based on these facts, Park and Kerr decided that attendance was not a critical factor in influencing student grades in a business class. Chan, Shum, and Wright (1997) also used a series of statistical models to measure the potential effects of attendance on student grades in two introductory finance classes. One section of the class had a strict attendance policy; whereas, the second class did not have an attendance policy at all. Measurements using Heckman’s Two Stage Model were used to compare student attendance and class grades in the two sections of the class. From these calculations, the authors noticed that statistically, attendance was insignificant as a factor that influenced final course grades. Moreover, Chan, Shum, and Wright used this information to conclude that mandatory attendance policies and class attendance do not work together to effect student grades in a finance class. Next, Rodgers (2002) examined the relationship between attendance and student grades in an introductory statistics class. This researcher developed and implemented an incentive scheme in her classes in an effort to reduce student absenteeism. The key component of this scheme involved a reduction in the total number

of student points for each class and tutorial missed by the student. At the end of the semester, the final grades in this class were compared to the final grades of an introductory statistics course from the previous year. Rodgers noted two major observations from this project. First, she determined that the average attendance was greater in the tutorial session with the attendance incentive scheme compared to those which did not employ an incentive policy (10.079 versus 8.899). Secondly, Rodgers noticed that statistically, there was no difference in final grades when the two classes were compared. From these observations, this researcher concluded that incentive schemes can improve student attendance in college courses; however, this additional student attendance does not necessarily lead to higher grades. As in the earlier works, Rodgers clearly illustrated that student attendance patterns are not related to academic performance in a college level business class.

Studies examining the correlation between student attendance patterns and course grades in psychology classes have further illustrated the point that grades are not necessarily influenced by student absenteeism. Vidler (1980) studied the connection between these two variables in several educational psychology courses. This worker statistically examined attendance patterns and class grades using Pearson correlations. The statistical evidence in this work indicated a small connection between attendance and grades (.21); however, the data did not show a clear link between attending class and making higher grades. In short, there is no real evidence to support the view that attending class increased overall grades. Grabe (2005) examined the effects of substituting webpage notes for class attendance and how this phenomenon influenced student grades in an introductory psychology class. Students in the class were asked to complete a questionnaire at the end of the semester that documented their attendance patterns and their use of on-line notes. Grabe used this information to statistically compare exam grades between

students who admitted using the notes as a means for skipping the class and students who regularly attended class meetings. From this data, the researcher illustrated that “no difference in examination performance was discovered” (p. 420). Together, these studies suggested that attendance does not have a major impact on student grades in psychology based college courses.

Other workers have determined that attendance is not related to student grades in a variety of different college courses. Thompson and Plummer (1979) examined the influence of student motivation and attendance patterns on performance in an introductory freshman English course. In their work, these researchers compared the effects of attendance on academic grades in the class. The data from this work suggested that regular attendance was not related to grades. Based on their findings, Thompson and Plummer concluded that grades are not related to a student’s attendance record in freshman English courses. Budig (1991) compared student grades in community college developmental classes that utilized an attendance monitoring system with classes that did not have such a system. In this study, she observed an increase in student grades in only one math class and in several classes that met at undesirable times. From her work, Budig concluded that factors relating to the instructor played a role in these results, not the attendance monitoring system. In general terms, she believed that the evidence indicated that attendance was not correlated to student grades. Likewise, Berenson, Carter, and Norwood (1992) examined student grades in a freshman level remedial math course following the implementation of a punitive attendance policy. These researchers compared the student grades in this class with students in the same course from the previous year. The students in the earlier class were not subjected to an attendance policy that counted absences against their grade. Berenson, Carter, and Norwood calculated the mean differences in student grades between the two classes involved in the study. The data generated in this portion of the project led the authors to determine that

grades were not significantly different between the two groups, thus, attendance was not correlated with higher grades in this developmental math course. Because of this, Berenson, Carter, and Norwood noted that “it is unlikely that group policies such as enforced attendance, will have an impact on students’ grades” (p. 57-58). Finally, Levine (1992) statistically examined the effects of different attendance policies on student achievement in several child development classes. She established three primary attendance policies that she utilized in various classes in order to examine attendance effects on student grades. In one class, she employed an attendance policy that counted attendance as part of the grade. In other sections, she utilized a policy that did not affect final grades and lastly, she used an attendance policy that implied that attendance would be used in the final grade determination. In her work, there was no measurable difference in student grades based on attendance policy; however, the class with a strict policy did exhibit a higher rate of attendance than the other groups. Due to this, Levine concluded that attendance policies can increase student attendance but these same policies “did not have a significant effect on achievement.” Again there was no direct correlation between attendance policy and grades.

Some researchers have compared the effects of class quizzes on student attendance patterns and course grades. Andersen (1984) studied the relationship between frequency of quizzes and student grades in a behavioral sciences class. He hoped that the quizzes would encourage more student participation and better attendance. Specifically, this researcher generated an item analysis measurement for each exam which was used to measure student grades on quizzed versus non-quizzed class information. From this study, Anderson concluded that there was no relationship between quizzing and exam grades. In this case, quizzes and attendance did little to influence student grades. Graham (1999) offered ten multiple choice quizzes to students in his neuropsychology and psychology of learning classes. He hoped that

these short quizzes would serve two purposes. First, he wanted the quizzes to encourage greater student attendance in his regularly scheduled class meetings. Secondly, Graham thought the quizzes would improve student grades on the major exams given in the class. He used *t* test analysis to monitor the effects of quizzes on overall student performance. From this statistical examination, Graham observed a statistically significant increase in student grades with quizzes; however, the improvement in grades was limited to students who had a C average in the class. He did not observe a grade increase in students at all levels of his classes. Due to this, Graham noted that the “amount of difference [in student grades] may not be enough to warrant the use of a program of quizzing” (p. 273). In this case, quizzes did improve grades on exams but the researcher did not believe that the amount of improvement was substantial enough to warrant regular use of the quizzes. In a similar work, Azorlossa (2006) administered quizzes to students in two sections of a Psychology of Learning class. At the end of the semester, the author statistically compared the effects of quizzes on examination scores. The data from this work indicated that students do attend more frequently when quizzes are counted towards the final grade, however, regularly scheduled quizzes do not affect student exam grades in any way. Azorlossa concluded that quizzes do improve student attendance patterns but, unfortunately, the increase in attendance does not produce a positive increase in student grades. Together these three studies provided evidence that illustrated the point that quizzes increased student attendance in college classes but this subsequent attendance did not lead to better grades among the students.

The previous studies indicated that student attendance patterns have little if any effect on college classroom grades. Basically, these works did not support the view that higher rates of attendance will lead to better grades and a greater level of learning in the classroom. A number

of college professors have written in support of these studies that dismiss the relationship between attendance, exam scores and final course grades. Stephenson (1994) noted that the literature is at best, mixed when examining the effects of attendance on student grades. Furthermore, this business instructor contended that attendance policies that force students to come to class may actually be detrimental to some in the class. He argued that “the learning environment is not enhanced by adding 312 students to a lecture who do not want to be there” (p. 207). Stephenson did not support the use of attendance schemes to force students to attend class, nor did he believe that attendance alone could lead to a dramatic increase in student grades. Likewise, Deere (1994) questioned whether mandatory attendance policies would alter grade distributions significantly in college level classes. He also questioned whether grades were an effective measure of learning in the classroom. As before, this economics professor did not support the idea that strict attendance policies act to improve student grades. Ortmann (1994) also offered several objections to the idea that mandatory attendance increased student grades at the college level. This professor questioned whether regular attendance could actually increase student learning in a college class. Furthermore, Ortmann recommended that faculty should avoid seeking a mandatory attendance policy and instead should focus on mandates for “reasonable class size and a minimum standard of quality of instruction” (p. 214). He believed that these two factors would work together to have a greater influence on student learning and performance than a mandatory attendance policy. Lastly, St. Clair (1999) reviewed the literature that examined the effects of student attendance on classroom grades. From this review, she concluded that a variety of factors work together to influence learning. St. Clair concluded that compulsory attendance was not a primary influence on final grades, therefore, she suggested that such policies should be avoided. She believed that faculty members are “responsible for

providing a valuable academic experience” (p. 179) not monitoring student attendance. These college professors collectively do not support the use of mandatory college attendance policies. Their beliefs were based on the idea that attendance and grades are not related in way. They also believed that there were other factors (motivation, responsibility) that had a greater impact on overall grades in the college classroom.

As previously noted, the literature is mixed with regard to the relationship between attendance and grades. These studies and opinions suggested that attendance had only a minimal influence at best on student grades. The majority of the works listed in this section indicated that student attendance had no relationship at all to student grades. Clearly, additional research is needed to determine the impact of absenteeism on final course grades.

Final Thoughts on the Attendance-Grade Relationship

As illustrated in the literature, studies examining the relationship between student attendance and final grades are mixed at best. A number of studies suggested that attendance could play a major role in effecting student learning in a variety of college level classes (Sharma, Mendez, O’Byrne, 2005; Cohn & Johnson, 2006). Some works even indicated that attendance may be the most important variable in influencing student learning and grades (Moore, 2005). Data from projects of this nature strongly illustrated a direct correlation between regular class attendance and student grades at the college level. Indeed, many educators have argued that attendance is a critical factor that influences grades,

However, other projects suggested that attendance served as only a small factor in determining student grades (Berenson, Carter, & Norwood, 1992). Additional works even indicated that attendance played absolutely no role in influencing student grades in college level classes. (Levine, 1992). Information provided by these studies suggested that a variety of factors

could contribute to final grades in the college classroom. Based on this conflicting data, there is a need for more information on the relationship between attendance policies and student grades. Therefore, the primary purpose of this study was to add additional evidence on the relationship between attendance policies and student grades.

CHAPTER III: METHODOLOGY

As previously described, research is mixed regarding the relationship between attendance policies and final course grades. This study attempted to provide documentation on the relationship between attendance policies and student grades. Specifically, this project statistically examined student grades and attendance policies in an effort to determine if attendance policies were correlated with higher or lower course grades. Likewise, this study attempted to determine if additional factors such as student demographics and class rank were related to student grades.

The primary focus of this project was a descriptive and statistical examination of student grades in all academic courses before and after the implementation of a non-punitive attendance policy. Prior to the implementation of the non-punitive policy, all faculty members were required to enforce a mandatory, punitive attendance policy. Final course grades were compared descriptively and statistically in an effort to illustrate any changes in grades that occurred as Shelton State Community College moved from an attendance policy that allowed instructors to count attendance as part of the final grade to a policy that only encouraged students to attend class. Information from this portion of the study was used to determine if there was a correlation between attendance policies and student grades.

Furthermore, this project examined the relationship between student demographics (gender, race) and experience level (freshman or sophomore) on overall grades in biology courses at Shelton State Community College. Specifically, these factors were examined in an effort to document any relationships between class standing, demographics and student grades.

This information was used to indicate whether changes in grades at the institution were more closely related to demographics, student experience level or attendance policies.

Cresswell (1994) indicated that quantitative research is a “type of research that is explaining phenomena by collecting numerical data that are analyzed using mathematically based methods (in particular statistics) (p. 69).” According to this researcher, the use of numerical data to examine attendance policies and student grades would be a quantitative study. Therefore, based on Cresswell’s definition, this project was a quantitative based study since it sought to examine the numerical and statistical relationships between attendance policies and student grades.

Research Questions

As previously described, this project focused on the correlation between attendance policies and final course grades. Specifically, this work attempted to determine if there was a positive or negative relationship between attendance policies and student grades. This work focused on final grades achieved by students in all academic classes at Shelton State Community College. The major questions addressed in this project were as follows:

1. Did freshman entrance exam scores (COMPASS Test) change significantly after Shelton State Community College moved from a punitive to a non-punitive attendance policy;
2. Was there a relationship between grades and attendance policies when conducting an analysis of all academic classes before and after the implementation of a non-punitive attendance policy;
3. Was there a relationship between grades and student experience level when conducting a course by course analysis of biology classes before and after the implementation of a non-punitive attendance policy;

4. Were any changes in student grades before and after implementation of a non-punitive attendance policy associated with demographic differences among students; and
5. Which factors (attendance policies, student demographics, student experience level) were most closely related to final grades?

Objectives

This project attempted to address the following objectives relative to the relationship between attendance policies and grades. First, this project attempted to document any changes that occurred in student grades when Shelton State Community College moved from a mandatory attendance policy that counted attendance as part of the final grade to a policy that only suggested that students should attend class. Next, the current work examined the correlation between attendance policies and student grades. Furthermore, this study provided data on the relationship between attendance policies and final course grades. Finally, this research attempted to illustrate whether student experience level, past academic background, gender or ethnicity exhibited a stronger correlation to grades than attendance policies.

Site Selection and Rationale

The research site for this project was Shelton State Community College, an open enrollment, two-year community college located in Tuscaloosa, Alabama. This institution maintains a yearly enrollment of approximately 15,000 students (Shelton State Community College Webpage, Retrieved October 26, 2012). Enrollment figures for Shelton State are listed in Table 1. Furthermore, a majority of the students at Shelton State are enrolled in college credit courses and plan on transferring to four-year colleges upon completion of their coursework. In addition, the institution enrolls a number of transient students from the University of Alabama,

which is also located in Tuscaloosa. Many of these students have enrolled in freshman and sophomore level courses at Shelton State that allow them to complete their four year degree in a timely fashion. Using the Hardy and Katsinas (2006) classification system, Shelton State Community is classified as a rural, medium size institution. Specifically, this research project examined final grades from all of the academic based courses offered at the institution between the fall semester 2000 and the spring semester 2008. The primary emphasis of this work was to examine how grades have changed or if they have changed since Shelton State Community College moved from a mandatory, punitive attendance policy to a noncompulsory attendance policy.

Table 1

Shelton State Community College Enrollment Data, 2000 to 2008

Year	Number of Students
2000	14,781
2001	16,338
2002	15,845
2003	15,994
2004	15,852
2005	15,451
2006	14,849
2007	14,549
2008	14,581

During the 2000 to 2008 time period, Shelton State Community College employed approximately 55 full time faculty members who were responsible for teaching four or five classes per semester. Additional classes at the institution were taught by adjunct faculty members. Through the course of the study period, approximately 25% of the full time faculty members retired or moved to other jobs. Most of this attrition was related to a state supported, retirement package offered in 2001 to those who had more than 25 years in the State of Alabama Retirement System. However, Shelton State replaced the faculty members who left the institution in a timely fashion in an effort to maintain sufficient faculty numbers.

Shelton State Community College was selected as the primary site for this project for two reasons. First, the school shifted from an attendance policy that allowed attendance to be counted as part of the final course grade to a policy that only suggested that students should attend class regularly. This change, established in 2003, was a direct mandate from the Chancellor of Alabama's Department of Postsecondary Education. The directive was primarily issued to protect institutions in Alabama from Federal Financial Aid guidelines.

The implementation of the new, less demanding attendance policy occurred in the 2003 spring semester. Therefore, this change in attendance policies offered an excellent opportunity to examine the relationship between attendance policies and final course grades. By examining course grades before and after the change in attendance policy, this project attempted to identify whether attendance policies were related to final grades. Secondly, grades in all biology courses taught at Shelton State Community College were examined based on student demographics and class standing. This portion of the study was an attempt to clarify which factors were most closely related to student grades. Collectively, data from this project was used to illustrate whether attendance policies, class standing and demographics were related to final grades.

Subject Selection and Rationale

The students selected for this study included those who enrolled in academic classes at Shelton State Community College between the 2000 and 2008 academic school years. Specifically, these students were selected for this research project for two reasons. First, the subjects for this project were a diverse group of students from a variety of academic and socioeconomic backgrounds. Furthermore, the students in the sample for this work exhibited several different learning styles and were seeking degrees in a variety of different majors. Next, the demographics of the student population at Shelton State remained fairly consistent throughout the research period. In short, the majority of the students at the institution were from the west Alabama area or they were transient students from The University of Alabama. Since these two factors remained steady throughout the research timeframe, then the data generated from the classes at the institution should illustrate any relationships that existed between attendance and grades.

COMPASS Placement Test

One variable that had to be accounted for in this project was the academic background of students enrolling in classes at Shelton State Community College. Specifically, the researcher had to ensure that any changes in final course grades were not the result of changes in the academic background of students who were attending the institution during the 2000 to 2008 test period. To eliminate this as a potential issue, COMPASS (Computer Adaptive Placement Test) exam scores for incoming freshmen were collected and examined to document any differences in entrance scores among students attending Shelton State Community College. COMPASS is a

national, standardized exam that is given to all incoming freshmen who score lower than 20 on the ACT. At Shelton State Community College, COMPASS scores are used to determine if students should be placed in developmental math and English courses or in college credit courses. Shelton State Community College and other schools in the Alabama two-year college system started using this entrance exam in 2000. For this project, COMPASS scores in math and English were collected beginning with the 2000 testing cycle and ending with the 2008 testing period. This data was descriptively and statistically examined to determine if the academic standing of students at Shelton State Community College changed significantly during the test period for this project.

The COMPASS data collected for this project reflected the percentage of students who scored into either developmental courses or college credit courses. As illustrated in Table 2, a majority of entering freshmen scored into one of the developmental English courses (either English 092 or English 093) throughout the testing period. In 2005, 50.6% of the students who took the COMPASS exam placed into freshman composition (English 101), a college credit course. This was the only year that a majority of students graded out of developmental English. Moreover, this data was examined statistically using *t*-Test analysis to determine if there was a substantial shift in the percentage of students grading into each freshman level English class. The *t* value for English 092, was calculated at 11.49 while the *t* critical value for this course was 4.30. (see Table 2). Since the *t* value for English 092 courses (11.49) is high compared to the *t* critical value of 4.30, then there is statistical evidence that illustrated a statistical change in the percentage of students scoring into English 092. Additional proof for this statistical change in English 092 grades before and after 2003 can be observed by examining the *p* value. In this case, the *p* value for English 092 is .003, which was lower than the alpha value of .005. Based on this

measurement, the null hypothesis (grades in English 092 remain consistent over time) was rejected. Thus, there was a slight statistical shift in English 092 enrollment before and after 2003.

A descriptive and statistical examination of the percentage of students grading into English 093 and English 101 classes illustrated a much different pattern than that observed for English 092 classes. As illustrated by Table 2, the percentage of students scoring into English 093 fell within a narrow range between 33.5 and 42.3. Likewise, the percentage of students who scored into English 101 on the COMPASS exam ranged from a low of 39.1 to a high of 50.6 (see Table 2). This data suggested that the number of students starting in English 093 and English 091 classes remained consistent from 2000 to 2008. Moreover, the statistical data for these two English classes verified the consistency observed in the yearly percentage of students scoring into each class. Specifically, the t statistic comparing the percentage of students taking English 093 before and after 2003 is .017 (see Table 3). Since this measurement was less than the t critical value of 4.30, then it was clear that there was no significant difference in the number of students scoring into English 093 before and after 2003. In addition to the t value, the p statistic for English 093 further proved this point. The calculated p value for this course was .189, which was greater than the alpha value of .05; therefore, the null hypothesis that grades are similar throughout the study period was supported (see Table 3). Likewise, the statistical values for English 101 illustrated a similar pattern. The t statistic of -3.71 was lower than the t critical value for English 101; thus there was no distinguishable difference in the percentage of students scoring into this class before and after 2003 (see Table 3). Further verification for this was provided by the p value for English 101. Since the p value (.369) was greater than the alpha level of .05; then the null hypothesis was supported (see Table 3). Collectively, the descriptive and

statistical data for English 093 and English 101 indicated that the percentage of students scoring into these classes was similar before and after 2003.

Table 2

Summary of the Percentage of Students Testing into Developmental and College Credit English Courses Based on COMPASS Scores

YEAR	ENGLISH 092	ENGLISH 093	ENGLISH 101
2000	24.5	33.5	42.0
2001	21.2	38.4	40.4
2002	19.9	33.0	47.1
2003	17.6	35.1	47.3
2004	16.0	34.6	49.3
2005	14.3	35.1	50.6
2006	18.6	42.3	39.1
2007	21.3	36.3	42.4
2008	21.3	36.3	42.4

Table 3

Summary of the Statistical Values for English Based COMPASS Exam Scores

English Courses	Sample Size	Mean (2000-2003)	Mean (2004-2008)	Standard deviation	<i>t</i> Statistic	<i>t</i> Critical	<i>p</i>
English 092	2890	21.9	17.6	3.25	11.49	4.30	.003
English 093	4353	35	36.9	3.03	.017	4.30	.189
English 101	5475	44.2	44.8	4.32	-3.71	4.30	.369

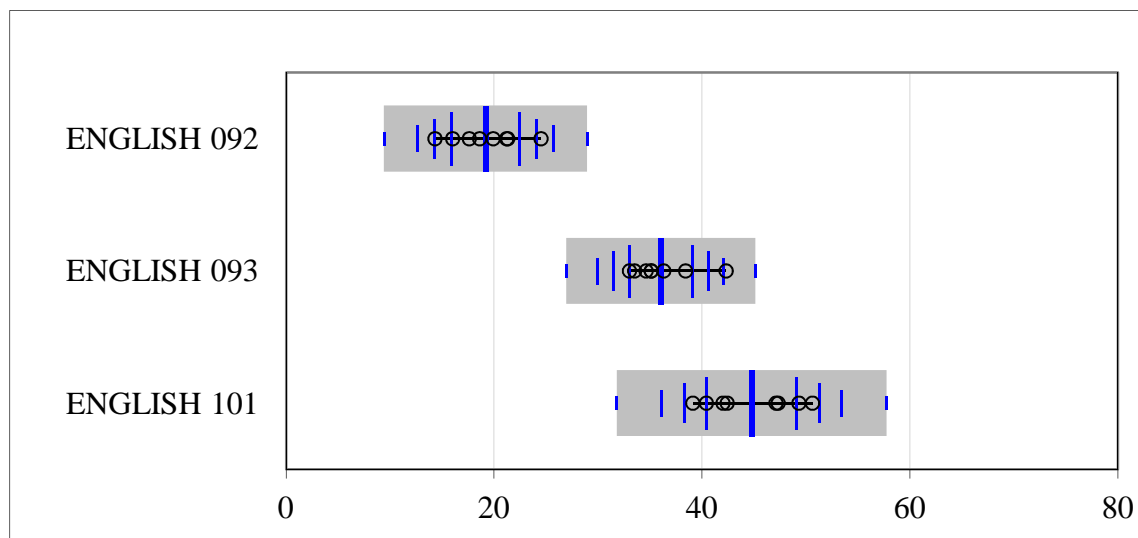


Figure 1. Graphic illustration of the statistics for English based COMPASS exam scores

Furthermore, COMPASS scores for math placement were examined as part of this project. In this subject area, two sets of COMPASS scores were generated for each student. These test results were used to place students into either noncredit, developmental pre-algebra courses or college level algebra classes. An examination of the placement data for pre algebra courses illustrated a consistent pattern throughout the study period in which a majority of students graded into Math 098 (see Table 4). Statistically, the t values for Math 090 (-0.346) were lower than the t critical value of 4.302, thus illustrating that there was no statistical difference in the percentage of students entering this course between 2000 and 2008 (see Table 5). Likewise, the t value for Math 098 (-4.30) was equal to the t critical value for this class, thus proving that the percentage of students entering this class remained constant throughout the study period. Furthermore, the p values for both Math 090 and 098 provided support to the idea

that the percentage of students scoring into these two math classes remained steady throughout the research period. For both classes, the calculated p values (.975 for Math 090 and .227 for Math 098) were greater than the .05 significance level; therefore, the null hypothesis was accepted (see Table 5). Based on this data, it did not appear that there had been a substantial change in the number of students scoring into these two math classes.

Table 4

Summary of the Percentage of Students Grading into Developmental, Pre-algebra Courses Based on COMPASS Placement Exam Scores

YEAR	MATH 090	MATH 098
2000	45.1	54.9
2001	46.5	53.5
2002	45.4	54.6
2003	41.3	58.7
2004	39.9	60.1
2005	36.5	63.5
2006	41.0	59.0
2007	50.4	49.6
2008	50.4	49.6

Table 5

Summary of the Statistical Values for Pre-algebra Courses Based COMPASS Exam Scores

Math Courses	Sample Size	Mean (2000-2003)	Mean (2004-2008)	Standard deviation	t statistic	t critical	p
Math 090	4666	45.7	45.8	7.07	-0.346	4.302	.975
Math 098	6584	54.3	58.1	4.39	-4.30	-4.30	.227

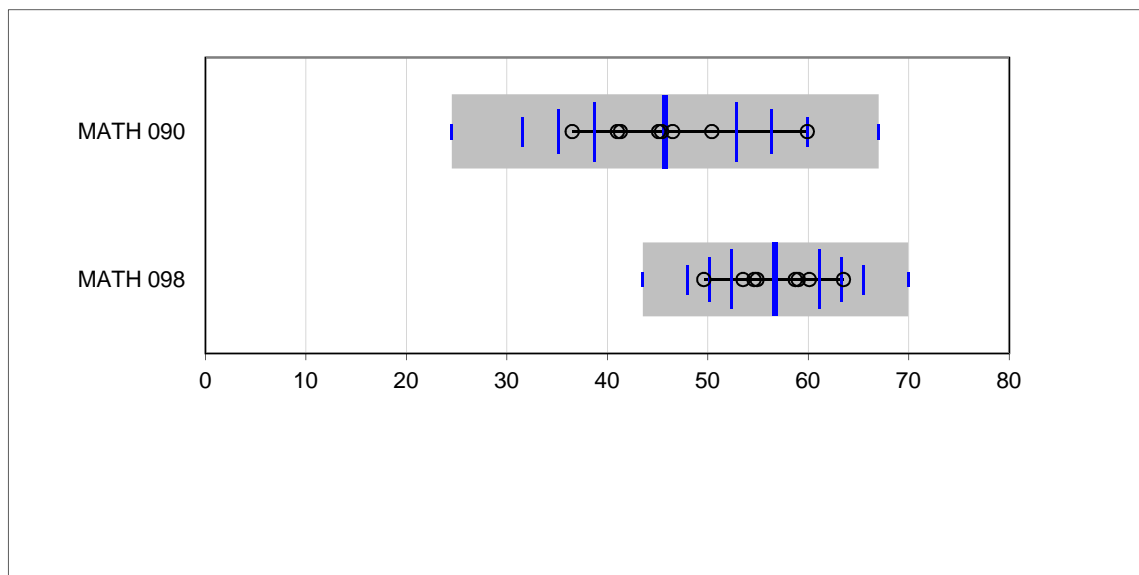


Figure 2. Graphic illustration statistics for Pre-algebra based COMPASS exam scores

Finally, COMPASS scores for general algebra placement were examined for the 2000 to 2008 timeframe. As before, special attention was given to comparing the placement scores before and after 2003. In examining the Math 100 scores, it was clear that the percentage of students who scored into this class increased from 71.3% to 81.1% through the course of the study period (see Table 6). This observation suggested that scores did increase substantially throughout the course of this study, however, the t statistic for this course was calculated at -2.99 with a t critical value of 4.302 (see Table 7). Since the t value was lower than the t critical measurement, then there was no statistical change in the percentage of students grading into Math 100 before and after 2003. The p value calculated for this course further verified this point since the p (.138) was greater than the .05 significance level (see Table 7). Since the p value is larger than the alpha level, then the null hypothesis (percentage of students scoring into Math

100 remains similar) was accepted. Related to this, the percentage of students who placed into Math 112 declined through the 2000 to 2008 timeframe from 24.8% to 18.9% (see Table 6). However, the t statistic for this course (1.169) was less than the t critical value (4.302), thus illustrating that there was no substantial change in the percentage of students scoring into Math 112 (see Table 7). Also, the p in this portion of the study was calculated at .362 (see Table 7). This value is greater than the .05 significance level; therefore, the null hypothesis was accepted. Overall, this data suggested that grades in Math 100 and Math 112 remained consistent throughout the study.

Table 6

Summary of the Percentage of Students Grading into College Algebra Courses Based on COMPASS Placement Exam Scores

YEAR	MATH 098	MATH 100	MATH 112
2000	4	71.3	24.8
2001	0.6	73.9	25.5
2002	0.3	74.0	25.7
2003	0	74.7	25.3
2004	0	75.8	24.2
2005	0	80.3	19.7
2006	0	76.2	23.8
2007	0	81.1	18.9
2008	0	81.1	18.9

Table 7

Summary of the Statistical Values for College Algebra Courses Based on COMPASS Exam Scores

Math Courses	Sample Size	Mean (2000-	Mean (2004-	Standard deviation	t statistic	t critical	p
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		2003)	2008)				
Math 100	1824	73.1	72.6	3.30	-2.99	4.302	.138
Math 112	589	25.3	22.4	2.67	1.169	4.30	.362

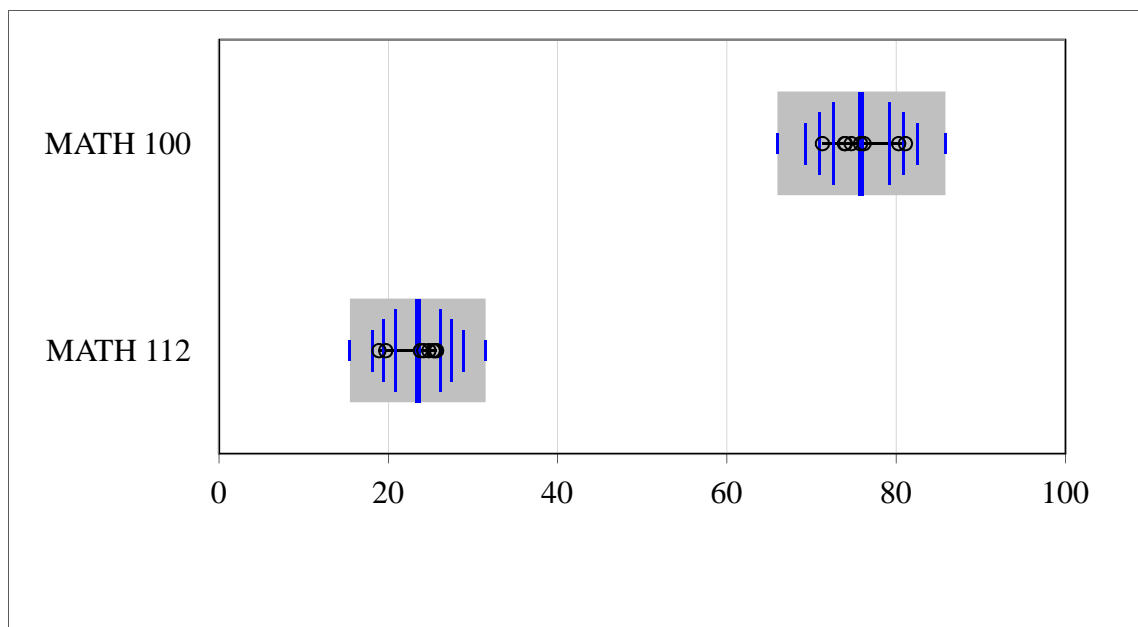


Figure 3. Graphic illustration of the statistics for Algebra based COMPASS exam scores

The purpose of the COMPASS data for this project was to determine if the academic background of the students enrolling in Shelton State Community College changed statistically between 2000 and 2008. After examining the percentage of students who scored into specific developmental and college credit courses, it was descriptively and statistically determined that the student population entering the institution remained academically consistent throughout this study. This is based on the fact that grades were statistically similar before and after 2003 in six of the seven courses examined in the review of COMPASS exam data. Just as important as the descriptive and statistical data was the fact that the percentage of incoming freshmen taking the COMPASS exam remained fairly consistent throughout the research period (at about 80%) as

well. Collectively, this information eliminated any concerns related to changes in the academic background of students entering the college.

Research Design

This project focused on the relationship between attendance policies and student grades in a rural, mid-sized, state supported community college. This was accomplished by examining final course grades for all academic based courses offered at Shelton State Community College between the spring semester 2000 and the fall semester 2008. Emphasis was given to grades before and after 2003, the year in which the institution moved from a mandatory, punitive attendance policy to a non-punitive attendance policy. Specifically, these final course grades were examined to determine if there were relationships between grades and attendance policies. Furthermore, final course grades during the selected timeframe were examined based on student race, gender and college experience level. The collective data from these areas of study were used to indicate whether student grades changed as Shelton State moved to a less punitive attendance policy. If grades changed after this shift to a non-punitive policy, then it would be concluded that a relationship existed between these two variables.

A statistical examination of final course grades in all academic courses at Shelton State Community College from 2000 to 2008 served as the primary emphasis of this work. In this project, the percentage of A's, B's, C's, D's, F's, and W's were compared for each semester during the test period. Specifically, a grade point average for each semester was calculated based on a 4.0 scale (A=4 points, B=3 points, C=2 points, D=1 point, F, W and I=0 points). The grade point averages for semesters prior to the spring 2003 term were descriptively and statistically

compared to the same figures for the years after 2003. Statistically, these figures were compared using a *t*-test measurement. This statistical information was used to illustrate relationships between attendance policies and final grades. Furthermore, a regression analysis was conducted on the grades to provide verification for the *t* statistic results. Collectively, these two statistical analyses provided documentation on the overall correlation between attendance policies and student grades.

Furthermore, the overall grades achieved in freshman and sophomore level biology courses were examined descriptively and statistically (via *t*-test analysis and regression analysis) between 2000 and 2008 to determine if there was a correlation between student class standing and grades. In this portion of the study, final course grades for freshman biology classes were compared to final grades in upper level human anatomy and physiology courses and microbiology classes. This comparison was used to indicate whether student grades were substantially different between freshman and sophomore level courses. Data collected in this portion of the project was compared to the attendance policy-student grade results to determine which variable was most closely associated with grades.

In continuing, student demographics at Shelton State Community College were examined descriptively from the 2000 to 2008 timeframe to determine if race or gender was related to final grades. Specifically, student grades were examined based on demographic patterns to determine whether grades were higher or lower among the various groups of students attending Shelton State Community College. Moreover, this data was examined via ANOVA testing in an effort to determine if the grades among the various groups of students attending Shelton State Community College were statistically different.

These methods provided the means to either prove or disprove the following research hypotheses. First, class attendance and final course grades dropped at Shelton State Community College following the change in 2003 from a mandatory, punitive attendance policy that allowed class attendance to count towards the final grade to a non-punitive policy. Secondly, it was hypothesized that attendance policies that count course attendance as part of the final grade calculation would be related to higher course grades when compared to policies that simply document attendance. The next hypothesis for this work was that sophomore level students would achieve higher grades than freshman students. Finally, it was hypothesized that student demographics were not correlated to changes in student grades.

As described earlier, only a few studies have attempted to examine the relationship between attendance and grades. This work attempted to look specifically at the influence of attendance policies on final course grades in a variety of academic courses at Shelton State Community College. This institution offered an excellent opportunity to study attendance policies as an issue in grade determination since the school moved from an attendance policy that allowed instructors to utilize attendance in the final grade calculation to a policy that only encouraged students to attend class. From this work, final course grades were examined to determine if there had been a decline in grades with the implementation of a non-punitive attendance policy. Furthermore, this study examined student grades based on demographics and student experience level. These results were compared to the attendance policy-student grade results in an attempt to determine which factors were most closely related to student grades.

Rationale for the Research Approach

The research techniques described as part of this project helped to effectively address the relationship between attendance policies and final course grades. The overall rationale for the

research approach was as follows. First, the methods employed in this work (descriptive analysis, *t*-test analysis, regression analysis) allowed for a statistical comparison of the relationship between attendance policies that counted attendance as part of the final course grade versus attendance policies that were not punitive in terms of counting attendance towards the final course grade. This statistical information illustrated whether student grades changed or remained the same as Shelton State Community College moved from a strict attendance policy to a less punitive policy. In short, the descriptive and statistical data indicated whether attendance policies were correlated with student's final course grades.

Data Collection Procedures

For this project, final course grades from all of the academic courses offered at Shelton State Community College between 2000 and 2008 were statistically examined to identify any changes that occurred as the institution moved from a punitive attendance policy to a less strict policy. Specifically, the number of students achieving each letter grade in all academic courses at Shelton State Community College was obtained and reviewed as part of this work. The grades used as part of his work were collected from the school's institutional research office and from the schools website. Additional support data was collected from faculty in the Natural Science Division of Shelton State Community College and from previous SACS related materials at the institution. The final course grades were arranged to illustrate the total number of A's, B's, C's, D's, F's, and W's (withdrawals) from all academic classes offered at the institution between 2000 and 2008. From this information, the total number of students achieving each letter grade for each year from 2000 through 2008 was used to calculate a yearly grade point average for all of the academic classes at Shelton State Community College. These calculated grade point averages were descriptively and statistically compared before and after 2003, the year that

Shelton State Community College changed from a punitive to a less punitive attendance policy. A comparison of any shifts that occurred in these calculated grade point averages at the college helped to illustrate student grade changes. If observable changes in student grades occurred, then those changes should be related to Shelton State's change in attendance policies.

In an effort to document that the student population at Shelton State Community College remained academically consistent during the research period, COMPASS test scores were examined. COMPASS is the primary entrance and placement exam used by the college to place students into developmental or college credit courses. The average scores for incoming freshmen between 2000 and 2008 were reviewed and compared to provide information on the academic background of incoming freshmen at the college. This information documented any major changes in the academic level of students enrolling for the first time at Shelton State Community College. The COMPASS scores themselves were collected from the Shelton State Counseling Center.

Data Analysis

In this research project, the percentage of grades (A's, B's, C's, D's, F's, and W's,) were examined and compared in all academic based courses before and after Shelton State Community College changed form an attendance policy that counted attendance towards the final course grade to a policy that only documented class attendance. These percentages were reviewed descriptively in an effort to determine if student grades had changed with the implementation of the new, less punitive attendance policy. Furthermore, student grades were compared statistically using *t*-test analysis and regression analysis. This statistical analysis illustrated whether specific attendance policies were related to grades. Likewise, this statistical examination provided documentation on how grades have changed since the institution shifted to

a less punitive attendance policy. That is, have grades declined, improved or remained the same following Shelton State's shift in attendance policies. Once this data was collected, then course grades were compared before and after the institution changed from a punitive attendance policy to a less demanding policy. Information from this portion of the project identified whether there was a correlation between attendance policies and student grades.

The following table (see Table 8) should clarify the specific research points for this project by illustrating the critical data that was examined for each specific research question.

Table 8

Summary of the Research Questions and Methods

Research Question	Items	Independent Variable	Dependent Variable	Tests
Research question 1: Did freshman entrance exam scores (COMPASS Test) change after Shelton State Community College moved from a punitive to a non-punitive attendance policy?	Changes in number of students placing into freshman developmental and college credit courses based on COMPASS exam scores	COMPASS exam scores	Developmental courses in English and math. Freshman credit courses in English and math.	-Descriptive analysis of number of students scoring into specific freshman level courses based on COMPASS scores before and after implementation of a non-punitive attendance policy (in 2003). <i>t</i> -Test analysis to determine if grades changed before and after 2003.
Research Question 2: Was there a relationship between grades and attendance policies when conducting an analysis of all academic classes before and after the implementation of a non-punitive attendance policy?	Calculated grade point average based on a 4.0 scale for all academic classes taught between 2000 and 2008. A mean value was calculated from the grade point average for 2000 to 2003. This value was compared to a mean grade point average value for 2004-2008.	Final course grades for all academic classes at Shelton State Community College from 2000 to 2008.	Calculated grade point averages for all academic courses taught at Shelton State from 2000 to 2008.	-Descriptive analysis of final course grades before and after the implementation of a non-punitive attendance policy in 2003. <i>t</i> -Test analysis to examine if grades changes substantially after the transition to a non-punitive attendance policy. -Regression analysis to compare grade point averages before and after 2003.

Research Question	Items	Independent Variable	Dependent Variable	Tests
Research Question 3: Was there a relationship between grades and student experience level when conducting a course by course analysis of biology classes before and after the implementation of a non-punitive attendance policy?	Compared calculated grade point averages (based on a 4.0 scale) between freshman biology and the sophomore level courses human anatomy and physiology and microbiology.	Calculated student grade point averages in the selected courses.	Freshman and Sophomore level classes biology and chemistry classes.	-Descriptive analysis of final course grades before and after the implementation of a non-punitive attendance policy in 2003. - <i>t</i> -Test analysis to examine if average grade point averages before 2003 were different than the average grade point average after 2003.. -Regression analysis to verify <i>t</i> -Test results on grade point averages before and after 2003.
Research Question 4: Are any changes in student grades before and after implementation of a non-punitive attendance policy associated with demographic differences among students.	Student demographics.	Student grades based on demographics.	Course demographics in biology and science courses.	-Descriptive analysis. -ANOVA analysis to determine if grades among the demographic groups are statistically different.
Research Question 5: Which factors led to changes in student grades before and after the institution moved to a non-punitive attendance policy.	Changes in student calculated grade point averages before and after the shift to a non-punitive attendance policy.	Student grades in biology classes. Student grades based on demographics.	Biology courses at Shelton State Community College. Student demographic data.	-Descriptive analysis of data to determine if grades have changed as Shelton State Community College changed attendance policies.

Quality Assurance

A number of variables can collectively influence a student's final course grade. Some of these factors include student motivation and background, tenure level of the instructor, and the difficulty of the class (St. Clair, 1999; Krohn & O'Connor, 2005). This research project specifically examined the relationship between attendance policies and final course grades. Several steps were taken in an effort to minimize the effects of as many variables as possible. Due to this, attendance policies could be directly examined to document their relationship to student grades. Some of the efforts used to ensure quality in this work included the following. First, this work focused only on student grades in academic based classes. Technical related classes were not examined in this study, thus, the project emphasized attendance policies and their relationship to grades in academic classes. Next, COMPASS scores for entering freshman at Shelton State were examined to identify any changes in entrance scores for students. COMPASS is a state-wide entrance exam used by two-year colleges in the state of Alabama to place students in their appropriate freshman level courses. Specifically, this exam determines whether students should be placed in developmental math and English classes or in college credit courses. COMPASS data has been used as the entrance exam for all institutions in the Alabama Department of Postsecondary Education for the past eight years; thus, the data for this exam can be used to document any changes in student entrance patterns that have occurred at Shelton State Community College before and after the school's change in attendance policies occurred.

Assumptions

For this project, several assumptions were made with regards to the set-up of the study. First, it was assumed that the teaching techniques and grading procedures used by the instructors of the various academic courses being examined remained reasonably consistent during the eight

years test period. Certainly the instructors have made changes in presentation and grading methods, however, it was assumed that any changes in these areas were minor relative to the data generated by this project. Furthermore, it was assumed that grades were an effective variable used to examine changes in attendance policies. Based on this idea, it was assumed that students who make A's or B's in college classes have achieved higher grades than those who make D's or F's in the same classes. Lastly, it was assumed that there has been little significant change in the socioeconomic makeup of the student body of Shelton State Community College.

Limitations

Unfortunately, research projects cannot account for all of the variables that may influence the results of the specific work. Certainly, this proposed project is no different. There were several potential limitations associated with this examination of attendance policies. First, the project focused on students enrolled in academic classes only. Grades in technical based classes were not considered as part of this project. Secondly, grades were examined for a limited, eight year time frame. Finally, the project only examined data from one institution in the state of Alabama, not all of the institutions that implemented a non-punitive attendance policy in 2003.

Summary

College professors are beginning to question if there is a relationship between attendance and grades (Moore, 2003). This work attempted to look specifically at the possible relationship between attendance policies and final course grades. Shelton State Community College, the institution used as the study site for this project, offered an excellent opportunity to study attendance policies and their relationship to grades. Recall that this college moved from a punitive to a non-punitive attendance policy in 2003. For this work, final course grades were examined before and after this change to determine if there were correlations between attendance

policies and course grades. Furthermore, this work attempted to illustrate patterns associated with student grade point averages when an institution moves from a punitive attendance policy to a non-punitive policy. Finally, this work tried to detail whether ethnicity, gender or a student's experience level in college was more closely related to grades when compared to attendance policies.

CHAPTER IV: RESULTS OF THE STUDY

The primary purpose of this study was to determine if there was a correlation between attendance policies and student grades. Shelton State Community College, a public two year community college in Tuscaloosa, Alabama, served as the primary study site for this work. Specifically, this project compared student course grades before and after the institution implemented a non-punitive attendance policy in the spring semester of 2003. Prior to 2003, faculty members at Shelton State Community College were required to use a mandatory attendance policy that forced students to attend class. However, the school implemented a non-punitive policy in 2003 at the request of the State Department of Postsecondary Education. Furthermore, this project compared overall student grades in freshman level biology courses to those in upper level biological science courses at the institution. Data from this portion of the study was used to determine whether student experience level or attendance policy changes were more closely related to student grades. Next, demographic information for Shelton State Community College was examined descriptively to determine if there were any specific trends related to the student population and grades. Finally, the biology course data and demographic data were compared to the attendance policy information to determine which of these factors was most closely related to student grades.

Due to the nature of this topic and the mixed results of previous literature examining the relationship between attendance and final course grades (Moore, 2005; Hammen & Kelland, 1994), there were several limitations associated with this work. The first limitation with this

study was the use of data from only one institution: Shelton State Community College. This decision was based on the fact that Shelton State was the first of Alabama's two year colleges to move to a non-punitive attendance policy. Likewise, the institution maintained substantial testing data which was used in this project to search for any changes in the academic standing of incoming freshmen at the school. The second limitation of the study was that no effort was made to determine whether attendance was related to grades in technical courses. This limitation was related to the fact that the central goal of this project was to examine the relationship between attendance policy changes and student grades in academic based courses; therefore, final grades in technical based classes were not reviewed.

Results of the COMPASS Exam Data

Shelton State Community College requires all incoming freshman who score less than 20 on the American College Test (ACT) to take the COMPASS entrance exam. COMPASS is a standardized, computer assisted examination that measures a student's ability in reading, English and math. COMPASS scores are used by advisors at the institution to place students into either developmental or college level classes. In short, students who make lower scores on the COMPASS exam are placed into noncredit, remedial courses for reading, English and math; whereas, those who score higher on the exam are allowed to enroll in freshman level, college credit courses (i.e. English 101, Math 100).

COMPASS data for reading, English and math from 2000 to 2003 at Shelton State Community College was compared descriptively and statistically to COMPASS scores from 2004 to 2008. The comparison of COMPASS scores before and after the implementation of a non-punitive attendance policy was conducted to illustrate any changes in the academic background of students who enrolled in Shelton State Community College between 2000 and

2008. As discussed earlier in this work, both the descriptive and statistical analysis of this data for all three subject areas indicated that student scores remained consistent before and after Shelton State Community College moved to a non-punitive attendance policy (Tables 2-7). In other words, there were no significant changes in the academic level of students enrolling in Shelton State Community College between 2000 and 2008. Therefore, any changes in student grades that occurred between 2000 and 2008 could not be attributed to differences in the academic history or ability of students who enrolled in the college during this timeframe.

Results of the Grade Point Calculations

As described previously, the literature examining the relationship between attendance and grades is mixed at best (Petrucci, 1996; St. Claire, 1999). In an effort to provide documentation to this issue, the current project examined the total number of A's, B's, C's, D's, F's and withdrawals for all academic courses at Shelton State Community College. These class grades were used to calculate a yearly grade point average based on a 4.0 scale beginning with the 2000 spring semester and ending with the 2008 fall semester. This timeframe was critical since Shelton State moved from a punitive attendance policy to a policy that only monitored attendance in 2003. A descriptive and statistical comparison of calculated grade point averages before and after the implementation of the less punitive policy was used to document whether a change in attendance policy coincided with changes in student grades. Furthermore, COMPASS entrance exam data for this period, as previously discussed, indicated that the academic standing of incoming freshmen at the institution remained consistent throughout the length of this study. Therefore, an examination of the grade point averages before and after 2003 illustrated whether grades were higher or lower with a punitive or a non-punitive attendance policy. From these

facts, this study attempted to determine if there was a relationship between attendance policies and final student grades.

Descriptive Analysis of Calculated Grade Point Averages

As illustrated in Table 9, the calculated grade point averages ranged from a high of 2.17 in 2000 to a low of 1.95 in 2004. The three highest calculated grade point average (GPA) measurements were 2.17 in 2000, 2.11 in 2001 and 2.14 in 2002. An interesting point in this data was the fact that these three highest calculated grade point average values all occurred prior to Shelton State's shift to a non-punitive attendance policy (see Table 9). In short, the highest student grade point averages occurred during the period when the institution was utilizing an attendance policy that required regular class attendance in all academic classes. This data supported Moore's (2005) view that attendance had a positive influence on student grades in academic based courses. However, in 2003, the year in which the school shifted to a less punitive attendance policy, the calculated grade point average dropped to 1.96. From this critical year through the remainder of the study, the calculated course grade point average remained below 2.0 (see Table 9). A superficial view of this data recommended that student grades dropped dramatically beginning with the year in which Shelton State moved to an attendance policy that only documented attendance. Interestingly, the drop in calculated grade point average occurred immediately in the year in which the school changed its attendance policy. In other words, there was no gradual decline in calculated grade point average; the drop was substantial and occurred in the initial year in which the institution changed its attendance policy. Furthermore, the calculated grade point average values remained below the 2.0 level for the remainder of the study period (through 2008). This sudden decline in calculated grade point average coincided with Shelton State's move to a non-punitive attendance policy. As previously discussed, COMPASS

exam scores indicated that the relative academic background of students enrolled at Shelton State Community College remained statistically consistent throughout the timeframe of this study. Based on these fact, there was a correlation between attendance policies and the decline in student grades. Therefore, based on the numerical data, there was a negative relationship between a punitive attendance policy and grades.

Table 9

Summary of Calculated, Overall Academic Grade Point Averages (GPA) from 2000 to 2008 at Shelton State Community College

YEAR	GPA
2000	2.17
2001	2.11
2002	2.14
2003	1.96
2004	1.95
2005	1.99
2006	1.98
2007	1.97
2008	1.98

Statistical Analysis of Calculated Grade Point Average (GPA) Measurements

T-test measurements were calculated as a part of this project to verify the differences observed in student grade point averages before and after Shelton State Community College implemented a non-punitive attendance policy. For this statistical work, the null hypothesis stated that grades did not change after the implementation of a less than punitive attendance policy. In other words, it was proposed that calculated grade point averages would not change substantially at Shelton State Community College after the institution implemented a non-

punitive policy. Specifically, the average calculated grade point average measurements for 2000 through 2003 were compared statistically with the average grade point average calculations from 2004 to 2008. In this portion of the study, a statistical t test was calculated comparing these two time periods to determine if the overall academic grade point average had changed significantly as the institution moved from an attendance policy that influenced student's final grade to a less rigorous policy.

As illustrated in Table 10, the calculated t value used for comparing academic grade point averages before and after the 2003 academic year was 5.73. Likewise, the t critical value for the data was determined to be 4.302. Since the calculated t value (5.73) is outside of the t critical range, then statistically, the null hypothesis (attendance does not influence grades) is rejected. Specifically, this indicated that the calculated grade point averages before and after 2003 were statistically different; thus illustrating that student grades did change after 2003. As noted earlier, the descriptive data indicated that the change in calculated grade point averages reflected a decline in student grades after the school moved to a non-punitive attendance policy. Not only did the statistical data illustrate a general change in grade point average, but it also proved that the grade point averages between 2000 and 2003 were significantly higher than the same data for the 2004 to 2008 time period. These statistics indicated that student grade point averages in academic level college courses were higher during the period when Shelton State Community College was utilizing an attendance policy that counted student attendance towards the final grade. As illustrated by this statistical data, student grade point averages declined when the school moved to an attendance policy that only documented student attendance. This data verified statistical analyses by Romer (1993) and Sharma, Mendez, and O'Byrne (2005). In both of these projects, the authors statistically examined the relationship between attendance and

grades. As in the current project, these researchers determined that attendance was related to student grades.

A closer examination of the statistical data collected in this project indicated that student grade point averages were moderately higher during the period when Shelton State Community College was using a mandatory attendance policy. This was based on the fact that the calculated t statistic of 5.73 was reasonably higher than the t critical value of 4.302 (see Table 10). The difference observed in these two values was strong enough to illustrate that the calculated grade point averages after 2003 were moderately lower than those prior to the same date. Therefore, it was determined that there was a negative correlation between attendance policies and student grades. This further supported Marburger's (2001) research in which he observed that students achieved moderately higher grades in college economics classes when attendance rewards were used.

Additional support for the statistical difference in calculated grade point averages before and after 2003 can be observed in the p values for this portion of the project. The p statistic for this work was calculated at .0145 (see Table 10). Since the p value was lower than the alpha value of .050, then the null hypothesis (grades do not change before and after 2003) was rejected. The low p value further documented the fact that overall academic grades were statistically different when comparing calculated grade point averages before and after 2003. As described in the descriptive portion of this work, overall grades appeared to decline sharply after 2003. Collectively, the t statistic and p values for this project verified that there were statistical differences in grade point average when comparing the data before and after 2003. Since Shelton State did not have any significant changes in enrollment or student background (based on

COMPASS scores) during the time period for this project, then the decline in grade point average had to be related to the move from a punitive to a non-punitive attendance policy.

Table 10

Summary of Statistical Data Comparing Student GPA Values Before and After 2003

Statistic	Sample Size	Mean 2000-2003	Mean 2004-2008	Standard Deviation	t	t critical	p	f
	254,345	2.10	1.94	.086	5.73	4.30	.014	.1789

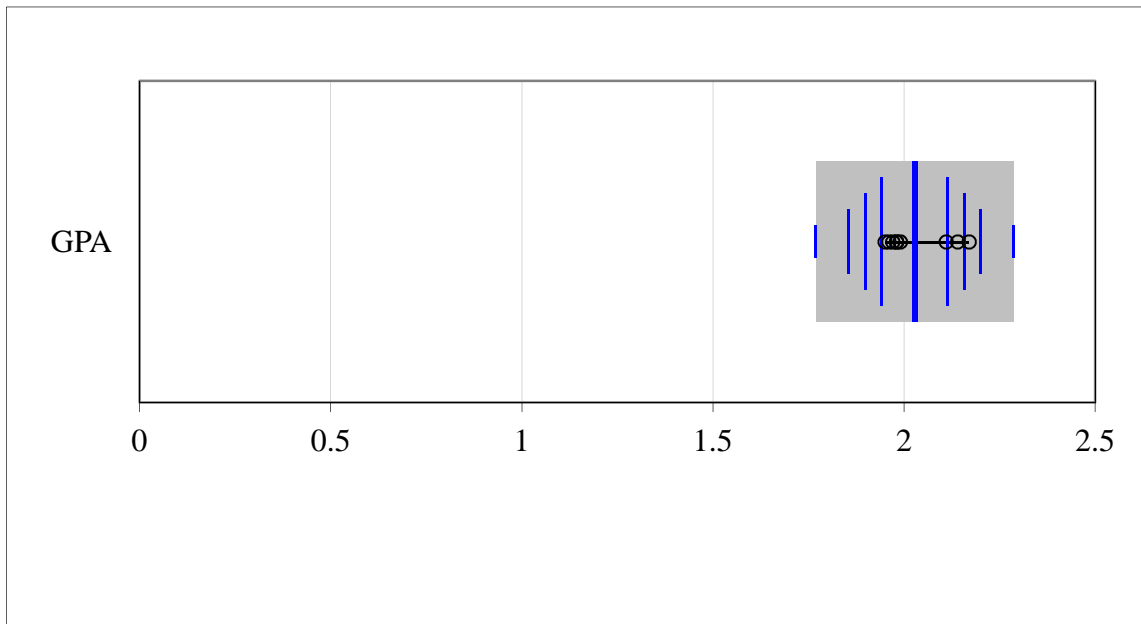


Figure 4. Graphic illustration of calculated GPA statistics

In addition to the t -test examination, a regression analysis was conducted to verify the results of the initial statistical data collected in this project. This analysis provided additional statistical information relative to the relationship between attendance policies and student grades. An examination of the regression data for this project did support the descriptive analysis and t test examination, both of which indicated a downward shift in academic course grades at Shelton

State Community College after the institution moved to an attendance policy that was non-punitive in nature. The regression data, listed in Table 11, verified the earlier analyses in two primary ways. First, the calculated r squared value was .9230 (see Table 11). This statistical value indicated that there was a 92% chance that grades were statistically different before and after 2003. This measurement verified the earlier data which showed a decline in student grades after Shelton State shifted to an attendance policy that only documented attendance. Secondly, the calculated f value for the regression analysis was .1789 (see Table 11). This calculation suggested that there was only an 18% chance that the observed decline in grade point average before and after 2003 was by chance alone. In other words, there had to be other factors (i.e., attendance) that were related to the drop in student grades after Shelton State's move to a non-punitive attendance policy.

Table 11

Summary of the Regression Variables Comparing GPA Values Before and After 2003

Multiple R	R Squared	Significant f
.9607	.9230	.1789

A primary objective of this project was to determine if there were descriptive and statistical trends related to student grades before and after Shelton State Community College moved from an attendance policy that penalized students for missing a certain number of classes to a policy that only documented attendance. A descriptive analysis of overall student grade point averages between 2000 and 2008 indicated that grades declined beginning in 2003, the year that the institution changed its attendance policy. Furthermore, the statistical data (t -test, p value, regression analysis) verified that this drop in student grades was statistically important. Based on

this information, a non-punitive attendance policy was negatively correlated with student grades in academic based college classes.

Results of the Biology Course by Course Grade Examination

Previous studies have documented a relationship between attendance and grades (Gump, 2005; Moore, 2005). However, most of these works made no attempt to examine the correlation between student experience level and grades. In the current project, an examination of course grades in freshman biology classes and upper level biology courses was conducted. The individual courses utilized in this portion of the study included Principles of Biology I (BIO 103), Human Anatomy and Physiology I and II (BIO 201 and BIO 202) and Microbiology (BIO 220). A yearly calculated grade point average was determined for each course during the 2000 to 2008 timeframe. These calculated grade point averages were descriptively and statistically compared within each course before and after 2003 and between the different courses during the same time period. As previously noted, Shelton State Community College moved from a punitive to a non-punitive attendance policy in 2003. Data from this portion of the project helped to indicate whether attendance policies had a stronger relationship with student grades in freshmen level courses or in upper level classes. Moreover, this information provided documentation on the correlation between student grades and the student's college experience level.

Descriptive Analysis of Bio 103 Calculated Grade Point Averages

Principles of Biology I (BIO 103) is a four-hour, freshman level, natural science class offered at Shelton State Community College. As is the case with most science classes, Biology 103 includes a required laboratory experience as part of the class. This course serves as a mixed majors science class enrolling both nonscience and science majors. Moreover, it is a required

prerequisite for students seeking to pursue a career in a health care field (physician, nursing, physical therapy). Because of its wide appeal among students of different majors, Biology 103 consistently maintains a yearly enrollment of more than 1000 students, most of whom are first year college students (Shelton State Community College Webpage, retrieved June 6, 2012). Based on college enrollment figures, Biology 103 is typically one of the most popular courses at Shelton State Community College (Shelton State Community College Webpage, retrieved June 6, 2012).

In this project, an overall yearly grade point average for all Biology 103 courses taught at Shelton State Community College was calculated for the years between 2000 and 2008. This calculation was based on a standard 4.0 scale, where an A counts as a 4, a B counts as a 3, a C counts as a 2, a D counts as a 1, and an F counts as a 0. Furthermore, withdrawals were figured into the grade point average computations as a zero. The calculated grade point averages for Biology 103 between 2000 and 2008 served two major functions for this project. First, calculated grade point averages before and after 2003 were compared descriptively and statistically to determine if grades in this freshman science class had changed as Shelton State Community College moved from a punitive to a non-punitive attendance policy. Secondly, the 103 grade point averages were compared to grade point averages in sophomore level biology courses (Human Anatomy and Physiology and Microbiology) in an effort to determine if there was a stronger correlation between attendance policies and grades in freshman or sophomore level classes.

The Biology 103 calculated grade point averages for each year of this study are summarized in Table 12. A close examination of this data indicated several important points. First, there was a decline in calculated grade point average from a high of 1.92 in 2000 to a low

value of 1.26 in 2006. Based on this data, it was clear that a general decline in calculated grade point average for this class started before Shelton State shifted to a non-punitive attendance policy. The greatest single year decline in Biology 103 grade point average was observed between 2000 and 2001 when calculated grade point averages dropped from 1.92 to 1.52. This decline was followed by a .10 increase in grade point average in 2002; however, the Biology 103 grade point average declined following this increase to levels below 1.40. Secondly, the four highest calculated grade point averages for Biology 103 were observed during the first four years of the study (1.92, 1.52, 1.62 and 1.49 respectively). During this timeframe, Shelton State Community College was utilizing an attendance policy that required students to attend class. Under this punitive attendance policy, students could be given an excessive absence F for missing a predetermined number of classes. However, the calculated grade point average for general biology classes started to decline dramatically after 2003 (see Table 12). Between 2004 and 2008, the calculated grade point averages ranged from 1.31 to 1.42. As illustrated by Table 12, the grade point calculations were much lower during this period when compared to the years between 2000 and 2003. Recall that Shelton State Community College started using a non-punitive attendance policy in 2003. It was during the period after 2003 that the lowest calculated grade point averages for Biology 103 were observed. Finally, a comparison of the average calculated grade point average before and after 2003 suggested that grades started to decline in Biology 103 as early as 2001. However, the sharpest decline in student grades was observed during the 2004-2008 time period. Therefore, a descriptive overview of this data suggested that student grades declined substantially in general biology courses following Shelton State's change from a punitive to a non-punitive attendance policy. Furthermore, this change in calculated grade point average occurred within a year after the college initiated a less punitive attendance policy

and the calculated grade point averages remained relatively low throughout the remainder of the project timeframe.

Table 12

Summary of Calculated Grade Point Averages for Biology 103 Courses at Shelton State Community College

Year	BIO 103 Calculated GPA
2000	1.92
2001	1.52
2002	1.62
2003	1.49
2004	1.31
2005	1.32
2006	1.26
2007	1.42
2008	1.38

Statistical Review of Biology 103 Calculated Grade Point Averages

In an effort to verify the trends observed in the descriptive review of Biology 103 grade point averages, a dependent *t*-test analysis was conducted to compare the mean calculated grade point averages before and after 2003. This method indicated whether there was a statistical difference in the grade point averages before and after 2003. To further verify the *t* test results, a regression analysis was completed on the Biology 103 grade point average data. The regression data served to detail whether the observed changes in grade point averages before and after 2003 were statistically significant or based on chance. An overview of the statistical data for the Biology 103 grade point averages at Shelton State Community College is provided in Table 13.

Table 13

Summary of the Statistical Data for Biology 103 Calculated Grade Point Averages at Shelton

State Community College

Statistic	Sample Size	Mean 2000-2003	Mean 2004-2008	Standard Deviation	t	t critical	p	f	R squared
Values	8353	1.64	1.33	.203	2.6	2.35	.037	.239	.8139

The primary purpose of the dependent t test was to determine whether the differences observed in calculated grade point averages for Biology 103 before and after 2003 were statistically different. For this statistical test, the t value was 2.678, while the t critical value was 2.350 (see Table 13). Since the t statistic (2.678) was greater than the t critical value (2.350), then this indicated that there was a statistical difference in the average calculated grade point scores for Biology 103 before and after 2003. This provided documentation that supported the descriptive analysis of the biology grade point averages which indicated that grades declined after Shelton State Community College implemented a non-punitive attendance policy in 2003. Further statistical proof for this can be observed in an examination of the p value for this portion of the study. The p value of .037 is less than the .05 alpha level; thus indicating that the null hypothesis (grade point averages will remain the same before and after 2003) was rejected. Therefore, the p value calculations substantiated the descriptive analysis that there is a statistical difference in Biology 103 calculated grade point averages before and after 2003 (see Table 13). Collectively, these two statistical measurements supported the descriptive review that detailed a decline in Biology 103 grades at Shelton State Community College following the implementation of a non-punitive attendance policy.

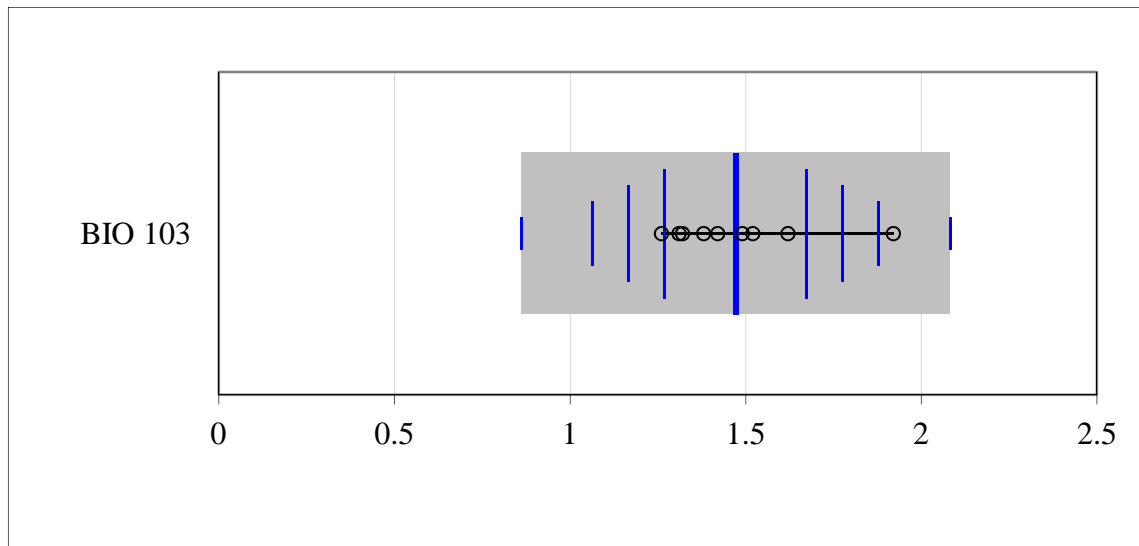


Figure 5. Graphic Illustration of Statistical Data for Biology 103

To verify the t test data, a regression analysis was conducted on the calculated grade point averages for Biology 103 courses at Shelton State Community College. As before, the grade point averages prior to 2003 were compared to those values after 2003. The regression data is summarized in Table 13. The R-square value for this regression was calculated at .8139, which suggested that approximately 82% of the change in calculated grade point average was associated with the college's shift in attendance policy (see Table 13). Due to this, it is likely that the observed decline in freshman biology grade point averages after 2003 was related to Shelton State's move from a punitive to a less demanding attendance policy. Furthermore, the f value of .279 indicated that there was only a 28% chance that the drop in grades after 2003 was by chance alone (see Table 13). Again, this implied that the institution's decision to move from an attendance policy that required class attendance to one that only documented attendance was negatively correlated with General Biology grades. Based on these regression statistics, it was clear that calculated grade point averages for Biology 103 classes declined after 2003. This decline was most likely related to Shelton State's move to a less punitive attendance policy in 2003.

As previously explained, Shelton State Community College moved to a non-punitive attendance policy in 2003. A review of the calculated grade point averages for Biology 103 before and after this critical year indicated that grades started to decline at the outset of the study. In short, calculated grade point averages for Biology 103 dropped during the first year of this study (see Table 12). However, the same grades declined sharply following the implementation of the weaker attendance policy in 2003 (see Table 12). Based on this data, it was clear that a decline in Biology 103 grades was occurring as early as 2001; however, it appeared that Shelton State's move to a non-punitive attendance policy increased the depth of the decline in grade point average for this class. The statistical review of this same data further verified this point. Both the *t* value and *p* statistic indicated that the decline in grade point average after 2003 was significant (see Table 13). Additional verification for the statistical evidence used in this study was provided by a regression analysis. The regression data indicated that changes in Biology 103 grade point averages were most likely attributed to Shelton State's move from a punitive to a non-punitive attendance policy. Based on this information, grades were lower in Biology 103 after the institution initiated the use of an attendance policy that only documented class attendance.

Descriptive Analysis of Bio 201 and 202 Calculated Grade Point Averages

Shelton State Community College offers students who are interested in a health career a two course sequence in Human Anatomy and Physiology (Biology 201 and Biology 202). These courses are four credit hour, sophomore level courses. Biology 201 maintains a Principles of Biology (Bio 103) prerequisite, while Biology 202 requires successful completion of Biology 103 and Biology 201 for enrollment. A required laboratory component is included in both of these anatomy and physiology courses. A majority of students enrolling in these two courses are

pursuing a career in nursing or a related health care field. For this study, a combined calculated grade point average was determined for the anatomy and physiology sequence for the years between 2000 and 2008. This data was reviewed descriptively and statistically in an effort to compare anatomy and physiology grades before and after 2003. Furthermore, the anatomy data was compared to similar data from Biology 103 classes in an effort to determine the relationship between student experience level and class grades.

The yearly calculated grade point averages for Human Anatomy and Physiology are summarized in Table 14. The calculated grade point averages for these courses range from a low of 1.67 in 2006 to a high of 1.97 in 2008. Interestingly, both of these values were observed during the period after Shelton State Community College shifted to a non-punitive attendance policy. Prior to the change in attendance policy in 2003, the calculated grade point averages for these courses were 1.75 in 2000, 1.88 in 2001 and 1.91 in 2002 (see Table 14). A comparison of the average GPA before and after 2003 indicated that grades dropped only slightly after the institution initiated a non-punitive attendance policy. Specifically, the average GPA prior to 2003 was 1.85; whereas, the average GPA after 2003 was 1.79. These calculations indicated only a slight decline in calculated grade point average after Shelton State shifted to a non-punitive attendance policy. This minimal drop in calculated GPA, along with the fact that the highest anatomy and physiology calculated grade point average occurred in 2008 suggested that grades remained relatively consistent in these particular courses during the study period. Based on this information, it appeared that Shelton State Community College's change from a punitive to a non-punitive attendance policy was not related to sophomore level, student grades.

Table 14

Summary of Calculated Grade Point Averages for Human Anatomy and Physiology Courses at Shelton State Community College

Year	Calculated GPA for Human Anatomy and Physiology Courses
2000	1.75
2001	1.88
2002	1.91
2003	1.77
2004	1.75
2005	1.73
2006	1.67
2007	1.84
2008	1.97

Statistical Analysis of Bio 201 and 202 Calculated Grade Point Averages

A statistical *t* test, with an alpha level of .05, was used in an effort to determine the statistical significance of the human anatomy and physiology grade point averages before and after 2003. The statistical data for this portion of the study is summarized in Table 15. An examination of the *t* test calculations verified the descriptive analysis that grades in the two-course anatomy and physiology sequence did not change after Shelton State implemented an attendance policy that only documented student attendance in class. Two critical measurements illustrated this point clearly. First, the calculated *t* value of 1.137 was much lower than the *t*

critical measurement of 2.353 (see Table 15). The lower t value in this case supported the initial null hypothesis that anatomy and physiology grades were not influenced by changes in attendance policy. Furthermore, the calculated p value calculated in this portion of the study was .338 (see Table 10). Since the p value was greater than the alpha value (.05), then statistically, the null hypothesis was supported; thus indicating that student grades in these sophomore level anatomy and physiology courses were not related to the type of attendance policy being used. Collectively, these two statistical measurements supported the descriptive review of anatomy grades which suggested that student grades remained constant before and after the institution changed attendance policies.

Table 15

Summary of the Statistical Data for Biology 201 and 201 Calculated Grade Point Averages at Shelton State Community College

Statistic	Sample Size	Mean 2000-2003	Mean 2004-2008	Standard Deviation	t	t critical	f	p	R squared
Values	5459	1.83	1.79	.097	1.13	2.35	.775	.338	.8139

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To verify the accuracy of the t test measurements, a regression analysis was conducted to compare anatomy and physiology grades before and after 2003. The calculated R squared value for this portion of the study was .5580 (see Table 15). This value suggested that there was no relationship between attendance policies and grades in sophomore level biology classes. Moreover, the f value of .775 indicated that there was a 78% chance that changes in anatomy and physiology grades before and after 2003 were caused by chance and chance alone (see Table 15). Both of these measurements supported the null hypothesis that grades were not influenced by

changes in attendance policies. In short, the regression analysis verified the descriptive data and the *t* test results which indicated that there was no relationship between attendance policies and student grades in sophomore level human anatomy and physiology courses at Shelton State Community College.

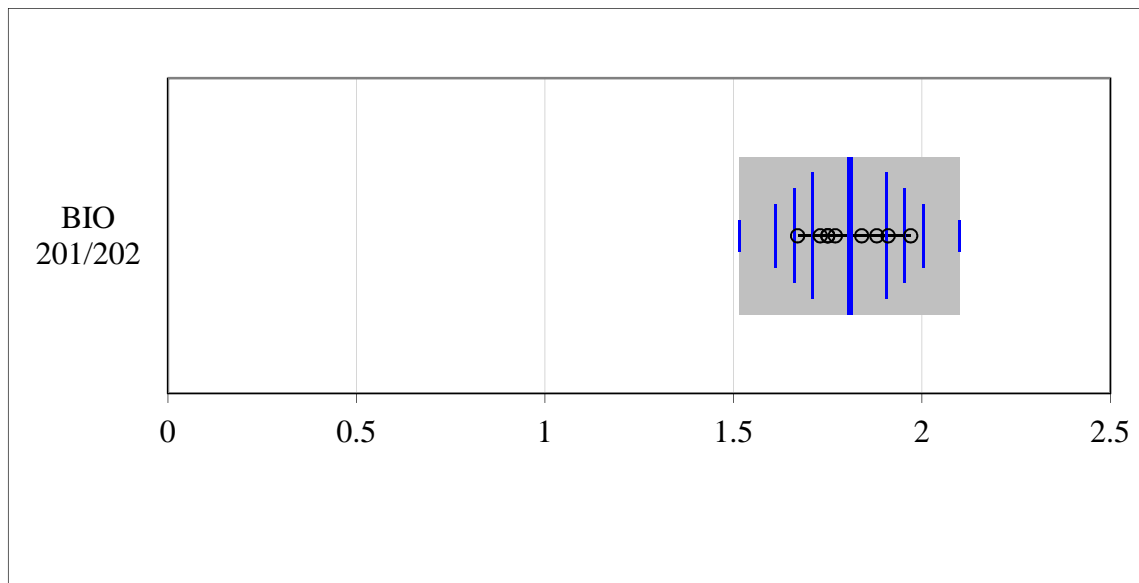


Figure 6. Graphic summary of the statistical data for Biology 201 and 202

In this study, a descriptive analysis and statistical examination indicated that sophomore level college student's grades were not significantly influenced by an institution's move from a punitive to a non-punitive attendance policy. Descriptively, calculated grade point averages remained consistent before and after the change in attendance policy. This observation was supported by a *t* test measurement and a regression analysis. Both of these statistical measurements indicated that anatomy and physiology grades were not substantially different when comparing calculated grade point averages before and after 2003. This data supported the work of Hammen and Kelland (1994) who determined that attendance was not related to student grades in an upper level physiology course. Based on this information, upper level students are

experienced enough to attend and complete courses independent of the type of attendance policy being utilized in the class.

Descriptive Analysis of Bio 220 Calculated Grade Point Averages

Microbiology and Man (Bio 220) is a second semester, sophomore level course offered at Shelton State Community College. This class is considered to be the highest-level biology course offered at the institution. The prerequisites for Microbiology and Man include classes in biology and/or chemistry. Biology 220 is designed primarily for students pursuing a career in nursing; however, students from other health related fields often enroll in this class. For this project, a course calculated grade point average for each year from 2000 to 2008 was determined in an effort to compare grades before and after 2003. This data helped to illustrate whether student grades in Biology 220 changed as Shelton State Community College implemented a non-punitive attendance policy.

A descriptive examination of the calculated grade point averages for Microbiology and Man classes at Shelton State Community College suggested that grades from 2000 to 2008 remained consistently at or near a value of 1.70 (see Table 16). For this project, calculated grade point averages ranged from a high of 1.82 in 2004 to a low of 1.46 in 2007 (see Table 16). In this case, the highest calculated grade point average occurred the year immediately following Shelton State's move from a punitive attendance policy to one that only documented student attendance. Moreover, the lowest calculated grade point average (1.46) for this course was also observed after the move to a non-punitive attendance policy (see Table 16). However, following this low grade point average in 2007, the calculated average increased to a value of 1.75 in 2008. One clear trend in the descriptive data for Biology 220 courses was the overall consistency of the yearly grade point averages. A majority of the yearly calculated grade point averages fell within

a narrow range between 1.65 and 1.76, thus indicating that grades for this course remained almost unchanged for the length of the study (see Table 16). Additional support for this was observed in a comparison of the overall mean grade point average calculations for Biology 220 before and after 2003. The mean grade point average for the 2000-2003 timeframe was 1.69; whereas the mean for the 2004-2008 timeframe was calculated at 1.65. Again, these measurements suggested that grades in microbiology courses remained consistent throughout the length of this study.

Table 16

Summary of Calculated Grade Point Averages for Microbiology and Man Courses at Shelton State Community College

Year	Calculated GPA for Microbiology and Man Courses
2000	1.76
2001	1.72
2002	1.64
2003	1.66
2004	1.82
2005	1.59
2006	1.65
2007	1.46
2008	1.75

The overall consistency of the calculated grade point average values throughout the length of this project indicated that grades remained unchanged from 2000 to 2008 in the sophomore level microbiology course at Shelton State Community College. A closer examination of this data illustrated that grade point average values for the time frame before 2003 were similar to those after this critical date. Based on this numerical information, it did not

appear that Shelton State Community College's change from a punitive attendance policy to a non-punitive policy in 2003 was related to student grades in this upper level biology course.

Statistical Analysis of Bio 220 Calculated Grade Point Averages

As explained, a general review of the yearly calculated grade point averages for Bio 220 classes at Shelton State Community College indicated that student grades remained consistent before and after the college implemented a non-punitive attendance policy. The descriptive data illustrated that student grades did not change when the institution moved from an attendance policy that counted attendance as part of the grade to a policy that only documented classroom attendance. Thus, in microbiology classes, it did not appear that attendance policies were related to final grades. To verify this result, a *t* test analysis was conducted to determine if this consistency in student performance was statistically significant. Further verification for the results of this portion of the study was obtained with a regression analysis of the yearly grade point averages for Bio 220 courses at Shelton State Community College.

The calculated *t* statistic for this section of the project was determined to be 1.476, while the *t* critical value was 3.182 (see Table 17). In reviewing these two statistical measurements, it was determined that grades in Biology 220 were not statistically different when comparing grade point averages before and after 2003. This was based on the fact that the *t* value (1.476) was substantially lower than the *t* critical measurement of 3.182 (see Table 17). The null hypothesis for this section of the project stated that grades would not change in Microbiology classes when Shelton State Community College moved from a punitive to a non-punitive attendance policy. Since the *t* statistic was substantially lower than the *t* critical value, the null hypothesis was accepted. In short, the *t* test analysis indicated that there was no statistical difference in calculated grade point averages when comparing grades during the punitive attendance policy

period to grades after the school moved to a non-punitive policy. Additional statistical support for the t test calculations was provided by the p values for this study. In this case, the p value of .118 was greater than the alpha value of .05; thus indicating that the null hypothesis was accepted. The p value indicated that grades in the microbiology courses at Shelton State Community College did not change after the school shifted from a punitive to a non-punitive attendance policy. Therefore, the statistical analysis of yearly calculated grade point averages in college level microbiology classes supported the descriptive data which suggested that attendance policies were not related to grades.

Table 17

Summary of the Statistical Data for Biology 220 Calculated Grade Point Averages at Shelton State Community College

Statistic	Sample size	Mean 2000-2003	Mean 2004-2008	Standard Deviation	t	t critical	f	p	R squared
Values	1496	1.69	1.65	.108	1.476	3.182	.6348	.118	.3216

In an effort to verify the results of the descriptive data and t test examination, a regression analysis was conducted on the yearly calculated grade point averages for the microbiology course at Shelton State Community College. In this statistical analysis, the R squared value was .3216 (see Table 17). This figure indicated that there was only a 33% chance that grades were statistically different when comparing values before and after 2003. The R squared value verified the t statistic result that grades remained statistically similar when Shelton State Community College moved from a punitive to a non-punitive attendance policy. Additional verification for this was provided by the f value, which was calculated at .6348. The f value indicated that there

was a 64% chance that any differences in grade point averages before and after 2003 were based on chance alone and not changes in attendance policy. The regression analysis data supported the descriptive and *t* test results which suggested that a change from an attendance policy that strictly monitored student attendance to a policy that only encouraged students to attend class was not related to student grades.

The statistical analysis of the yearly calculated grade point averages for Biology 202 courses at Shelton State Community College indicated that student grades were not substantially different before and after 2003. This data supported the descriptive analysis in this project which illustrated that student grades did not change when the college moved from a punitive to a non-punitive attendance policy. Based on the results of this information, it was determined that specific attendance policies were not related to student grades in a sophomore level microbiology class.

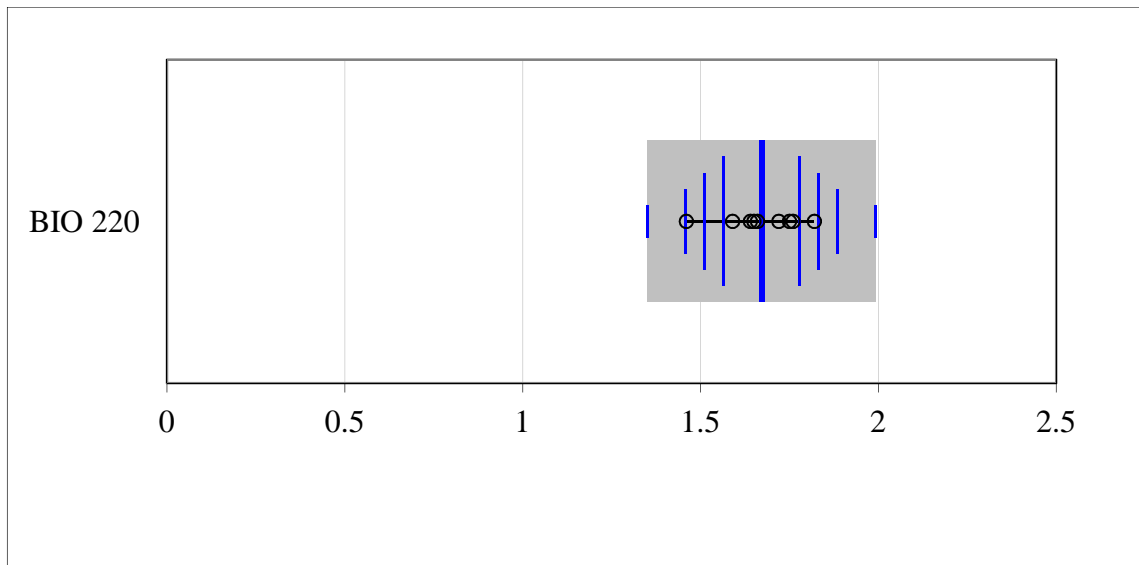


Figure 7. Graphic summary of the statistical data for Biology 220

Comparison of Calculated Grade Point Averages Between Freshman and Sophomore Level Biology Courses

As previously discussed, the primary objective of this work was to determine if attendance policies were related to student grades. This was carried out by examining grades before and after 2003, the year in which Shelton State Community College changed from a punitive to a non-punitive attendance policy. A second goal of this study was to determine if changes in attendance policies were related to grades among freshman and sophomore level students. That is, were grades in freshman or sophomore level biology courses most correlated with the change from a punitive to a non-punitive attendance policy? In an effort to address this question, calculated grade point averages for the freshman level Principles of Biology (BIO 103) course were compared to the same calculations for the sophomore level courses Human Anatomy and Physiology (BIO 201 and 202) and Microbiology (BIO 220).

A descriptive and statistical comparison of grade point averages in freshman biology courses (BIO 103) before and after Shelton State Community College moved to a non-punitive attendance policy revealed that grades were lower after the institution implemented a less punitive policy (see Table 12). A descriptive analysis of the data illustrated that calculated grades point averages were higher during the timeframe when the college was using an attendance policy that required students to attend class regularly. This data also indicated a decline in grade point average prior to 2003. However, grade point average values continued to drop after the school instituted a non-punitive attendance policy. Furthermore, this descriptive review was verified by statistical calculations. Specifically, *t* test results illustrated that grades were statistically lower in the period after 2003; thus representing a decline in student grades with the implementation of a less punitive attendance policy (see Table 13). Furthermore, these results

were verified by regression analysis data which suggested that the differences in grade point averages before and after 2003 were not simply the result of chance but rather a shift in attendance policies (see Table 13). However, the descriptive and statistical information for human anatomy and microbiology courses did not illustrate the same pattern observed for freshman level classes. In these two sophomore level courses, the descriptive and statistical data indicated that grades were essentially unchanged when comparing years before and after 2003 (see Tables 14-17). In both subject areas, student grades remained relatively consistent throughout the study period; thus indicating that attendance policies were not related to grades in sophomore level classes.

The calculated grade point average values indicated that grades declined significantly in general biology courses after Shelton State Community College moved to a non-punitive attendance policy in 2003. However, the same grade point averages remained consistent in sophomore level courses (BIO 201, BIO 202, BIO 220) at the institution during the same time frame. This indicated a positive correlation between the grades of less experienced students and attendance policies. Furthermore, by the time students have reached sophomore level courses, they have learned the specific techniques (including attending class) that would help them successfully complete classes.

Grade Distributions Based on Demographics

In an effort to descriptively review the relationship between student demographics and grades, this project examined the percentage of each grade achieved by students in biology classes from 2001 to 2005. Furthermore, the grades were organized based on the gender and demographic group that the student was a member of. Specifically, this project examined the percentage of students from each demographic group (black female, white female, black male,

white male, etc.) achieving each letter grade (A, B, C, D, F, W) in all biology classes from 2001 to 2005. The data for this portion of the study is included in Table 18.

Table 18

Final Grade Percentages in Biology Classes Based on Demographic Group (2001-2005)

2001	A	B	C	D	F	W
Black/Female	1.2	2.9	5.2	3.2	2.7	7.3
Am. Indian/Female	0	0	0.14	0	0	0
Asian/Female	0	0.14	0	0.14	0	0
Hispanic/Female	0	0.14	0	0	0	0.14
White/Female	8.4	12.8	11.3	3.8	3.8	5.7
Other/Female	0	0.14	0.28	0.14	0	0.14
Black/Male	0.28	0.55	1.9	1.1	1.7	1.6
Am. Indian/Male	0	0	0	0	0	0
Asian/Male	0.14	0.28	0.14	0	0	0
Hispanic/Male	0	0	0	0	0	0
White/Male	2.1	4.1	5.8	2.5	3	4.2
Other/Male	0	0.28	0.14	0	0	0.14

2002	A	B	C	D	F	W
Black/Female	1.5	4.7	5.5	3.2	3.1	5.6
Am. Indian/Female	0	0	0	0.05	0	0
Asian/Female	0.4	0.05	0.23	0.05	0	0.05
Hispanic/Female	0.05	0.1	0.05	0.05	0	0.1
White/Female	6.9	11.8	11.9	3.2	3.7	10.8
Other/Female	0.34	0.34	0.29	0.17	0.05	0.4
Black/Male	0.23	0.98	1.4	0.86	0.34	0.8
Am. Indian/Male	0	0	0	0	0	0
Asian/Male	0.1	0.4	0.17	0	0.17	0.17
Hispanic/Male	0.05	0	0.05	0	0	0
White/Male	2.48	4	4.7	2.2	1.7	3.8
Other/Male	0	0.29	0	0.1	0	0

2003	A	B	C	D	F	W
Black/Female	.90	4	6.2	3.2	2.9	6.3
Am. Indian/Female	0	0.05	0	0	0	0
Asian/Female	0.16	0.26	0.05	0.05	0.05	0.21
Hispanic/Female	0.05	0.16	0.05	0	0	0.05
White/Female	7.1	13.1	11.8	3.8	4.5	10.2
Other/Female	0.1	0.1	0.16	0.1	0.16	0.16
Black/Male	0.26	0.47	0.77	0.52	0.73	1.1
Am. Indian/Male	0	0	0.05	0	0	0
Asian/Male	0.16	0.2	0.26	0	0.05	0.05
Hispanic/Male	0.1	0.05	0	0	0.05	0
White/Male	1.5	3.5	4.5	1.9	1.8	5.8
Other/Male	0.05	0.16	0.05	0	0	0

2004	A	B	C	D	F	W
Black/Female	.76	4	6.5	4.6	3.9	7.3
Am. Indian/Female	0	0.15	0	0	0	0
Asian/Female	0.22	0.15	0.22	0	0.15	0.08
Hispanic/Female	0.15	0.22	0.3	0.08	0.22	0.22
White/Female	8.2	10.9	10.3	4.9	3.8	10.5
Other/Female	0.08	0.15	0.15	0	0.15	0.3
Black/Male	0.15	0.6	0.45	0.68	0.68	1.42
Am. Indian/Male	0	0.08	0	0	0.08	0
Asian/Male	0.22	0.3	0	0	0	0
Hispanic/Male	0	0.08	0	0	0	0
White/Male	1.9	3.4	4.6	1.6	2	2.8
Other/Male	0.08	0.08	0.08	0	0	0

2005	A	B	C	D	F	W
Black/Female	.93	4.7	6.2	3.9	3.3	8
Am. Indian/Female	0	0	0.06	0	0	0
Asian/Female	0.24	0.06	0.06	0	0	0.12
Hispanic/Female	0.18	0.06	0.18	0.06	0	0.24
White/Female	8.3	12.1	10.8	3.75	3	11.2
Other/Female	0	0.06	0	0.06	0	0
Black/Male	0.18	0.76	0.34	0.97	0.56	1.5
Am. Indian/Male	0	0	0	0	0	0
Asian/Male	0	0.18	0.12	0.06	0	0
Hispanic/Male	0	0.12	0.06	0	0	0
White/Male	1.4	3.8	5	2.1	1.3	3.1
Other/Male	0	0	0	0	0	0

A thorough review of the demographic data in this project illustrated several primary trends related to student grades. First, white females consistently achieved the greatest percentage of A's, B's and C's during the course of this study (see Table 18). Furthermore, this group also accounted for the greatest number of withdrawals from biology classes in this project. This can be explained by the fact that white females account for more than 50% of the student population at Shelton State Community College (Shelton State Community College Webpage; Retrieved July 18, 2012). Likewise, black males accounted for the lowest percentage of A and B grades in biology courses at Shelton State during the 2000 to 2005 time period. This is attributed to the fact that only a few black males enroll in biology classes at the institution. Furthermore, the data from this portion of the study indicated that each group achieved grades at a consistent level throughout the study period. In other words, the percentages of grades achieved by each group remained similar throughout the study. For example, the percentage of black females achieving C's in biology classes fell within a narrow 5.5 to 6.2 range throughout this study (see Table 18). Similar results were observed for all groups in relation to grades in biology classes. More importantly, a descriptive review of the percentages of students achieving each letter grade in biology courses indicated that grades did not change substantially for any group after 2003. Essentially, the percentage of each group of students achieving grades at a certain level remained very consistent throughout the entire length of the study. Based on this information, it was clear that student demographics did not play a role in changing grades during the 2001 to 2005 timeframe.

Furthermore, ANOVA was used in this portion of the study to determine if there were measurable differences in calculated grade point averages among the different groups of students attending Shelton State Community College. The ANOVA data (see Table 19) indicated that

there was no significant difference in calculated grade point averages among the groups of students who took biology at Shelton State Community College. This conclusion was based on two primary ANOVA outcomes. First, the f value of .048 was substantially lower than the f critical value of 3.05. Based on this, the null hypothesis (grades are consistent among all groups over time) was accepted. Furthermore, the p value of .995 is greater than the alpha level of .05; therefore, the null hypothesis is again accepted. Collectively, the ANOVA data verified the descriptive data that indicated that grades remained consistent among the different demographic groups at Shelton State Community College between 2001 and 2005.

Table 19

ANOVA Statistics for Grades from the Demographic Groups at Shelton State Community College

	F	P value	F critical	Significance Level	Standard deviation
ANOVA Statistics	.048	.995	3.05	.05	.449

Research Question 1 Summary

Research question asked the question “Did freshman entrance exam scores (COMPASS Test) change after Shelton State Community College moved from a punitive to a non-punitive attendance policy?” To answer this question, COMPASS scores in math and English for incoming freshmen at Shelton State Community College were examined during the 2000 to 2008 timeframe. Emphasis was placed on comparing COMPASS results before and after 2003 since the college changed from a punitive to a non-punitive attendance policy in this year. A descriptive review of the data for both courses suggested that COMPASS results remained consistent throughout the study period (see Tables 2 and 4). Statistical analysis further proved

that COMPASS scores were similar when comparing grades before and after 2003 (see Tables 3 and 5). Based on the results of COMPASS scores, it was determined that the academic background of students enrolling at Shelton State Community College did not change during the timeframe for this project.

Research Question 2 Summary

Research question 2 inquired “Is there a relationship between grades and attendance policies when conducting a course by course analysis of all academic courses at Shelton State Community College before and after the implementation of a non-punitive attendance policy?” Through a descriptive and statistical examination of calculated grade point averages for each year between 2000 and 2008, it was determined that overall grade point averages did decline during this time period. More importantly, it was determined that the calculated grade point averages after 2003 (the year in which the institution moved to a non-punitive attendance policy) were much lower than the same calculations prior to this year. Based on the results of this data, it was determined that student grades were related to the change in attendance policies.

Research Question 3 Summary

Research question 3 asked if there “Are any changes in calculated grade point averages before and after the implementation of a non-punitive attendance policy influenced by the college experience level of the student?” In this section of the study, grade point averages in freshman biology courses were compared to the same values in sophomore level anatomy and physiology and microbiology classes. A descriptive and statistical review of student grades in general biology classes indicated a decline in grade point averages from the outset of the study period; however, the decline was most pronounced after Shelton State implemented a non-punitive attendance policy (see Tables 12 and 13). Moreover, a similar comparison of grade

point averages for anatomy and physiology and microbiology classes proved that grades remained statistically consistent before and after 2003 (see Tables 14, 15, 16, 17). Therefore, this data suggested that there was a greater correlation between attendance policies and grades in freshman level courses than in sophomore level classes.

Research Question 4 Summary

The fourth research question examined the question “Are any changes in student grades before and after the implementation of a non-punitive attendance policy associated with demographic differences among students.” To examine this question, an investigation of grades in all biology classes from 2001 to 2005 was conducted. Specifically, the percentage of students achieving each letter grade from the various demographic groups (white female, black female, etc..) was examined during this timeframe. The descriptive data for this question indicated that grades remained consistent in each group throughout the study period. Descriptively, there were no clear trends that emerged relative to the percentage of students from each group achieving specific grades. This suggested that any changes in grades associated with college classes at Shelton State Community College had to be related to factors other than student demographics. Statistical proof for this point was provided by ANOVA data which indicated that calculated grade point averages among the various demographic groups at Shelton State Community College remained consistent throughout the course of the study. In other words, grades among the different groups were not related to changes in attendance policies at the college.

Research Question 5 Summary

The final research question for this project asked, “Which factors led to changes in student grades before and after the institution moved to a non-punitive attendance policy. Based on an examination of all the data for this project, it was clear that grade point averages did

decline following Shelton State Community College's implementation of a non-punitive attendance policy (see Table 9). However, a closer review of all of the information in this project (student experience level, demographics) indicated that changes in attendance policies were most closely related to grades in freshman level classes. This is based on the fact that student grades dropped in freshman level biology courses following the initiation of a non-punitive attendance policy. No other observed variable in this work illustrated a similar change. Therefore, it was concluded that attendance policies are most closely related to grades in freshman classes.

CHAPTER V:

CONCLUSIONS AND RECOMMENDATIONS

Studies examining the relationship between class attendance and student grades date back to the 1920's and 30's (May, 1923; Jones, 1931). These projects suggested that attendance played a small role in affecting student grades in college level courses. Since these early works, a number of researchers have attempted to examine the specific relationship between attendance and grades (Marburger, 2006; Petruss, 1996). Some studies illustrated a strong correlation between student attendance and final grades in college level courses (Gump, 2005; Moore, 2005); whereas other works have suggested that attendance was not related to course grades (St. Claire, 1999; Hammen & Kellend, 1994). Clearly, the results obtained from these projects are mixed relative to the relationship between attendance and student grades in the college classroom. Because of these mixed results, there was a need to address the attendance policy-student grade relationship.

The purpose of this study was to examine the relationship between attendance policies and student grades. This work focused primarily on a calculated grade point average for all academic courses taught at Shelton State Community College between 2000 and 2008. Emphasis was placed on comparing calculated grade point averages before and after 2003, the year in which the institution shifted from a mandatory, punitive to a non-punitive attendance policy. Results from this portion of the project illustrated whether attendance policies were related to student grades. Specifically, if student grade point averages were significantly higher or lower following this change in policy; then attendance policies would be correlated with the grade

point average change. However, if grades remained consistent after the transition from one policy to another, then the relationship between attendance policies and student grades would be considered minimal.

In addition to the attendance policy-grade relationship, this study examined the influence of student experience level on final grades for students enrolled in freshman level biology class and in sophomore level biology courses (anatomy and physiology and microbiology). A calculated grade point average was obtained for each course in this study for the 2000 to 2008 time period. Data from this section of the study was analyzed to determine if student grades were similar in freshman level and sophomore level classes. Moreover, calculated grade point averages for these science courses were descriptively and statistically examined before and after 2003 in an effort to detail the relationship between attendance policies and student grades.

This study also reviewed the influence of demographics on biology grades at Shelton State between 2001 and 2005. The percentage of students from each demographic category (black females, white females, etc.) achieving specific letter grades (A, B, C, D, F, W) in biology classes was examined descriptively and by ANOVA calculations in an effort to determine the percentage of each grade achieved by each demographic group. Furthermore, the demographic percentages were compared before and after 2003 in an attempt to identify whether a change in attendance policy affected the percentage of each group achieving specific grades.

Finally, COMPASS entrance exam data from 2000 to 2008 was collected and reviewed in this project. The COMPASS exam is used to place students into developmental or college level English and math classes at Shelton State Community College. This data was reviewed descriptively and statistically to determine if there was a substantial change in COMPASS scores between 2000 and 2008. This data was used to determine if the academic background of students

entering Shelton State Community College had remained consistent throughout the selected timeframe. Moreover, the percentage of students scoring into developmental and college level courses was descriptively and statistically compared in an attempt to determine if the academic standing of students changed when the institution shifted from a punitive to a non-punitive attendance policy.

Discussion and Summary of the Study

The increasing emphasis on retention by college accrediting agencies in recent years has forced colleges and universities to examine a variety of factors related to student grades. Student attendance is one factor that has been examined as a possible influence on college grades. Unfortunately, studies examining attendance have been mixed relative to the relationship of this variable to student grades (Hyde & Flournoy, 1986; Moore, 2003). This study examined the relationship between attendance policies and student grades by comparing calculated grade point averages in college level courses before and after Shelton State Community College moved from a punitive to a non-punitive attendance policy. The descriptive and statistical data collected in this study provided some insight as to the specific relationship between attendance policies and grades. Moreover, this data was used to address the mixed results of studies examining the attendance policy-grade relationship. Finally, this project considered other factors that might have a measurable influence on student grades, including student experience level, academic standing and demographics.

Review of the Study Site and Collected Data

Shelton State Community College in Tuscaloosa, Alabama was selected as the primary study site for this project. Prior to the 2003 academic year, faculty members at this institution were required to use an attendance policy that deducted points from student's grades after a

predetermined number of absences. In 2003, at the request of the Alabama Department of Postsecondary Education, Shelton State and other two-year colleges in Alabama were instructed to shift to an attendance policy that only documented attendance. This change from a punitive to a non-punitive attendance policy was related to financial aid and accreditation issues (J. Jolly, personal communication, November 13, 2006). Due to this change, Shelton State offered an excellent opportunity to compare student grades before and after 2003 in an effort to document the relationship between attendance policies and student grades.

For this project, a calculated grade point average, based on a 4.0 scale, was determined for all academic courses taught at Shelton State for each year between 2000 and 2008. Specific attention was given to differences in this calculated grade point average before and after 2003, the year that Shelton State changed attendance policies. This comparison illustrated the relationship between changes in attendance policies and student grades. Furthermore, calculated grade point averages for students in freshman level biology courses and upper level biology classes between 2000 and 2008 were obtained and compared in an attempt to detail the correlation between student experience level and final course grades. In addition, grades in each course were compared before and after 2003 in an effort to determine if attendance policies were most closely related to freshman or sophomore grades. Finally, academic grades were correlated to student demographics in order to determine if grades were related to student background. As before, grades were examined before and after 2003 in an effort to determine the relationship between the demographic data and student grades.

Findings, Results and Conclusions

Research Question 1

The first research question for this project was a general question that examined whether COMPASS entrance exam scores at Shelton State Community College changed between 2000 and 2008. Direct attention was given to COMPASS entrance scores before and after 2003, the year that Shelton State moved from a punitive to a non-punitive attendance policy. Specifically, COMPASS data was used to determine the percentage of students scoring into developmental and college credit courses in math, English, and reading. A descriptive and statistical review of this information was used to illustrate changes in the academic background of students entering the institution during the timeframe of the study.

The percentage of students scoring into developmental and college math classes remained relatively consistent throughout the 2000 to 2008 timeframe. For Math 090, the first level developmental course in pre-algebra at Shelton State, there was a 5% increase in the percentage of students scoring into this class from the beginning to the end of the study period (see Table 4). A statistical examination of the enrollment percentages for this class indicated that the 5% increase did not represent a significant change in the percentage of students enrolling in Math 090. A descriptive and statistical review of the percentage of students enrolling in the institution's second level, pre-algebra developmental course (Math 098) provided similar results. For this particular class, there was a 5% decrease in the percentage of students scoring into the class throughout the study period. Interestingly, there was a steady increase in the percentage of students grading into Math 098 from 2000 to 2005; however, this was followed by a sharp decline between 2006 and 2008. Even though the pattern associated with the percentage of students enrolling in Math 098 was irregular, a dependent t test measurement indicated that there

was no statistical difference in the percentage of students scoring into this pre-Algebra course during the 2000 to 2008 timeframe. These pre-algebra results indicated that the math abilities of students entering Shelton State remained relatively unchanged from 2000 to 2008; thus illustrating academic consistency.

Additional support for the pre-algebra scores is provided by the COMPASS results for algebra based courses at Shelton State Community College. The percentage of students scoring into Math 100, a college credit class, increased 10% during the eight year study period for this project (see Table 4). A statistical examination comparing the percentage of students grading into this class before and after 2003 indicated that there was no change in student enrollment. Likewise, a dependent *t* test comparing the statistical significance of the percentage of students entering Math 112 illustrated that the 6% decline in student enrollment for this class was not statistically significant. These findings demonstrated that COMPASS algebra scores for students entering Shelton State Community College remained consistent between 2000 and 2008. Based on this consistency in enrollment, there was no indication that there was a change in the math abilities of students entering the institution as Shelton State changed from a punitive to a non-punitive attendance policy.

In continuing, the majority of the COMPASS information for developmental and college credit English classes further verified the trends observed in the math data. First, a review of the average percentage of students grading into developmental English II (English 093) indicated that 34.9% scored into the class before 2003 and 36.6% after this date. Furthermore, the percentage of freshmen enrolling in English 093 increased by only 3% from 2000 to 2008. A statistical review of the data before and after 2003 verified that the percentage of students grading into English 093 did not significantly change during the course of the study, therefore, it

was determined that there was no major difference in the academic standing of freshmen entering Shelton State. Additional support for this was provided by examining the percentage of students scoring into English Composition (English 101) during the 2000 to 2008 timeframe. The average percentage of students grading into this class before and after 2003 was 43.1 % and 45.7% respectively and the overall increase in enrollment in English 101 increased less than one percentage point from 2000 to 2008. As before, a dependent *t* test illustrated that the percentage of students scoring into Freshman Composition remained consistent throughout the study.

The only class that did not support the COMPASS trend of consistent academic standing between 2000 and 2008 was English 092. A comparison of the percentage of students grading into this class in 2000 and 2008 illustrated a decline in enrollment of only 3%; a result that matched the trends observed in previous developmental and freshman level college credit courses. Interestingly, there was a 10% decline in the percentage of students scoring into English 092 between 2000 and 2005. After this decline, the percentage of students grading into English 092 increased from 2005 to 2008 by 21.3% (see Table 2). Thus, more than half of the decline observed in the percentage of students in this English class was eliminated in a three year time period. Although these results were contradictory to the previous COMPASS based enrollment patterns, it was presumed that much of the statistical difference observed in the data for English 092 could be attributed to a sharp decline in calculated GPA in the middle of the study (2003-2005). Since the overall decline in student enrollment for English 092 from 2000 to 2008 was similar to the trends observed in other classes, it was concluded that this data did not indicate a substantial change in the academic background of students enrolling in classes at Shelton State Community College.

Based on the trends observed in COMPASS entrance exam data, it was concluded that the academic background of students enrolling in Shelton State Community College remained consistent during the 2000 to 2008 timeframe. More importantly, the COMPASS data did not illustrate a major change in the academic standing of students entering the institution before and after 2003. This determination is critical since the overall purpose of this project was to examine the relationship between attendance policies and student grades. In short, the consistency in COMPASS exam results between 2000 and 2008 indicated that any changes in student grades at Shelton State were related to issues other than the academic background of the students enrolling in the institution.

Research Question 2

The second question addressed in this project was a far-reaching question that examined changes in a yearly calculated grade point average for all academic courses taught at Shelton State Community College. The grade point averages were calculated for each year starting in 2000 and ending in 2008, with special consideration given to a comparison of these figures before and after 2003. For this study, 2003 was a critical year because the institution changed from a punitive to a non-punitive attendance policy during this year. Since the COMPASS data for Shelton State indicated that the academic background of entering freshman remained consistent at the institution during this timeframe, then any changes in grade point average would be related to the attendance policy.

The calculated grade point average data provided several interesting points relative to the relationship between attendance policies and student grades. First, there was a clear decline in grade point average throughout the course of this study. Specifically, there was an overall 10% drop in grade point average when comparing 2000 (GPA 2.17) to 2008 (GPA 1.94). This

statistical drop in grade point average suggested that a non-punitive attendance policy was negatively correlated with grades. These results provided documentation to support Hancock's (1994) conclusion that student absences had a negative impact on grades in college level classes. Secondly, a review of the mean grade point averages before and after 2003 verified that grades declined. The mean grade point average for those years prior to 2003 was 2.10 while the same measurement was 1.94 for the years after 2003. This 9% difference in average grade point values indicated a significant decrease in student grades with the implementation of a non-punitive attendance policy at Shelton State Community College. A dependent *t* test comparing mean calculated grade point averages before and after 2003 verified that grades were significantly lower after 2003. This result completely supported Van Blerkom's (1992) work that illustrated a statistical link between attendance and student grades. Specifically, Van Blerkom observed a positive correlation between class absence and lower grades. Perhaps the most telling point in this discussion was the substantial drop in grade point average from 2003 to 2004. The calculated grade point average for 2003 was 2.14; while the same calculation for 2004 was 1.96. This one year, 8% drop in student grade point average accounted for the largest one year drop in calculated point average. Furthermore, this substantial drop in student grades occurred in the very year that Shelton State Community College moved from a punitive to a non-punitive attendance policy. Ironically, the calculated grade point averages remained low (below 2.0) after this substantial one-year decline. Due to these facts, the calculated grade point averages indicated that types of attendance policies were correlated with student grades.

The calculated grade point average values for all academic courses taught at Shelton State Community College between 2000 and 2008 illustrated a major decline in student grades after 2003. In 2003, the institution implemented an attendance policy that did not allow

instructors to count attendance as part of the final course grade. Immediately following the implementation of this non-punitive attendance policy, calculated grade point averages declined. Statistical significance for this decline in grade point average was verified by dependent *t* test results. Furthermore, these values remained low throughout the 2004 to 2008 timeframe. Two major conclusions were clearly associated with this calculated grade point average data. First, student grades did decline when Shelton State Community College implemented a non-punitive attendance policy. This is likely due to the fact that a non-punitive attendance policy does not provide students with an incentive to attend class; therefore, many of them choose to skip class. Finally, an attendance policy that deducted points for student absence was correlated with higher calculated grade point averages. In short, students were more likely to attend class when they perceived that attendance could be counted against as a part of their grade. Essentially, this increased chance of student attendance increased the chance for improvement in overall grades. Therefore, this data verified previous studies (Hancock, 1994; Gunn, 2003) that positively linked required attendance in college classes with improved student grades.

Research Question 3

The third research question focused on a comparison of student grades in freshman and sophomore level biology classes at Shelton State Community College. In this study, calculated grade point averages for the freshman level class Principles of Biology I (BIO 103) were descriptively examined and compared to the same measurements for the sophomore classes Human Anatomy and Physiology I and II (BIO 201/202) and Microbiology (BIO 220). As before, special attention was given to a review of grades in each course before and after 2003. This question was included as part of this project in an effort to determine if there was a correlation between attendance policies, grades and student experience level.

An examination of the calculated grade point averages for Biology 103 indicated that these values declined by 19% from 2000 to 2008. This decline was first observed at the beginning of the study, between 2000 and 2001. Moreover, the greatest one year decrease in grade point average occurred between 2003 and 2004; the year that Shelton State changed from a punitive to a non-punitive attendance policy. After 2004, the calculated grade point averages exhibited a moderate decline throughout the next three years. Furthermore, the mean grade point average before 2003 was 1.64; whereas the mean value after 2003 was 1.33. This decline in mean calculated grade point average represents a 19% decline after Shelton State moved from a punitive to a non-punitive attendance policy. Statistical support for this reduction in grades was provided by the dependent *t* test results. Even though the decline in grade point average was noticeable before 2003, the results of the dependent *t* test that compared biology scores before and after 2003 indicated that the decline in calculated grade point average was statistically relevant; thus, grades were lower after the institution changed attendance policies. Interestingly, the Principles of Biology data mirrored the results obtained in a comparison of grade point averages for all academic courses taught at Shelton State Community College before and after 2003. This portion of the study supported Moore's (2005) view that regular attendance enhanced learning in a Principles of Biology class. Thus, from the current data, it was determined that non-punitive attendance policies and lower General Biology grades are related. This conclusion is based on the fact that calculated grade point averages declined substantially following the implementation of a non-punitive attendance policy. Moreover, this data illustrated the need for some type of attendance reward for freshman students in an effort to motivate the students to attend class; which in turn, should improve student grades.

The yearly calculated grade point averages for the human anatomy courses reviewed in this project remained relatively consistent throughout the 2000 to 2008 timeframe. One interesting observation from this data was the overall increase in grade point average between 2000 and 2008. By 2008, the calculated grade point average for anatomy courses at Shelton State Community College was 1.97, an 11% increase over the 2000 calculation. This appeared to be a substantial increase; however, the mean grade point averages before and after 2003 (1.82 and 1.79 respectively) suggested that this increase was minimal. Furthermore, the dependent *t* test measurement indicated that this change was not substantial. Thus, based on this data, human anatomy and physiology grade point averages remained similar during the test period of this project. Since the only distinct trend in this data was an increase in yearly grade point average, it was determined that attendance policies were not related to anatomy and physiology grades. These results from sophomore level classes provided support to Hammen and Kellend's (1994) conclusion that grades were not related to attendance policies. Therefore, as a result of the current study, it is concluded that sophomore level students can achieve grades successfully without using attendance rewards. More than likely, the consistent grades observed by the sophomores in this anatomy class is due to an increased maturity and experience level in second year college students.

Calculated grade point averages were also examined in microbiology classes at Shelton State Community College between 2000 and 2008. This course is an upper level, sophomore class required for students entering into a medical related field (i.e. nursing, physical therapy). In this course, calculated grade point averages remained consistent throughout the study period; which indicated that upper level students are not as affected by attendance policies as younger students. A previous study examining student success rates in a microbiology class by Hyde and

Fluornoy (1986) suggested that grades associated with an upper level microbiology class were not in any way related to student attendance patterns. The current study provided additional proof for Hyde and Fluornoy's (1986) result that grades in upper level science courses were independent of the type of attendance policy that was in place.

In this project, a descriptive examination of the yearly grade point average values for Microbiology courses indicated that student grades remained extremely consistent between 2000 and 2008. Furthermore, the mean calculated grade point average before 2003 was 1.8 and 1.7 after this critical year. Clearly this suggested that grades did not change substantially in this sophomore science class. Along with the descriptive data, a dependent *t* test analysis verified that there was no statistical change in calculated grade point average for microbiology during the 2000 to 2008 timeframe; thus supporting Hyde and Fluornoy's earlier conclusions. Due to these facts, it was concluded that attendance policies in upper level science courses are not related to student grades. As previously stated, this consistency in grades was related to the student's increased experience level.

Several conclusions can be established based on the analysis of calculated grade point averages for freshman and sophomore level biology courses at Shelton State Community College. First, it is indicated that attendance policies were more closely related to freshman grades than sophomore grades. This is proven by the significant decline in grade point average for students in freshman biology courses in the immediate year in which the institution moved from a punitive to a non-punitive attendance policy. Based on the data for freshmen enrolled in general biology classes, it was clear that a punitive attendance policy offered the necessary incentive to encourage first year students to attend class, which in turn, increased their grades. However, during this timeframe, student grade point averages in sophomore level biology

courses remained consistent. Secondly, it was determined that the attendance policy-student grade issue could be influenced by the experience level of the individual student. In this portion of the study, the data verified that students who had been enrolled in school for a longer period of time were more capable of successfully completing a science class, even in the absence of a demanding attendance policy. As a result of these findings, it is suggested that more experienced students are motivated to attend class and successfully complete the course, regardless of the type of attendance policy in use at the college; whereas freshmen students will benefit academically from a mandatory attendance policy that provided a class attendance incentive.

Research Question 4

Research question 4 considered the correlation between student demographics, attendance policies and student grades in biology classes taught at Shelton State Community College between 2001 and 2005. This portion of the study focused on the percentage of grades (A's, B's, C's, D's, F's, W's) that each demographic group achieved. Particular emphasis was given to a review of the percentage of students from each demographic group achieving each specific grade before and after 2003. This data illustrated whether student grades changed for any of the demographic groups after Shelton State Community College moved from a punitive to a non-punitive attendance policy.

Throughout the course of this study, white females consistently performed at a higher level than students from other demographic groups. This is based on the fact that white females accounted for the highest percentage of A's, B's and C's in biology courses during between 2001 and 2005. This was related to the fact that white females account for more than 50% of the institution's total enrollment. A further descriptive review of this data indicated that the percentage of black females and white males achieving each letter grade was similar throughout

this study. In fact, the difference in the percentage of A's, B's and C's achieved by these groups was less than 2% throughout the study. Moreover, these findings illustrated that black females and white males ranked second only to white females in total percentage of A's, B's and C's achieved during the research period. Once again, this is attributed to the fact that white males and black females account for the second and third largest groups enrolled at Shelton State Community College.

A more intense study of the grades achieved by each demographic group at Shelton State Community College indicated one major trend. This trend was the overall consistency in grades for each group in biology courses between 2001 and 2005. Specifically, the percentage of each student group achieving a certain letter grade remained similar throughout the course of this project; a fact supported by Gizachew (2007), who noted a minimal correlation between demographics and student grades. Furthermore, there was no distinct change in any of the demographic groups relative to the percentage of students achieving each letter grade after 2003. Recall that this was the year that Shelton State Community College initiated a non-punitive attendance policy. Moreover, ANOVA data supported this view that grades did not change among the various demographic groups throughout the study period. Therefore, this review of grades suggested that they do not change over time among the various demographic groups. Likewise, it was concluded that the change from a punitive to a non-punitive attendance policy was not related to grades among the various demographic groups.

Research Question 5

The fifth and final research question for this project attempted to determine which factors (attendance, student experience level and demographics) associated with college classes, were most related to student grades. Furthermore, each of these factors was examined before and after

2003 in an effort to document any changes in student grades as Shelton State moved from a punitive to a non-punitive attendance policy. Finally, an effort was made to detail any overlapping student grade trends observed between attendance, experience level and demographics.

In this project, student grades were most closely related to attendance policies and college experience level. Based on calculated grade point averages, these two factors were shown to be negatively correlated with grades. Specifically, Shelton State's move from a punitive policy to a non-punitive policy in 2003 led to an immediate and distinct 9% drop in calculated grade point averages. Furthermore, the grade point averages remained low throughout the remainder of the study period. Additional proof for the attendance policy-grade relationship was provided by the dependent *t* test measurements which verified that the decline in student grades was statistically significant. The evidence obtained in this portion of the project is critical since it clearly indicated a positive correlation between punitive attendance policies and student grades. Therefore, these results offered strong documentation for earlier studies that positively linked attendance and student grades (Moore, 2005; Gump, 2005).

Interestingly, the calculated grade point average data for students enrolled in freshman biology (Biology 103) at Shelton State during the 2000 to 2008 timeframe matched perfectly with the data detailing the relationship between attendance policies and grades. In this case, grades in Biology 103 declined by 19% after 2003, the year in which the college changed to a less strenuous attendance policy. Furthermore, the grade point averages remained low throughout the remainder of the study. On the other hand, calculated grade point averages in sophomore level science classes (Anatomy and Physiology, Microbiology) remained consistent throughout the 2000 to 2008 timeframe. In both of these courses, grade point average values were similar

before and after the 2003 change in attendance policy. The dependent t test calculations provided further proof for this by verifying that grades were statistically similar before and after the change to a non-punitive attendance policy. Clearly this data indicated that non-punitive attendance policies were negatively correlated with freshman grades; however, sophomore level grades were less related to attendance policies. This was more than likely due to the fact that upper level students are more experienced in the college classroom, therefore, they are less likely to need attendance motivation to attend and successfully complete a course.

Finally, this study compared the percentage of students from the various demographic groups at Shelton State achieving each letter grade in science classes between 2001 and 2005. Student grades in each demographic group remained extremely consistent throughout the course of this study. In short, the percentage of students achieving specific grades was consistent throughout the study period. Grades remained consistent among each demographic group even after Shelton State Community College shifted from a punitive to a non-punitive attendance policy. Therefore, based on this data, it is concluded that there was no correlation between demographics, attendance policies and student grades.

Recommendations

Recommendations Related to Attendance Policies and Student Grades

Students who enroll in college courses need to understand the requirements necessary for successful class completion. They must be responsible in keeping up with their assignments, due dates, projects and exam dates. Moreover, they must be motivated enough to complete all course work effectively and in a timely manner. Along with this, they must develop effective study techniques which provide them with the best opportunity to perform at a high level.

As the data from this project indicated, attendance policies were correlated with student grades. Unfortunately, students often overlook the importance of the attendance-grade relationship. However, there are criteria that professors in higher learning can employ that will address the relationship between class attendance and grades. First, classroom instructors can establish policies that in some way make regular attendance an important part of the class. This can include the development and implementation of attendance policies that count regular class attendance towards the final grade. In addition, unannounced quizzes and other classroom projects can be included as part of the final grade in an effort to increase consistent student attendance. Secondly, instructors teaching freshman level courses should describe the importance of class attendance to their class on the first day of class. This is based on the data which reveals a positive relationship between attendance policies and freshmen grades. Furthermore, professors should utilize techniques (punitive attendance policy, unannounced quizzes) that encourage freshman class attendance. The implementation of these policies can have a positive effect on attendance, which in turn, could increase student grades.

Recommendations Related to Student Demographics and Grades

This study did not implicate student demographics as a major variable related to student grades; however, there are several necessary recommendations that can be made relative to this issue. First, institutions need to fully monitor grades for all groups of students to ensure that they are performing at a reasonable level. Further, colleges must follow retention patterns for the various demographic groups enrolled at the institution in an effort to ensure that students are successfully completing their course work. Finally, student service offices can establish tutoring programs for students in all demographic groups across all academic disciplines. This should include subject specific tutors from each demographic group. These simple steps should allow

colleges and universities to provide an effective educational experience for all students, independent of their academic or demographic background.

Recommendations for Future Research

The primary purpose of this was to examine the relationships that exist between attendance policies and student grades. Specifically, this study compared grades before and after the implementation of a nonpunitive attendance policy. Furthermore, this project examined the correlation between student demographics, class standing and final grades. Although this work provided beneficial data on these topics, there were variables associated with this project that remain for future studies. One such variable that requires additional study is the overall relationship between grades and the age of the student. The current project generally reviewed the influence of class standing on final grades, however, an in-depth study is needed to identify the correlation between a student's age and final course grades. Some studies have attempted to address the relationship between student age and final grades. For example, Hyde and Fluornoy (1986) suggested that there was no correlation between grades and attendance in an upper level immunology class. Moreover, Sade and Stroud (1982) detailed a weak correlation between grades and attendance in first year medical students. Collectively, these works suggested that that more experienced students do better in classes when compared to younger students. However, a study should be designed to specifically investigate and compare grades of younger students versus older students in a specific department.

Secondly, a study should be conducted to identify student and faculty attitudes relative to the relationship between attendance and grades. This work would include surveys of both students and faculty that ask specific attendance-grade related questions, along with methods that illustrate the correlation between attitudes and classroom attendance. Friedman, Rodriguez and

McComb (2001) interviewed faculty and discovered that as many as “25% of their students were absent on any given day” (p. 167). Likewise, Galichon and Friedman (1985) surveyed students about their views related to attendance. They noted that students admitted missing class because of beautiful weather and to complete assignments in other classes. Although these studies offered ideas relative to the attitudes of faculty and staff towards attendance, they did not attempt to link these views directly to grades. Therefore, a study is needed that relates faculty and student attitudes on attendance to final course grades.

Next, teaching methods should be examined to identify relationships between classroom teaching techniques, student attendance and final course grades. Related to this, an examination of grades in a variety of course types (on-line, blended, traditional) should be reviewed in an effort to identify which class type is correlated with higher grades. Sharma et. al. (2005) examined grades in a student centered physics course that offered specialized out of class tutorial sessions. These researchers noted that students who regularly attended these sessions scored higher on exams. Furthermore, Jairath and Stair noted that they did not attempt to monitor attendance in their web based nursing courses. They noted that students should be able to complete these special courses without a specific attendance related component to the class. Based on these mixed results, a study should be developed to compare attendance policies and grades in nontraditional classes.

Chapter Summary

Current research has provided mixed results on the relationship between attendance and student grades (Gump, 2005; Hammen & Kellend, 1994). The primary purpose of this project was to determine whether attendance policies were related to student grades. Furthermore, this study examined Shelton State’s COMPASS entrance exam scores for incoming freshman. This

descriptive and statistical review was completed in an effort to ensure that the academic background of students entering the college remained consistent throughout the 2000 to 2008 research period. In addition, this research project searched for trends related to student experience level, demographics, attendance policies and overall course grades. Data from this research project illustrated which factors were most closely related to student grades.

The results of the COMPASS entrance exam data revealed that the academic background of students enrolling in Shelton State Community College remained consistent throughout the eight year study period. A descriptive review of this information suggested that the percentage of students scoring into the various COMPASS related math and English classes remained similar between 2000 and 2008. This result was verified by a dependent *t* test, which indicated that there was no statistical change in COMPASS scores before and after 2003. Based on these results, it was concluded that the academic background of students entering the college did not change during the research period. Due to this, any changes in student grades during the test period must be attributed to factors other than changes in the academic background of students entering Shelton State Community College.

As mentioned, the primary purpose of this study was to examine the relationship between a change in attendance policy and student grades. In this portion of the study, a yearly grade point average for all academic courses taught at Shelton State between 2000 and 2008 was calculated. Special attention was given to a descriptive and statistical analysis of the average values before and after 2003 since this was the year that Shelton State Community College changed from a punitive to a non-punitive attendance policy. A descriptive review of calculated grade point averages after 2003 revealed a marked decrease in student grades. This suggested that the change to a non-punitive attendance policy was negatively correlated with student

grades. A dependent t test comparing mean grade point averages before and after 2003 verified that the observed decline in grades was statistically important. Thus, these results illustrated that there was a negative relationship between attendance policies and student grades. In short, this project implicated an attendance policy that does not count attendance as part of the final course grade as having a negative relationship with grades. Therefore, it is concluded that attendance policies are related to student grades.

This project further examined the attendance policy-student grade relationship by comparing calculated grade point averages in freshman and sophomore level biology courses before and after 2003. Data for the freshman level Principles of Biology class illustrated a decline in calculated grade point average when Shelton State moved to a non-punitive attendance policy. Moreover, student grades remained low throughout the remainder of the study period. A dependent t test verified that this decline in grade point average was statistically significant, thus, it is concluded that attendance policies and lower grades in freshman classes are related. However, a descriptive review of yearly grade point averages for two sophomore level courses (Human Anatomy and Physiology and Microbiology) revealed that student grades remained relatively unchanged during test period. Proof for this consistency in student grades was provided by a dependent t test which illustrated that grade point averages were statistically similar before and after 2003. From these results, it was concluded that attendance policies were more closely related to freshman grades than sophomore grades. Such evidence indicated that student experience level and motivation have an influence on student grades.

Finally, a descriptive analysis of student demographics was conducted in an effort to determine if there were trends in student grades associated with this variable. This project specifically reviewed the percentage of students from each demographic group achieving each

letter grade (A, B, C, D, F, W). Furthermore, the percentage of students receiving each letter grade was compared before and after 2003 in an effort to determine if a change in attendance policy was correlated with student grades. Based on the calculated data for this portion of the project, it was determined that student grades among the various demographic groups remained consistent throughout the study period. In essence, there were no major shifts in the percentage of students achieving each letter grade; therefore it was concluded that demographics is not related to student grades. Furthermore, it was determined that a change in attendance policy was not related to student demographics.

This study has provided documentation that illustrated a link between attendance policies and student grades, freshman level students. Furthermore, this project has laid the groundwork for future studies to examine and document the relationship between attendance policies and student grades. Utilizing information from this and similar studies, college instructors can design and implement attendance related strategies to ensure that their students achieve the highest grade possible.

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