THE IMPACT OF CHRONIC TEACHER ABSENTEEISM ON STUDENT ACHIEVEMENT

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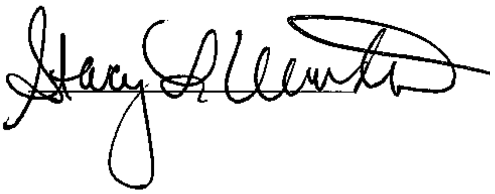

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Dedication

I dedicate this capstone project to my wife, Stephanie, who has been by my side and supported me throughout this academic experience.

To my two wonderful boys, Broderick and Preston, with the hope that this journey inspires them to be life-long learners.

To my parents, who have always believed in me and who have provided me with endless amounts of love and support as a child and as an adult.

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Abstract

The purpose of this quantitative study was to analyze the predictors of teacher absences between the 2016-19 school years and the impact of teacher absences on student achievement scores at Derry Township School District (DTSD), a school district located in Hershey, Pennsylvania. The objectives of the study included: (a) an analysis of the predictors of teacher absenteeism, (b) examining the costs associated with teacher absenteeism, (c) analyzing the impact on student achievement, and (d) recommendations to reduce the frequency of teacher absences and the associated costs. The desired outcome of this action research project was to provide substantial recommendations to DTSD and other public school systems to meaningfully address the problems associated with teacher absenteeism.

The results of the study indicated that more than 62% of teachers at DTSD were considered to be chronically absent. The cost associated with securing substitutes between the 2016-19 school years exceeded $2.1 million. In addition, the substitute fill rate in the district continued to decline. Although, the study determined that there were little to no significant differences between the achievement scores for students instructed by chronically absent teachers and those who were instructed by teachers who miss fewer than 10 days. The results of the study suggested that significant relationships between the number of teacher absences and student achievement scores did not exist. However, the demographic variables of age, gender, and years of experience were all determined to be significant predicators of teachers absences.

CHAPTER I

Introduction

Similar to many school districts across the nation, Derry Township School District (DTSD) has experienced an increasingly difficult time securing certified substitute teachers to fill day-to-day and long-term positions. As the Assistant to the Superintendent for Personnel and Students Services, it is my responsibility to secure appropriately certified substitutes to fill the district's day-to-day and long-term positions caused by teacher absences. The district, which is located in Hershey, Pennsylvania, consists of one campus that includes an Early Childhood Center (Grades K and 1), a Primary and Intermediate Elementary School Building (Grades 2-5), one Middle School (Grades 6-8), and one High School (Grades 9-12). The district serves approximately 3,500 students and employs approximately 280 professional employees. Historically, the district's statewide assessment scores have been consistently well above state and national averages, and annually, more than 90% of the graduating seniors pursue post-secondary education. As a result, expectations with regard to student achievement is high and is directly correlated to the district's motto, "every child, every day." Subsequently, securing appropriately certified substitute teachers who are capable of providing students with high-quality instruction is of the utmost importance to all stakeholder groups in the district.

When I first started in this position seven years ago, it was relatively easy to find substitutes who were appropriately certified in each content area. As a result, there were minimal concerns with regard to a substitute's ability to provide rigorous and meaningful instruction. During my first few years serving as the Assistant to the Superintendent, when a teacher was absent, the district would first reach out to substitutes who were certified in the same content area as the teacher who requested leave. For example, if a biology teacher called off sick, the

district would first contact all the substitutes who were certified in biology. In the event that the district could not secure a substitute who was certified in the same content area as the teacher who was absent, the district would then contact substitutes who held any Pennsylvania teaching certificate to fill the void. On rare occasions, when the district could not find a substitute with a valid Pennsylvania teaching certificate, a guest teacher who held an emergency permit would be used to fill the vacancy. In Pennsylvania, guest teachers are substitutes who have a bachelor's degree but have not obtained a Pennsylvania instructional teaching certificate. Unfortunately, over the years, the district's reliance on guest teachers to fill day-to-day teacher absences has significantly increased. As a result, I began to wonder and worry that the quality of instruction being provided by our substitute teachers was not at a level the district expects and/or desires. The main concern was that the vast majority of the district's substitute teachers were working under an emergency permit, and those who were appropriately certified were no longer working in the content area in which they were originally certified.

To gain a better understanding of the issues and concerns with regard to the increasing number of guest teachers working as substitute teachers, I attended the Pennsylvania Association of School Personnel Administrators (PASPA) 33rd Annual Conference. During a session that focused on updates pertaining to Pennsylvania Teaching Certifications and Permits, representatives from Pennsylvania's Department of Education's Bureau of School Leadership & Teacher Quality (BSLTQ) suggested that the increase in the number of emergency teaching certificates being issued by the Pennsylvania Department of Education (PDE) is due to a declining number of new teachers entering the workforce. The presenters indicated that, according to records obtained from Pennsylvania's Teacher Information Management System (TIMS), the number of instructional certificates and permits issued by PDE decreased from

39,387 during the 2012-13 school year to 9,530 during the 2017-18 school year. The presenters also noted that the number of emergency permits issued by PDE has significantly increased during that same time period. Specifically, during the 2014-15 school year, PDE issued only 8,751 emergency permits, while 19,603 emergency permits were issued during the 2017-18 school year. The decrease of almost 30,000 new teachers entering the workforce coupled with the increase in emergency permits directly mirrors the district's experience with respect to the growing number of guest teachers needed to fill day-to-day teacher absences. While the PASPA session addressed my questions with respect to the reasons for the district's increased reliance on guest teachers, it failed to address my concerns with regard to what impact teacher attendance and substitute teachers have on student achievement.

To complicate matters, teacher absenteeism rates at Derry Township School District have increased during this time period. According to the district's absentee records, the percentage of teachers who were absent on any given day during the 2012-13 school year was roughly 7%. This figure increased to approximately 11% during the 2017-18 school year. When analyzing the number of teachers who were absent from work daily during this period, it was determined that approximately 21 teachers missed work each day during the 2012-13 school year, while an average of 29 teachers missed work daily during the 2017-18 school year. Consequently, the cost associated with substitutes has continued to rise. During the 2012-13 school year, the district spent roughly $487,500 on substitute teacher costs. Substitute teacher costs during the 2017-18 school year ballooned to more than $680,000.

In order to quantify my concerns with respect to teacher attendance and its impact on student achievement as well as the budget, a quantitative research approach was used during my project. I started by collecting teacher absentee data via the district's absence management

system. In addition, I downloaded teacher demographic data from the district employee management system (eFinance) to determine if there were any attendance patterns with respect to gender and experience. To increase the validity of the research, I collected and analyzed teacher absentee data for the 2016-17, 2017-18, and 2018-19 school years. The quantitative data that I collected included DIBELS Next Oral Fluency scores and high school final exam grades. Furthermore, I used PVAAS data to analyze student growth based on teacher performance. Similar to teacher absentee data, the student data that I collected included scores and results from the 2016-17, 2017-18, and 2018-19 school years. Moreover, I collected financial data with respect to teacher absences by accessing the district's end-of-year financial reports.

The desired outcomes pertaining to my action research project include improved teacher attendance rates, improved student performance, and decreased substitute costs. In addition to the primary desired outcomes, the recommendations of my action research project could lead to a number of ancillary benefits for the district. These secondary benefits may include, but are not limited to, improved staff and student wellness, improved staff and student morale, increased staff and student engagement, and decreased employee health care costs. Likewise, the goal of my action research project is to provide meaningful and substantial recommendations to Derry Township School District and other public school systems with respect to addressing student performance through the lens of teacher absenteeism.

The primary research questions that I investigated included: (a) are age, gender, race, experience, grade(s) taught, level of education, and distance from work predictors of teacher absence; (b) what is the relationship between the frequency of teacher absences and factors such as age, gender, race, experience, school level, degree, and distance from work; (c) are there significant differences in student achievement scores between teachers who are chronically

absent (defined as 10 or more absences per school year) and teachers who are not chronically absent; (d) what is the relationship between student achievement scores and the frequency of teacher absences; and (e) are there significant differences in teacher absenteeism rates by leave category or days of the week?

In addition to answering the primary research question, secondary objectives with regard to my action research plan included determining the following: (a) how many teachers at DTSD are chronically absent, (b) what are the economic impacts associated with teacher absenteeism from 2016-19, and (c) what organizational factors contribute to teacher absentee rates (board policies and collective bargaining agreement, professional development) and to what extent?

CHAPTER II

Literature Review

Introduction

The topic of teacher absenteeism and substitute teacher coverage was discussed at a regional meeting of human resources supervisors in the fall of 2018. The meeting that took place had intriguing dialogue that focused on the topic area of teacher absenteeism and student achievement. During the initial searches on subject matter, it became apparent that a limited number of researchers have actually explored this topic. The early search results produced a limited number of studies and publications relevant to the topic of teacher absenteeism and student achievement. To complicate matters, the majority of search results contained studies that were conducted or published more than 20 years ago. It took an extensive and deep search to find more recent and relevant research. These studies suggested that 36% of teachers in the United States miss 20 or more days of school per year, and the financial impact of teacher absenteeism costs school districts more than $5.6 billion annually. More importantly, the research suggested teacher absenteeism seriously disrupts the consistency of the classroom environment (Folger, 2019; Griffith, 2012; Smith, 2001). However, the amount of research directly associated with student achievement scores and teacher absenteeism was still minimal in comparison to other topic areas. Fortunately, the research that was discovered provided the foundation and genesis needed to generate additional research questions pertaining to the topic of teacher absenteeism. The primary research question, along with the supplemental questions that were developed, provided the framework for the literature. After reviewing and analyzing the relevant literature, the topic of teacher absenteeism for this literature review was divided into three central themes: the problems, the reasons for the cause of the problem, and the solutions to the problem.

Problems Associated with Absenteeism

According to Pitcoff (1993), absenteeism is a costly problem that plagues all industries and occupations in both public and private sectors of the United States. Until recently, teacher absenteeism has received considerably less attention when compared to absences in other occupations and industries (Ehrenberg, Ehrenberg, Rees, & Ehrenberg, 1991). In a state-wide study of school personnel directors, 71% of the respondents indicated that adequately addressing teacher absenteeism was the biggest challenge they faced (Norton, 1998). School personnel directors also indicated on the same study that finding and securing substitute teachers was another job challenge that they encountered daily. Although the study conducted by Norton occurred roughly 20 years ago, the issues and concerns confronting school personnel directors have remained constant.

Absenteeism in the United States workforce. Although it is generally acceptable for an employee to miss a small number of days of work for justifiable reasons such as emergencies and unexpected illness, the problem with absenteeism is that once it becomes a regular occurrence for an employee or the employee is intentionally absent from work, the tendency to repeat the same behavior increases (Porter & Steers, 1973). According to Gaziel (2004), employee absences can be grouped into two categories: voluntary and involuntary absences. Voluntary absences are when an employee intentionally misses work while involuntary absences are beyond the control of an employee. Examples of involuntary absences include certified illness, injury, bereavement, or emergency. Voluntary absences commonly include vacation, personal, and uncertified sick leave. Gaziel further argued that voluntary absences generally occur in patterns of short durations and high frequency. One of the difficulties in researching absenteeism is determining how much freedom employees have to make their own decisions as to whether to

be absent. For this reason, much of the research on absenteeism is focused on two important variables: an employee's motivation to attend and an employee's ability to attend (Steers & Rhodes, 1978).

From a fiscal perspective, the Society for Human Resource Management (SHRM) in 2013 estimated that the total direct cost of employee absences as a percentage of payroll was 8.1%. When calculated in terms of actual dollars, Losina, Yang, Deshpande, Katz, and Collins (2017) determined that employee absenteeism in the United States costs employers roughly $250 billion per year in lost productivity. On an individual basis, unscheduled and unplanned worker absences are estimated to cost employers approximately $2,650 annually for salaried workers and about $3,600 a year for hourly employees (Forbes, 2013).

Research suggested that employee health has been determined to be one of the strongest predictors of employee absences (Mullen & Rennane, 2017). According to the Bureau of Labor and Statistics, the 2018 absence rate for full-time wage and salaried workers was 2%. This percentage equates to the average American worker missing three to 3.7 days of work per year due to illness and injury. Although the average number of days missed per worker per year is relatively low, a small percentage of employees are absent at a considerably higher rate. It is estimated that 6.5% of the workforce misses at least 10 days of work per year due to illness and injury (Ahn & Yelowitz, 2016). As a result, the majority of research is focused on employees with high rates of absences.

Teacher absenteeism. According to Clotfelter et al. (2009), understanding why teachers are absent is important for four main reasons. These reasons include (a) the costs associated with hiring a substitute teacher, (b) the effect on student achievement, (c) the correlation between absence frequency and the poverty level of the school, and (d) the influence of school district

policies. In a 2008 report released by the Center for American Progress, it was determined that by the time typical students in the United States graduate, they would have been instructed by substitute teachers for approximately two-thirds of a school year. Early research specific to teacher absences indicated that absenteeism rates for educators in the United States was 5% per year, the equivalent of nine days each school year (Erhenburg et al., 1991). However, a more recent study conducted by the National Council on Teacher Quality (2014) suggested that the actual number of days teachers miss work due to being sick and/or personal reasons has increased to 12.7 days per school year. Regardless, the amount of annual discretionary leave used by teachers is disproportionate when compared to the average American worker. In 2012, the total costs associated with teacher absences in the United States were estimated to be in excess of $4 billion per year (Miller, 2012). A more recent report estimates that teacher absences cost school districts more than $5.6 billion per year (Folger, 2019; Kocakülâh, Bryan, & Lynch, 2019). When calculated on a per-teacher basis, absences cost school districts approximately $1,800 annually for every teacher they employ (National Council on Teacher Quality, 2014).

While the total number of days teachers miss per school year is alarming, the percentage of teachers who are identified as being chronically absent from work each year is even more troubling. In a report issued by the Center for American Progress (2012), during the 2009-10 school year, 36% of public school teachers in the United States were absent from the classroom for 10 or more days. As Miller (2012) noted, absentee rates vary greatly from state to state, with the state of Utah reporting the fewest percentage of teachers who miss 10 or more days of school per year. School districts in Rhode Island reported the greatest percentage of teachers being chronically absent. The percentages ranged from a low of 20.9% to a high of 50.2%. The absentee rate for teachers in Pennsylvania who were chronically absent during the 2009-10

school year was 36.2% (Miller, 2012). According to Griffith (2012), a large part of the issue lies within the number of sick and personal days that are annually afforded to teachers. The report issued by Thomas Fordham Institute indicated the average teacher in the United States is provided with a combined 12 sick and personal days per year while only one-third of the United States workforce is provided with the equivalent amount of leave.

The rate at which teachers are absent from school varies greatly between public and charter schools. As mentioned previously, 36% of public school teachers are chronically absent, while only 10.3% of charter school teachers miss 10 or more days of school per year (Miller, 2012; Griffith, 2017). The research suggested the main factors that contribute to the discrepancies in teacher attendance rates can be attributed to policy and collective bargaining agreements.

Although the percentage of teachers in the United States who are chronically absent and the frequency in which they miss work appears to be high, the numbers and percentages are far more extreme in other parts of the world. For example, while the rates of teacher absenteeism in the United States is roughly 5%, teachers in Papua New Guinea miss work 15% of the time and teachers in Zambia annually experience absent rates of 18%. In a survey conducted by the World Bank, teacher absenteeism rates in Peru, Indonesia, Uganda, and Kenya were 11%, 21%, 27%, and 30%, respectively (Obiero, Mwebi, & Nyang'ara, 2017). The vast majority of research indicated that teacher absentee rates are greatly influenced by student poverty levels (Obiero et al., 2017; Rogers & Vegas, 2009). This theory is supported by the fact that the absentee rate for teachers in developed countries is much lower than that of teachers in the developing world. For example, teacher absentee rates in the United Kingdom and Australia are 3.2% and 3.1%, respectively (Miller, 2008).

Impact of substitute teachers. In a national study, it was determined that approximately 70% of public schools in the United States identified a shortage of substitute teachers as a growing concern (Smith, 2001). To complicate matters, fears with respect to substitute teachers go much deeper than just the financial implications. Additional concerns with respect to substitute teachers extend to the quality of substitute training, the teaching skills of a substitute teacher, and the overall perceptions and attitudes toward substitute teachers.

When school districts are fortunate enough to find enough substitutes to fill classrooms vacancies, the costs associated with employing substitute teachers can often be financially burdensome (Damle, 2009; Gonzalez, 2017). Data obtained from the National Education Association (NEA) suggested that substitute pay rates vary greatly from state-to-state and district-to-district. The most recent data on the NEA website indicated rates for substitute teachers range from $35-135 per day.

The majority of substitutes receive minimal training before entering the classroom (Damle, 2009). Due to the lack of preparation and training, substitute teachers quite frequently are unable to provide instruction with the same continuity and rigor that the permanent classroom teacher would likely have provided. Other factors, such as knowledge of the specific subject matter and the ability to form relationships with students also contribute to the lack of continuity in instruction (Woods & Montagno, 1997). Due to the contributing factors referenced above, substitute teachers are often unable to provide instruction at the same level as the regular classroom teacher (Miller et al., 2008). It should be noted that while substitute teachers in the United States are often ill-prepared to enter the classroom and lack the necessary skills needed to be successful, they are often better equipped and qualified than their counterparts in other countries (Miller et al., 2008).

An additional concern with respect to substitute teachers is general belief and perception by classroom teachers that substitute teachers are inferior when compared to the permanent classroom teacher. One of the major factors that contribute to this perception is the concept that employees who have substandard qualifications often are paid lower rates when compared to their highly qualified peers. Likewise, low pay is also associated with employees who lack technical or specialized skills (Cardon, 2002). As a result, classroom teachers regularly assign substitute teachers tasks and assignments that mirror that of an ill-informed babysitter. Quite often, substitute lesson plans consist of showing movies and providing students with simple worksheets to complete (Damle, 2009; Miller et al., 2008; Woods & Montagno, 1997). For these reasons, the research implies that substitute teachers both directly and indirectly have a negative influence on student achievement (Miller et al., 2008).

Impact on student achievement. There is a limited body of research with respect to the impact of teacher absences on student performance. However, the literature that does exist suggested that one of the first studies that attempted to correlate teacher absences to student achievement scores occurred in 1986-87. Ehrenberg, Ehrenberg, Rees, and Ehrenberg (1991) examined and analyzed teacher and student absenteeism at more than 700 school districts in the state of New York to determine the impact teacher absences had on student achievement levels. Unfortunately, the study analyzed only student pass rates on standardized tests. Therefore, the researchers concluded that teacher absenteeism, for the most part, did not impact student pass rates on standardized assessments. However, the researchers did note that additional research should be conducted to see how teacher absenteeism impacts students who perform well above the “minimal pass” level.

A similar study to determine the negative effects of teacher attendance on student achievement was conducted by Woods and Montagno (1997). This study examined reading levels as determined by the Iowa Test of Basic Skills for two select school districts in Indiana and Wyoming. In this particular study, the skills test was administered in the fall to third grade students in the two selected schools and then again to the same students the following school year. Woods and Montango concluded that the data supports the notion that teacher absenteeism has a negative effect on student achievement. Similar to the previous study, the researchers recommended further studies be conducted to continue exploring the impact teacher absenteeism has on student achievement scores.

Although early research, with respect to teacher attendance and its impact on student achievement, produced mixed results, a more recent study conducted by Clotfelder et al. (2009) found a statistically significant correlation between teacher absences and student achievement scores. The researchers in this study examined leave patterns for teachers in North Carolina from the years 1994-2004 and the influence on student performance in both math and reading. The results of the study indicated that students had reduced math scores compared to their peers when instructed by a teacher who was absent from work for 10 or more days due to sickness. Likewise, the achievement scores for students who were instructed by a reading teacher who missed 10 or more days due to illness were lower than their peers. Although scores in both subject areas were negatively impacted by the number of days a classroom teacher was absent, the researcher found that teacher absences had a greater impact on math scores than reading scores.

A study conducted by Miller et al. (2008) analyzed the negative effects of teacher absences on a single large urban school district in the northern part of the United States. The study examined teacher leave patterns of 285 fourth grade teachers between the 2003-05 school

years. The results of the study indicated that student test scores were lower in classes where the teacher was absent from work 10 or more days during the course of the school year. Moreover, the researchers suggested that for every 10 additional days a teacher is absent, the student achievement scores decreased in math by 3.2% of a standard deviation. This study confirmed the early findings of Clotfelder et al., which indicated student achievement scores are impacted by teacher absenteeism rates at a substantially higher degree in mathematics than in other subject areas.

Additional research by Brown and Arnell (2012) further supported the connection between teacher absenteeism and student achievement. The study compared SAT 10 assessment scores for elementary students who attended a Title I school in Montgomery, Alabama. The researchers examined data for students and teachers in grades three through six between the years 2006-09 to see if there was a correlation between student achievement and teacher absenteeism. The authors concluded that student achievement scores decreased as teacher absences increased. It was further determined that to minimize the detrimental impacts associated with teacher absenteeism, school leaders should limit the number of days teachers miss to no more than 10 days per year (Brown & Arnell, 2012).

According to the United States Department of Education, a teacher who misses 10 or more days of work per year is classified as being chronically absent. Although the results are somewhat mixed, the majority of research indicated that teachers who are chronically absent negatively influence student achievement scores. While this body of research is significant, the researchers in these previously mentioned studies provided no insight as to the correlation between the actual number of days missed and/or a range of days missed by the classroom teacher and student achievement scores (Brown & Arnell, 2012; Clotfelder et al., 2009;

Erhenberg et al., 1991). Cantrell (2003), however, examined this very question. The study analyzed teacher absentee rates in the Los Angeles Unified School District (LAUSD) during the 2001, 2002, and 2003 school years. The researchers divided teachers into five different groups dependent on the percentage of days they missed per school year. For the purpose of comparison, a teacher in the LAUSD who was absent 5-6% of the time was equivalent to a teacher missing 10 days of school per year. The study found that students who were instructed by teachers who were absent less than 2% of the time outperformed their peers who were instructed by teachers in all other comparison groups and in all subjects (math, reading, and language). The results were even more dramatic when the researchers compared student achievement scores for teachers in the group that missed work the least amount of time against the scores of teachers who missed work the most.

Similarly, Colquitt (2009) set out to determine if student achievement scores were influenced by the specific amount of leave a teacher used per year. In order to answer this question, the researcher collected fifth grade student achievement scores on the statewide mathematics assessment and compared the achievement data against attendance records for fifth grade teachers who worked in a large suburban school district in Georgia. To determine the impact on student achievement scores, the research divided teacher leave into four separate categories that included: (a) teachers who missed four or less days of school per year, (b) teachers who missed between five and 10 days, (c) teachers who were absent between 11 and 14 days, and (d) teachers who missed more than 14 days per year. While the purpose of the study was to determine if student achievement scores were influenced by the specific amount of leave a teacher missed per year, the researcher concluded that there was no statistical difference with

respect to the amount of leave taken by a teacher and the academic achievement level of their students.

Likewise, in a more recent study conducted by Niemeyer (2013), it was concluded that there was no statistically significant difference between the number of days a teacher was absent and reading proficiency levels for students in kindergarten through third grade. In this particular study, the researcher examined the composite scores on the spring DIBELS Next literacy assessment and compared them against the number of days a teacher was absent from class. While Clotfelder et al. compared teachers who missed work 10 days or more for sick purposes, Neimeyer compared teachers who were absent from the classroom for 10 days or more during the school year for any reason. Niemeyer noted that more than 65% of the teaching staff who participated in the study were absent from the classroom 10 or more days during the school year. Since such a large percentage of teachers missed 10 or more days of work, the researcher divided the total teacher absences into five levels ranging from zero to four days to 35 plus days. The researcher then disaggregated the data to gain a better understanding as to how teacher absenteeism impacted student achievement. However, as previously mentioned, Niemeyer found no statistical differences between absence rates of teachers and student achievement scores.

Although there is conflicting evidence with regard to the correlation between teacher absences and student performance, the majority of research indicated that teacher absences negatively influence student achievement scores. In fact, one study found that every 10 times a teacher misses work is the equivalent to a student being instructed by someone with two to three years of less experience (Miller, 2008). Furthermore, a 2012 report released by Hanover Research indicated that scholars from Harvard University also determined that mathematics scores are significantly reduced each time a teacher misses 10 days of school. Finally, the

literature implies that chronic teacher absenteeism impacts mathematics scores to a greater extent when compared to other subject areas (Cantrell, 2003; Clotfelder et al., 2009).

Impact on student attendance. Bowers (2001) asserts that an increase in student absenteeism should not correlate to an increase in teacher absenteeism and vice versa. However, the small body of research that was conducted in this area implied that lower teacher absenteeism led to lower student absenteeism (Bowers, 2001; Ehrenberg et al., 1991). Conversely, Bowers (2001) contended that lower student absenteeism has been shown to have a positive influence on teacher attendance rates. The research also suggested that student achievement increases as student attendance rates increase (Ehrenberg et al., 1991). The research from this early study was supported by a study conducted a few years later that examined pay incentives on teacher absences in one New York district. This study concluded that it is reasonable to assume that there is a positive correlation between teacher attendance rates and student absenteeism (Jacobson, 1990). A more recent study that analyzed data from an anonymous, large urban school district in the northern United States determined that when student attendance rates increased, the teachers' absentee rates decreased (Miller, 2008). It should be noted that each of the studies that explored the connection between teacher and student absenteeism clearly indicated the need for additional research in the topic area.

Reasons for Teacher Absenteeism

The research implied that it is extremely difficult to address the problem of teacher absenteeism without first determining the degree and the extent in which the problem actually exists (Rogers & Vegas, 2009). In terms of teacher absenteeism, if school districts are able to determine the costs, frequency, and reasons for teacher absences, then they will be better prepared to find solutions to the problem.

A recent report indicated 71% of all teacher absences are a combination of sick and personal leave. Sick leave alone accounted for more than 39% of the absences. The report also noted that 20% of leave was for professional reasons. Professional leave in this instance referred to teachers being out of the classroom for school or district business (National Council on Teacher Quality, 2014). Because teachers can choose whether they want to be absent, leave taken for personal or sick reasons are often referred to as voluntary or discretionary (Clotfelder et al., 2009). Since a significant percentage of teacher leave is considered discretionary in nature, several studies have examined various determinants of teacher absences. The determinants of teacher leave generally consist of both individual and organizational characteristics. In order to gain a better understanding as to the degree in which these characteristics impact teacher behaviors, the following predictors of absenteeism are explored in this section of the literature review: size of the district, socio-economic status of students, class size, collective bargaining agreements, district policies, gender, age/experience, grade level, days of the week, time of year, job satisfaction, leadership style, and workplace climate/culture.

Size of the district. The few studies that have examined the relationship between the size of the school district and teacher absences indicated that there is a positive correlation between teacher absences and student enrollment. As such, the research indicated that as student enrollment increases, so does the rate of teacher absences (Miller, 2008; Miller et al., 2008). The notion that school size is linked to teacher absenteeism is supported through a report released by the Frontline Research and Learning Institute (2019), which indicated the average number of absences per employee is far less for small school districts than for medium, large, or extra-large school districts. The research did not yield any indications as to the reason for the correlation between the size of the district and the number of teacher absences.

Socio-economic status of students. According to Engle and Glen (2018), teachers were absent more frequently in schools that had a larger percentage of free and reduced lunch. This recent study supported the majority of existing research that suggested teachers had an increased rate of absences in school buildings that have a higher percentage of students who are considered to be economically disadvantaged (Clotfelter et al., 2009; Pitkoff, 1993). However, a report that examined the data of 40 of the largest metropolitan school districts in the United States concluded that the poverty level of the students does not significantly influence teacher attendance (National Council on Teacher Quality, 2014).

Class size. Ost and Schiman (2017) conducted research that analyzed the correlation between class size and teacher absentee rates. This study analyzed data on every public school teacher and student in North Carolina between 1995 and 2007. However, the researchers focused primarily on elementary teachers and students. The study concluded that larger class sizes in the primary elementary grades are positively linked to lower teacher absenteeism rates. There is no research that linked teacher absences to class size at the secondary level. However, additional research into this variable was recommended.

Collective bargaining agreements. Griffith (2017) examined the differences in teacher absenteeism rates between charter and public schools. The study was focused on examining the differences between these two educational systems because charter schools are void of labor agreements. While the study concluded that there was no clear evidence that collective bargaining agreements impacted teacher attendance rates, the study did conclude that in states where collective bargaining is illegal, the attendance gaps between charter school teachers and public school teachers is significantly smaller than in states where school districts are required to bargain. This study supported earlier research that suggested collective bargaining agreements

directly influenced teacher absentee rates (Erhenberg et al., 1991). Although limited, the research indicated that there is a correlation between collective bargaining agreements and teacher attendance. Griffith, in part, attributed this correlation to the myriad of job protections that are often contained in collective bargaining agreements.

District policies. Teachers in school districts that have policies that provide for a large number of sick days and bereavement leave and have established sick leave banks generally have higher absentee rates when compared to school districts that have policies that supply teachers with a limited amount of leave. Moreover, teachers in school districts that have policies that afford employees the opportunity to "cash-in" unused sick leave annually or upon retirement generally have lower occurrences of teacher absences (Erhenberg et al., 1991; National Council on Teacher Quality, 2014). Likewise, the research suggested policies that do not offer teachers the ability to roll over personal or sick leave tend to indirectly encourage teachers to annually exhaust their leave (Pitkoff, 2003). Rates of absences are generally lower in districts that have policies that include bonuses for teachers with excellent attendance (Boyer, 1994; Ehrenberg et al., 1991; Jacobson, 1990).

Gender. The report issued by the Center for American Progress in 2008 suggested that female teachers are frequently more absent than their male counterparts. The basis for this assertion is due to the fact that historically, women served as the primary caretakers for ill family members. Likewise, women traditionally took more time off than men for the birth of a child. This finding confirmed the conclusions of an earlier study that examined attendance data for junior and senior high teachers in the Mid-Atlantic region of the United States. The study found that males were absent less frequently than their female colleagues and that female teachers were absent for a greater number of days per year when compared to male teachers (Scott &

McClellan, 1990). The results of this study were even further supported by a more recent study that examined teacher leave patterns and predictors of teacher absence. The study included absence data for roughly 1,200 teachers in a single school division in Virginia who were continuously employed for three consecutive school years (Pitts, 2014). However, in similar studies conducted by Bermejo-Toro and Prieto-Ursúa (2014) and Capote Fermin (2018), the researchers concluded that there was not a significant statistical difference between the average number of sick days missed between male and female teachers.

Age/experience. Clotfelder et al. (2009) concluded that the experience level of teachers impacted the number of days they are most likely to miss during a given year. Specifically, the research suggested that second-year teachers are absent 2.8 more days than they were during their first year of teaching. This leave trend continued during teachers' third, fourth, and fifth years of experience, with the number of days increasing annually until teachers reached their fifth year of teaching. The study also indicated that this leave trend flattened out until the final years of a teacher's career, at which point the number of days a teacher is absent considerably decreases. One of the most commonly noted reasons for the decrease in absence rates for teachers nearing retirement is that the value of being able to cash out their unused leave days becomes of greater importance to them (Miller, 2008). When comparing student achievement results to the experience level of a teacher, the research suggested that students who are instructed by teachers with three or less years of experience perform lower than students instructed by teachers who have at least three or more years of experience. However, there was no noticeable difference in student achievement scores between the time a teacher reaches three years of experience and retirement (Cantrell, 2003).

Grade level. There is a small body of research that suggested that the grade configuration of school impacts teacher behavior and absenteeism rates (Clotfelter et al., 2009; Miller, 2008; Miller et al., 2008). Specifically, a few studies suggested that the absenteeism rates of elementary teachers are greater than middle school teachers, while the absenteeism rates of middle school teachers are greater than high school teachers (Clotfelter et al., 2009; Miller et al., 2008). This research is further supported by a study conducted by Miller (2008), which analyzed the absence data of approximately 2,500 teachers during a four-year span. The result of the study concluded that 37.8% of elementary teachers were chronically absent each year while the percentage of middle school and high school teachers who were chronically absent was 36.7% and 33.3%, respectively.

Day of the week. There is strong evidence to suggest that teachers are absent most often on Fridays as compared to other days of the week (Miller et al., 2008; Pitts, 2010). A report released by the Center for American Progress in 2008 noted that 5.9% of teachers were absent on Fridays and 5.1% on Mondays while only 4.4% were absent during the middle of the workweek. The high absentee rates on Fridays are a result of teachers wishing to extend their weekends, a behavior that mirrors other occupations and industries (Miller, 2008; Miller et al., 2008). Likewise, Pitts (2010) determined that teacher absentee rates increase the days prior to a holiday. This data confirms an overarching belief that teachers commonly use discretionary leave to extend their total number of consecutive days off work. Although many employees take advantage of their abilities to extend their weekends, there is some conflicting research with respect to the frequency that teachers are absent on Mondays. Some research suggested that teachers are more commonly absent on Mondays while other research indicated that teachers are

less commonly absent on Mondays when compared to other days of the week (Miller, 2008; Miller et al., 2008; Pitts, 2010).

Time of year. Miller (2008) also found that teacher absentee rates increased steadily during the fall and winter months before dropping in January. The steady rate of increase returns during the remaining months of winter and early spring before peaking during the month of May. The only other research that mentioned the correlation between teacher absences and time of year was conducted by Unicomb, Alley, and Barack (1992). The authors suggested that teacher absentee rates are higher during the months of November, January, and April. Additional research with respect to teacher leave patterns based on the time of year should be conducted and explored.

Job satisfaction. Job satisfaction is commonly defined as individuals' general attitude toward their jobs. As such, the guiding principle is that employees who are satisfied with their jobs will miss work less often than employees who are dissatisfied. This belief was examined in a study conducted by Ejere (2010), who analyzed survey data of more than 1,000 primary school teachers in Nigeria. The results of the survey indicated that high levels of job satisfaction do not necessarily result in lower rates of absenteeism. However, the author argued that teachers who are extremely dissatisfied with their jobs are generally more likely to be absent from work. As a result, Ejere concluded that a positive relationship exists between absenteeism and job satisfaction. The study further concluded that some teachers are missing work solely because they are dissatisfied with their jobs. Conversely, Diestel, Wegge, and Schmidt (2014) argued that using job satisfaction to predict individual employee absenteeism rates is a flawed measure. The authors contend that other variables may have a greater influence in determining if an employee reports to work or not. For example, employees who are extremely satisfied with their jobs may

be required to miss work due to an unexpected illness. Likewise, individuals who are dissatisfied with their jobs may be forced to work due to potential negative consequences that may result from being absent from work.

Leadership style. Imants and Van Zoelen (1995) found that teachers who work in schools that are led by principals who exhibit a directive leadership style have lower absence rates than teachers who are led by principals who prefer a supportive or restrictive style of leadership. The study concluded that teachers have lower stress levels when led by principals who play a central role in the decision-making process as it pertains to the rules and decisions that govern the school. Owen (2010) determined that teachers generally believe strong principals are leaders that are supportive in nature and provide the necessary physical resources and emotional support needed for teachers to succeed in their classrooms.

While the majority of literature supported the notion that leadership style considerably impacted employee attendance, Barge (2004) concluded that there was no significant positive relationship between leadership style and teacher absenteeism. An additional study conducted in 2010 mirrored the results of the Barge study. Carter (2010) analyzed the managerial philosophies of 90 principals throughout the state of Georgia. The data collected through the managerial philosophy survey was then compared to the absence data for teachers who worked in each principal's respective building. The findings of the study concluded teacher absences increased when principals had a more pessimistic view of the world that surrounded them. Conversely, principals who had a more positive outlook generally experienced lower rates of teacher absences. Although Carter found that there was a correlation between principal leadership style and teacher absenteeism, the differences were still statistically insignificant due to the small sample size and therefore cannot be generalized without additional research.

Workplace climate/culture. Workplace climate and morale have been linked to employee stress and consequently linked to absenteeism (Miller et al., 2008). As a result, the general consensus is that as teacher morale improved, teacher absentee rates decreased. Owen (2010) ascertained that teachers who were generally more positive with respect to their job duties had lower rates of absenteeism. The same held true for teachers who had positive opinions and attitudes with respect to their principal and colleagues. Specifically, the study showed that teachers who were provided time during the day to complete non-instructional duties had lower rates of absenteeism when compared to teachers who indicated that they were required to complete these same tasks outside their contractual hours. Similarly, Capote Fermin (2018) found that absentee rates decreased if teachers were afforded greater levels of autonomy in the decision-making process with matters that related directly to their classroom environments. However, the study concluded that the correlation between climate and absenteeism was significant only when teachers missed work due to illness. Therefore, the researchers suggested that climate impacts absenteeism rates only when teachers need to miss work due to unexpected or unplanned discretionary reasons.

Regardless of the reason and contributing factor, the research clearly indicated teachers most frequently miss work due to discretionary reasons. In a study that analyzed the leave patterns of more than 5,000 teachers in a large urban school district in the northern part of the United States, Miller (2008) found that short-term illness, which is defined as short periods of leave that occur in blocks of one or two days, accounted for 41% of all sick leave. When combined with medium and long-term illness, teacher absences for sick leave in this study accounted for 59% of all absences. The reasons that teachers are absent from work vary tremendously and can be attributed to a number of different determinants. However, the research

suggested that individual and environmental characteristics may greatly influence the frequency and duration of a teacher's discretionary leave – this especially holds true for short-term personal illness.

Solutions to Reduce Teacher Absenteeism

Rogers and Vegas (2009) suggested there are no simple answers with respect to successfully addressing and improving teacher absenteeism rates. In fact, the solutions and recommendations to combat teacher absenteeism, according to the case studies, have produced mixed results. However, it is important to note that the research indicated that districts need to be willing to take risks and develop plans that are specific to their individual situations in order to maximize their chances for success (Rogers & Vegas, 2009). Plans should include incentives, policies, and programs that reward the highest-performing staff members while providing the opportunity for all teachers to participate (Jacobson, 1990).

Board policies. According to Ehrenberg et al. (1991), leave policies have a tremendous impact on the number of days teachers are absent from school. The research conducted by Ehrenberg et al. suggested that absenteeism rates were positively correlated to the amount of leave that is afforded to each teacher. The study concluded that districts that have policies and collective bargaining agreements that contain language that offers leave for bereavement purposes but does not deduct bereavement leave from existing discretionary leave balances experienced higher rates of absenteeism. On the other hand, the authors noted district policies that allowed teachers to cash in unused sick leave noticed a decrease in the amount of leave that was actually taken. In addition, the study deduced, without explicit evidence, that policies that limit the number of days teachers can miss work to attend a conference or professional development event also experienced lower teacher absence rates when compared to districts that

do not limit the number of days a teacher can miss for professional development purposes. This early body of research is supported by a more recent report released by the Thomas B. Fordham Institute. The report authored by Griffith (2017) analyzed chronically absent teacher data from the Office of Civil Rights Data Collections. The researcher concluded that decreasing the amount of leave teachers are afforded is likely to reduce teacher absenteeism rates. However, the report noted that there is only a slight relationship that exists between district policies and the likelihood that a teacher will be frequently absent from the classroom.

Policies and collective bargaining agreements that provide teachers the ability to use personal leave are also problematic in terms of curbing teacher absenteeism. According to Pitkoff (2003), most personal leave policies do not provide teachers the ability to carry over or cash in their unused personal leave at the end of the school year. Therefore, teachers generally tend to use their personal leave rather than lose it. In order to remedy this situation, Pitkoff suggested that in order to reduce the amount of personal leave teachers use per year, school leaders should reclassify personal leave to emergency leave. The author argued that a change in classification would allow teachers the ability to use emergency leave for only unexpected and unavoidable situations, thus reducing the rate at which personal leave is used. Pitkoff also concluded sick leave banks generally increased the rates of absenteeism and encouraged teachers to use more sick leave than what is annually allotted to them. Pitkoff found that teachers in districts that have sick leave bank provisions generally did not accumulate a large number of sick leave in their individual leave banks because of their ability to access leave through the sick leave bank. Therefore, since teachers had the ability to access a sick leave bank for catastrophic injuries or illnesses, they had little to no incentive to accumulate sick leave. For this reason,

Pitkoff encouraged districts to eliminate and remove language that provided for the use of sick leave banks from policies and collective bargaining agreements.

The research also concluded that districts that had policies requiring teachers to report their absences directly to their principal or supervisor experienced lower absence rates. Teachers in districts that did not have such policies were generally required to only submit their absence via an online absence management system or a district-wide call-in system (Miller et al., 2008). The results of this study supported a previous study by Boudreau, Christian, and Theibadeau (1993) that evaluated the effectiveness of reducing absentee rates by modifying employee call-off procedures. The study, which was conducted at a private, nonprofit residential program for children with autism, found that absentee rates of unscheduled leave significantly decreased when employees were required to call their immediate supervisor in addition to the person who arranged substitute coverage. Specifically, the researchers found that unscheduled leave was reduced by 56%, 66%, and 35% in the three group homes that participated in the study.

Although the vast majority of research indicated that limiting the amount of leave and modifying reporting procedures generally lowered teacher absentee rates, there was a study conducted by Boyer-Baker in 2008 that contradicted these widely held findings. The purpose of the study was to determine if a new leave policy implemented in a large suburban school district in Kansas City, Missouri, would improve teacher absenteeism rates. The former policy provided teachers 10 sick days in addition to two personal days per year, while the new policy reduced the amount of leave per year to 10 days. The new leave policy eliminated the previous absence categories, thus allowing employees to choose how to use their discretionary leave. Some of the tenets of the new policy required teachers to report their absences directly to their principal or supervisor on Mondays and Fridays as well as submit their absence via the absence management

system. In addition, the policy included an incentive that provided teachers a cash payment for any paid leave days that were not used during the school year. Finally, teachers who had perfect attendance during the first or second semester were eligible to receive an additional monetary incentive. Boyer-Baker found that the new policy had a negative impact with respect to teacher attendance rates. As a result, teacher absenteeism increased during the course of the study. The researcher suggested the increase in absence rates was likely the result of teachers having the flexibility and freedom to use leave as they so desired. The previous policy afforded teachers with only two personal days per year, therefore limiting the amount of days teachers could miss for absences not related to health issues. In addition to the overall increase in absences, leave on Mondays and Fridays also increased during the course of the study. Boyer-Baker attributed the increase to the new policy's daily reporting requirements. As noted previously, teachers had to report absences only to their immediate supervisor on Mondays and Fridays, while leave on the other days of the week needed to be submitted via the district's absence management system. However, the research did note that a few of the districts that participated in the study required their teachers to report absences directly to their principal. These districts experienced the second-lowest amount of leave within the timeframe of the study and supported the notion that reporting procedures directly influenced teacher absence rates.

Incentive plans. Rogers and Vegas (2009) suggested that while there is no simple answer or recipe to reducing teacher absence rates, policy makers should be willing to experiment with mechanisms to improve teacher attendance. However, the authors noted that there is still a cumulative lack of evidence and research required to develop best practices with respect to teacher incentive programs. Consequently, Rogers and Vegas argued that the best method for addressing teacher absenteeism is solely dependent on the context and profile of each school

district. The authors suggested that the most promising policies or incentives should include one or more of the following components: (a) salaries and promotions contingent on performance rather than dependent on solely qualifications and experience, (b) mechanisms for accountability, and (c) an increase in intrinsic and non-monetary rewards for excellent attendance. Although Rogers and Vegas imply that there is not enough evidence to develop best practices in the area of improving teacher absenteeism, there were a few incentive plans that were referenced frequently throughout the literature that had a direct impact on teacher absenteeism.

One of the earliest school district incentive programs implemented to improve teacher attendance took place during the 1985-86 school year in the Dekalb County School System in Georgia (Grant, 2000). The school system, which employed 7,700 full-time staff members throughout its 100 schools, initiated an attendance incentive plan known as the Meritorious Attendance Recognition Program. The program individually recognized employees who missed four days of work or fewer during the school year. The program also recognized schools and departments that had high attendance rankings when compared to their respective counterparts. The goal of the program was to simply decrease absenteeism rates by one day for each staff member. During the first year of implementation, employee absenteeism was reduced by an average of 1.23 days per employee, which lowered substitute costs by $156,000 during the 1985-86 school year. The program offered employees a variety of incentives such as providing a savings bond and a letter of commendation to employees who missed four days or fewer for the year. The program also recognized employees who had perfect attendance by entering them into a drawing in which they were eligible to win a personal computer. Another highlight was the posting of all staff members who had perfect attendance. Lastly, at the end of the year, a trophy was presented to the school that had the best overall attendance record, and schools that ranked

in the top 10 for attendance were recognized on a monthly basis. As a result of the incentives, the number of employees who had perfect attendance increased from 338 to 931. Additionally, 90% of the schools also experienced improved attendance, and teacher absenteeism was reduced by 14% (Grant, 2000).

The Sugar Hill School District, located in Western New York, which had a 187-day school year, provided teachers with the opportunity to receive a share of the money from a parimutuel pool for each additional day a teacher was present beyond 180 days (Jacobson, 1989). It should be noted that the district did not create the incentive to curb absenteeism rates but rather as a means to distribute the Excellence in Teacher (EIT) funds it received from the state of New York. Regardless of the intent of the program, the objective of Jacobson's study was to see if the monetary incentive impacted teacher attendance rates. In the end, a total of 1,274 shares valued at $57.16 were distributed to approximately 200 teachers. Jacobson found that while teacher sick leave usage dropped significantly from 5.97 days to 3.84 days, the number of personal days increased from 1.23 to 1.51. The researcher suggested that teachers likely used additional personal days to take advantage of and maximize their reward with respect to the incentive. The author noted that the number of teachers who missed fewer than seven days increased by 13% when compared to the prior school year. Likewise, the percentage of teachers who had perfect attendance increased 22%. Jacobson concluded that while some teachers may have substituted their sick leave for personal leave, the data still suggested that monetary incentives have a significant impact on teacher leave patterns regardless of how large the monetary incentive is in relation to a teacher's actual salary.

Another study conducted by Jacobson (1990) examined the impacts of work-units and teacher absence in the North Forest School District located in the state of New York. In this

particular district, school administrators in cooperation with union leaders developed an incentive program to address teacher absenteeism because the district's absence rates were well above the state average. Specifically, during the 1986-87 school year, the teacher absence rate in the North Forest School District was 7.2%, or the equivalent of 13.4 absences per teacher per year. In comparison, the state average for teachers in the state of New York during the same year was 4.8%, or 8.9 days per year. The incentive plan that was created provided teachers with three additional sick days per year if they were able to reduce the district's overall teacher absentee rate by 25%. In order to reach the goal, each teacher would need to use approximately three fewer sick days than they had used the prior year. The results of the study concluded that offering group rewards as a means to improve attendance is misguided. The researchers argued that often, the individuals who have the most influence as to the program's success or failure are the same individuals who necessitated the need for the program in the first place. For example, the study revealed that teachers in schools who already had a good attendance record believed that they were unable to significantly impact the attendance behaviors of teachers who were chronically absent at other schools in the district. Additionally, a principal at one of the schools noted that there was a widely held belief that it was acceptable for teachers to annually use their allotment of sick days. This belief was most evident in teachers who were nearing retirement. Therefore, the researcher recommended that districts should create plans that are individualized and that provide all teachers the opportunity to benefit from those plans. Moreover, in order to maximize the success of the incentive plan, the program should be tiered so that the top performers received the greatest benefit (Jacobson, 1990).

In addition to the above referenced case studies, there are a number of reports that offer recommendations and suggestions to improving teacher attendance. In a report released by

Hanover Research in 2012, the authors suggested that school leaders should require teachers to report their absences directly to their supervisors. This recommendation supported earlier findings that indicated attendance rates improved when employees were required to report their absences to a person instead of an automated system (Boudreau et al., 1993; Miller et al., 2008). In addition to the reporting requirements, principals and supervisors should also receive training so they can respond appropriately (Smith, 2001; National Council on Teacher Quality, 2012).

In the 2014 report released by the National Council on Teacher Quality, the researchers suggested that in order to improve attendance, school districts should consider restricting leave on specific dates. The report indicated that 27 of the 40 districts that were included in the report implemented some form of leave restriction throughout the school year. Generally, leave was restricted during state assessment testing windows, immediately before and after a scheduled or holiday break and during times that professional development was scheduled (Hanover Research, 2012).

School districts were also encouraged to create clear guidelines and procedures to address chronic absenteeism (Norton, 1988). Additionally, school leaders should be involved in all aspects of the plan. This included being involved in the development, implementation, tracking, and evaluation of employee attendance plans. The research also suggested school leaders that fail to properly address teacher absenteeism should be held accountable by their superiors (Hanover Research, 2012; Knoster, 2016; Norton, 1998).

In the Hanover Research report (2012), it suggested that principals and school leaders should clearly articulate their expectations to teachers with respect to any attendance and incentive plans that may exist in the district. In addition to setting attendance expectations, Smith (2001) suggested school leaders should welcome back staff members regardless of the reason.

During this conversation, principals should take the opportunity to tell teachers that they were missed during their absences. If teachers are deemed to be chronically absent, principals and supervisors should plan to meet with those teachers for the purpose of reestablishing attendance expectations and reiterating that the use of discretionary leave is a benefit and not an entitlement (Smith, 2001).

Finally, the research suggested that some schools have had success by including attendance as a measure in teacher evaluations (Hanover Research, 2012; National Council on Teacher Quality, 2014). Many school districts are limited in their abilities to include absence data as a component of teacher evaluations due to state policies or laws that restrict their inclusion. For the most part, districts that have been successful in adding attendance as a component to a teacher evaluation have incorporated the additional element into existing measures that assess a teacher's competency in the area of professionalism (National Council on Teacher Quality, 2014).

Conclusion

The review of literature provides substantial evidence that the amount of annual discretionary leave used by teachers is disproportionate when compared to the average American worker, and the financial costs associated with teachers being absent from work exceeds $4 billion per year (Erhenburg et al., 1991; Miller, 2012). In addition to the financial implications, the majority of the research has shown that teacher absenteeism negatively impacts the learning outcomes of students both in terms of achievement and attendance (Brown & Arnell, 2012; Bowers, 2001; Clotfelder et al., 2009; Erhenberg, et al., 1991; Jacobson, 1990; Miller et al., 2008; Woods & Montagno, 1997). Moreover, the research suggested that achievement scores in mathematics are influenced by teacher attendance to a greater extent than other subject areas

(Clotfelder et al., 2009; Miller et al., 2008). To complicate matters, when teachers are absent from the classroom, the likelihood of finding a qualified substitute teacher who can deliver the same level of instruction when compared to the classroom teacher is very unlikely (Damle, 2009; Miller et al., 2008; Woods & Montagno, 1997).

While the amount of discretionary leave provided to teachers varies greatly from state-to-state and district-to-district, the one constant that remains is that teachers are allowed to decide for themselves whether to be absent from work (Clotfelder et al., 2009; Gaziel, 2004; Steers & Rhodes, 1978). Since teachers have the ability to make their own decisions with regard to how and when to use discretionary leave, determining the underlying reasons teachers are absent from the classroom becomes of the utmost importance. As such, the research indicated that the determinants of leave included individual and organizational characteristics that range from the gender and age of the teacher to the leadership style of the principal. While there is no clear evidence to suggest which determinant influences teacher absenteeism the most, the research indicated that factors outside of illness reasons strongly influence a teacher's decision whether to report to work (Clotfelder et al., 2009; Miller et al., 2008).

As Rogers and Vegas (2009) noted, there are no standardized plans or blueprints to successfully address the issue of teacher absenteeism. However, the literature suggested that school districts should be willing to take risks when addressing the problem of absenteeism. When developing plans, school leaders should be mindful of the determinants that specifically contribute to teacher absenteeism rates in their local school district. Likewise, based on the research, plans should be tailored in a way that not only provides all teachers the opportunity to benefit from the plan but rewards the top-performing teachers the most. In order to lessen the financial burden and improve the quality of learning for all students, a more standardized

approach that successfully addresses the issue of teacher absenteeism is worthy of further exploration and study.

CHAPTER III

Methodology

Purpose

The research that has been published on the topic of teacher absenteeism has focused on primarily the following themes: (a) predictors of teacher absenteeism, (b) the costs associated with teacher absenteeism, (c) the impact on student achievement, (d) attendance incentive programs, and (e) district attendance policies and procedures. As such, the purpose of this quantitative study was to analyze how each of these themes impact the Derry Township School District (DTSD), a school district located in Hershey, Pennsylvania. The objectives of the study included: (a) an analysis of the predictors of teacher absenteeism, (b) examining the costs associated with teacher absenteeism, (c) analyzing the impact on student achievement, and (d) recommendations to reduce the frequency of teacher absences and the associated costs.

As Rogers and Vegas (2009) noted, it is extremely difficult to address the problem of teacher absenteeism without first determining the degree and the extent to which the problem actually exists. Consequently, it is important to have a thorough understanding of the predictors and reasons why teachers are absent from work. In order to determine the degree and extent of the teacher absenteeism problem at DTSD, the study examined the effects and correlations among age, gender, race, experience, school level, degree, distance from work, and the frequency of teacher absences. In addition, the study examined the effects and correlations between the number of teacher absences by day of the week.

The review of literature indicated that recent reports estimate that teacher absences in the United States cost school districts more than $5.6 billion per year (Folger, 2019; Kocakülâh, Bryan, & Lynch, 2019). Moreover, The National Council on Teacher Quality (2014) noted, when

calculated on a per-teacher basis, absences cost school districts in the United States approximately $1,800 annually for every teacher those school districts employ. To ascertain the costs associated with teacher absenteeism, an examination of DTSD's financial records was conducted.

Previous studies that analyzed the effects of teacher absenteeism on student achievement scores have produced mixed results (Brown & Arnell, 2012; Cantrell, 2003; Clotfelder et al., 2009; Colquitt, 2009; Erhenberg et al., 1991; Niemeyer, 2013; Woods & Montagno, 1997). However, the majority of studies indicated that teacher absences have a negative impact on student achievement, particularly in the area of math (Cantrell, 2003; Clotfelder et al., 2009). Therefore, one of the primary goals of this study was to contribute to the body of research that examined the relationship between teacher absenteeism and student achievement.

According to Ehrenberg et al. (1991), leave policies have a tremendous impact on the number of days teachers are absent from school. While there are no simple answers or recipes to reducing teacher absence rates, policy makers should be willing to experiment with mechanisms to improve teacher attendance (Rogers & Vegas, 2009). The goal of this study in terms of policies, procedures, and incentive programs was to examine the district's current policies, procedures, incentive programs, and its collective bargaining agreement to determine the extent that these factors contribute to teacher absenteeism. In order to address each of these themes, the primary research questions that guided the study were:

1. Are age, distance from work, gender, experience, grade(s) taught, level of education, and race predictors of teacher absence?

2. What is the relationship between the frequency of teacher absences and factors such as age, distance from work, gender, experience, grade(s) taught, level of education, and race?
3. Are there significant differences in student achievement scores between teachers who are chronically absent (defined as 10 or more absences per school year) and those who are not chronically absent?
4. What is the relationship between student achievement scores and the frequency of teacher absences?
5. Are there significant differences in teacher absenteeism rates by leave category or days of the week?

In addition to the primary questions that guided the study, the project also examined the following questions in order to gain a better understanding of teacher absenteeism at DTSD. The goal of addressing these additional questions was to assist the researcher in making recommendations to address the problem of teacher absenteeism:

- How many teachers at DTSD are chronically absent?
- What are the economic impacts associated with teacher absenteeism from 2016-19?
- What organizational factors contribute to teacher absentee rates (board policies and collective bargaining agreement, professional development) and to what extent?

Setting and Participants

The setting for this study was the Derry Township School District. The community enjoys a legacy that began with its namesake founder, famed confectioner and philanthropist, Milton S. Hershey. DTSD encompasses approximately 27 square miles and is the site of the well-known Hershey's Chocolate Company, Hershey Park amusement center, and various other

entertainment and resort establishments. Hershey is built on tourism with an average of 30,000 additional people entering the community on any given day. Although there are many long-term residents, there are also individuals and families who are transient, migrant, or homeless.

The district consists of an Early Childhood Center that houses students in kindergarten-Grade 1, a Primary Elementary School that serves students in Grades 2-3, an Intermediate Elementary School that educates students in Grades 4-5, a Middle School that teaches students in Grades 6-8, and a High School that instructs students in Grades 9-12. The district serves approximately 3,500 students. At all assessed grade levels, statewide assessment scores are consistently well above state and national averages. Annually, more than 90% of the graduating seniors pursue post-secondary education. Hershey High School is consistently recognized as one of the top public schools in America by various national publications (Niche, 2020; U.S. News and World Report, 2020). A large percentage of the socioeconomic status of the student population is in the middle to upper middle class with the overall range varying from wealthy to very poor. Five-year comparisons indicate a rise in the number and percentage of students in kindergarten through Grade 12 who qualify for free and reduced lunches. Specifically, the total amount of students qualifying for free and reduced lunches has increased from 7% of the student body to 21% of the student body between the 2012-13 and the 2019-20 school years.

DTSD offers a wide and significant range of special education services and supports. These services and supports are accessed by approximately 350 students through a full range of supplementary supports and services in a variety of locations throughout each building. Services and supports are also accessed by and offered to students from consortium districts. Intensive learning support and autism support classroom options have been added within the past 10 years.

The district also provides gifted support to approximately 150 students from kindergarten through 12th grade.

The student demographic population in the district is 70.3% percent white, 12.6 % Asian, 4.8% black, 8.3% Hispanic, 3.6% multi-racial, and 0.4% other. DTSD has seen a steady increase in the number of English Learners (EL) receiving services. Languages of the EL students are quite diverse, with 23 different languages being represented among the approximately 50 EL students.

The teaching population for the study included all certificated professional employees, which consisted of classroom teachers, school counselors, school psychologists, school nurses, librarians, instructional coaches, and specialists. The average age of the professional employees at DTSD during the three-year study was 41, and the average years of experience was 13.5. More than 62% of the certificated staff at DTSD were deemed to be chronically absent during the 2016-19 school years. The percentage of teachers at DTSD who exceed the United States Department of Education's chronically absent threshold is significant considering that teachers who are chronically absent negatively influence student achievement scores (Cantrell, 2003; Clotfelder et al., 2009; Erhenberg et al., 1991). The number of chronically absent teachers at DTSD is also extremely high when compared to the national average of 36% and the state average of 36.2% (Miller, 2012; Griffith, 2017). Table 1 provides the descriptive statistics for the 323 professional staff members who were included in the study.

Table 1

Frequencies and Percentages of Participant Demographics

Demographic	2016-17		2017-18		2018-19	
	n	*%*	*n*	*%*	*n*	*%*
Age						
21–25	13	4.53%	12	4.21%	23	7.85%
26–30	40	13.94%	34	11.93%	31	10.58%
31–35	51	17.77%	56	19.65%	55	18.77%
36–40	41	14.29%	34	11.93%	33	11.26%
46–50	53	18.47%	57	20.00%	50	17.06%
51–55	27	9.41%	30	10.53%	38	12.97%
56 or older	18	6.27%	19	6.67%	17	5.80%
Gender						
Male	71	24.74%	73	25.61%	70	23.89%
Female	216	75.26%	212	74.39%	223	76.11%
School level						
Early Childhood Center	30	10.45%	30	10.53%	36	12.29%
Primary Elementary	37	12.89%	37	12.98%	39	13.31%
Intermediate Elementary	47	16.38%	47	16.49%	44	15.02%
Middle School	80	27.87%	76	26.67%	76	25.94%
High School	93	32.40%	95	33.33%	98	33.45%
Race						
African American	1	0.35%	3	1.05%	2	0.68%
Asian	2	0.70%	1	0.35%	1	0.34%
Hispanic	0	0.00%	0	0.00%	0	0.00%
Caucasian	284	98.95%	281	98.60%	290	98.98%
Other	0	0.00%	0	0.00%	0	0.00%
Degree						
Bachelor’s	54	18.82%	51	17.89%	62	21.16%
Master’s	47	16.38%	54	18.95%	60	20.48%
Master’s plus 10 credits	21	7.32%	23	8.07%	22	7.51%
Master’s plus 20 credits	24	8.36%	16	5.61%	9	3.07%
Master’s plus 30 credits	35	12.20%	32	11.23%	38	12.97%
Master’s plus 45 credits	106	36.93%	109	38.25%	102	34.81%

Demographic	2016-17		2017-18		2018-19	
	n	%	*n*	%	*n*	%
Years of experience						
0–3 years	54	18.82%	50	17.54%	55	18.77%
4–9 years	68	23.69%	60	21.05%	59	20.14%
10–14 years	51	17.77%	59	20.70%	52	17.75%
15–19 years	54	18.82%	54	18.95%	59	20.14%
20–24 years	28	9.76%	25	8.77%	24	8.19%
25–29 years	23	8.01%	26	9.12%	27	9.22%
30 years or more	9	3.14%	11	3.86%	17	5.80%
Distance from school						
0.0–3.9 miles	59	20.56%	57	20.00%	59	20.14%
4.0–7.9 miles	103	35.89%	104	36.49%	101	34.47%
8.0–11.9 miles	40	13.94%	39	13.68%	43	14.68%
12.0–15.9 miles	30	10.45%	29	10.18%	31	10.58%
16.0 miles or more	55	19.16%	56	19.65%	59	20.14%

Research Plan and Data Collection

This study used an Analysis of Variance (ANOVA) test to determine if differences in teacher absentee rates were statistically significant based on teacher demographic data. In addition, correlation tests were used to determine the relationship between teacher absence rates and teacher demographic data. An ANOVA test was also used to determine if teacher absentee rates were statistically significant based on the days of the week. Likewise, an ANOVA test was used to determine if there was a statistically significant difference between achievement scores for students who were instructed by chronically absent teachers and students who were not. A separate research and data collection plan for this study was developed for each primary research question. The research and data collection plan for the secondary research questions was combined into one section.

Research Question 1

This question examined how the effects of age, gender, race, experience, school level, degree, and distance from work affected the predictability of a teacher being absent from work. The hypothesis was formulated to examine differences between the various demographic factors and their influences on teacher absences. Using an ANOVA test, the dependent variable (number of teacher absences) was combined with a series of independent variables in order to determine if the effect was significant. Table 2 describes the independent variables used to examine the predictors of teacher absences.

Null hypotheses

$H_0$1: There are no statistically significant differences in teacher absenteeism rates by age.

$H_0$2: There are no statistically significant differences in teacher absenteeism rates by gender.

$H_0$3: There are no statistically significant differences in teacher absenteeism rates by race.

$H_0$4: There are no statistically significant differences in teacher absenteeism rates by experience.

$H_0$5: There are no statistically significant differences in teacher absenteeism rates by school level.

$H_0$6: There are no statistically significant differences in teacher absenteeism rates by degree.

$H_0$7: There are no statistically significant differences in teacher absenteeism rates by distance from work.

Table 2

Description of Independent Variables

Independent variable	Description
Age	Ages of the teachers
Gender	Gender of the teachers
Race	A teacher's self-identification with one or more social groups
Years of experience	Number of years of teaching experience
Degree earned	Highest degree earned
School level	School level assignment
Distance from work	Number of miles between a teacher's home address and school

Data collection. For this question, the demographic data such as age, gender, race, years of experience, degree earned, school level, and mailing address were obtained and extracted from the district's payroll and human resources system (eFinance). The attendance data were downloaded from the district's absence management system (Frontline Education, Absence Management). FileMaker Pro was then used to match and merge the demographic and attendance data together into one document. GoogleMaps was used to obtain the distance between home and work each professional staff member. In order to calculate the distance, each home address was entered into GoogleMaps to determine the distance between a subject's home address and work location. After the data were entered and merged, all personally identifiable information was removed from the data sets to protect the identity of the subjects. The independent variables were then coded as described in the table 3.

Table 3

Review of Demographic Variables

Variable	Type of Variable	Description	Code
Age	Independent	Discrete variable	1 = 21–25 years old 2 = 26–30 years old 3 = 31–35 years old 4 = 36–40 years old 5 = 41–45 years old 6 = 46–50 years old 7 = 51–55 years old 8 = 56 years or older
Gender	Independent	Dichotomous variable	1 = Male 2 = Female
Race	Independent	Discrete variable	1 = African American 2 = Asian 3 = Hispanic 4 = Caucasian 5 = Other
Years of experience	Independent	Discrete variable	1 = 0–3 years 2 = 4–9 years 3 = 10–14 years 4 = 15–19 years 5 = 20–24 years 6 = 25–29 years 7 = 30 years or more
School level	Independent	Discrete variable	1 = ECC 2 = Primary 3 = Intermediate 4 = Middle 5 = High
Degree earned	Independent	Discrete variable	1 = LTS 2 = Bachelor's 3 = Master's 4 = Master's + 10 5 = Master's + 20 6 = Master's + 30 7 = Master's + 45

Variable	Type of Variable	Description	Code
Distance from work	Independent	Discrete variable	1 = 0–3.9 miles 2 = 4–7.9 miles 3 = 8–11.9 miles 4 = 12–15.9 miles 5 = 16 miles or more
Teacher absences	Dependent	Continuous	

Data analysis. One-way ANOVA tests were used to determine if there was a statistically significant difference between each demographic variable and the frequency of teacher absences over the three-year period. In addition, One-way ANOVA tests were performed separately for each demographic variable per school year (2016-17, 2017-18, and 2018-19). The significance level for each test was set at 0.05%. In addition, an effect size index, η^2 (eta square), was calculated to determine the overall extent of the relationship between each demographic variable and the frequency of teacher absences over the three-year period. Effect sizes were interpreted as follows: (a) small, $.01 \leq$ An η^2; (b) medium, $.06 <$ An η^2; (c) large, $.15 <$ An η^2. The Pennsylvania Department of Education stipulates that professional employees must work 140 days during the course of a school year to be credited with a year of services. Due to this stipulation, the following number of teachers were removed from each school year, as they did not work the required number of days to be credited with a year of service: 20 teachers for the 2016-17 school year, six teachers for the 2017-18 school year, and 19 teachers for the 2018-19 school year.

Research Question 2

The second research question analyzed the relationship between age, gender, race, experience, school level, degree, and distance from work on the predictability of a teacher being absent from work. The hypothesis was formulated to examine the relationship between the various demographic factors and their influence on teacher absences. Correlation tests were used to determine the relationships between teacher absences and the various demographic variables. The correlation tests were used to measure and describe the relationship between two variables. The independent variable for age, years of experience, and distance from work was continuous, while the independent variable for gender, race, degree earned, and school level was either discrete or dichotomous. The dependent variable was continuous and included the number of teacher absences.

Null hypotheses

$H_0$1: No correlation exists between the number of teacher absences and age.

$H_0$2: No correlation exists between the number of teacher absences and gender.

$H_0$3: No correlation exists between the number of teacher absences and race.

$H_0$4: No correlation exists between the number of teacher absences and experience.

$H_0$5: No correlation exists between the number of teacher absences and school level.

$H_0$6: No correlation exists between the number of teacher absences and degree.

$H_0$7: No correlation exists between the number of teacher absences and distance from work.

Data collection. The data utilized to examine the second research question was obtained using the same data collection procedures described in the first research question. Table 4

describes the variables used to examine the correlations between the number of teacher absences and the various demographic factors.

Table 4

Review of Demographic Variables

Variable	Type of Variable	Description	Code
Age	Independent	Continuous	
Gender	Independent	Dichotomous variable	1 = Male 2 = Female
Race	Independent	Discrete variable	1 = African American 2 = Asian 3 = Hispanic 4 = Caucasian 5 = Other
Years of experience	Independent	Continuous	
Degree earned	Independent	Discrete variable	1 = Bachelor's 2 = Master's 3 = Master's + 10 4 = Master's + 20 5 = Master's + 30 6 = Master's + 45
School level	Independent	Discrete variable	1 = ECC 2 = Primary 3 = Intermediate 4 = Middle 5 = High
Distance from work	Independent	Continuous	
Teacher absences	Dependent	Continuous	

Data analysis. The demographic and attendance data were loaded into IBM SPSS, and correlation tests were conducted to test each null hypothesis. The purpose of the correlation test was to assess the degree of the relationship between two variables. The degree of the relationship is defined by the correlation coefficient, denoted r, and falls between the values of -1 and 1. If the correlation coefficient equals +1, then there is a perfectly positive relationship between the two variables, and if the correlation coefficient equals -1, then there is a perfectly negative relationship between the two variables. If the correlation coefficient equals 0, then there is no relationship between the two variables. The following guidelines were used to interpret the correlation coefficient statistic in terms of the value of the relationship: very strong, (a) $.90 \leq | r | \leq 1.0$; (b) strong, $.70 \leq | r | \leq .89$; (c) moderate, $.50 \leq | r | \leq .69$; (d) weak, $.30 \leq | r | \leq .49$; and (e) very weak, $.00 \leq | r | \leq .29$. Correlation tests were performed separately for each demographic variable per school year (2016-17, 2017-18, and 2018-19). In addition, correlation tests were performed for the aggregate totals for each demographic variable.

Research Question 3

This question examined the differences in student achievement scores between students taught by teachers who were chronically absent and students taught by teachers who were not chronically absent by using the following assessment data: (a) DIBELS Next Oral Reading Fluency scores for students in Grades 2 through 5; (b) English language arts, mathematics, and science achievement scores for students in Grades 3 through 8 as determined by the Pennsylvania System of School Assessment (PSSA) but measured by Pennsylvania Value-Added Assessment System (PVAAS) Teacher Value Added scores; (c) algebra I, biology, and literature achievement scores for students in Grades 7 through 12 as determined by the Pennsylvania Keystone Exams but measured by Pennsylvania Value-Added Assessment System (PVAAS)

Teacher Value Added scores; and (d) final exam grades for students in Grades 9 through 12. The hypothesis was formulated to examine differences between student achievement scores between the two groups of teachers. Table 5 describes the variables used to examine the differences between student achievement scores and teacher absence classification.

Null hypotheses

$H_0$1: There will be no statistically significant differences in the DIBELS Next Oral Reading Fluency Scores for students in Grade 2 by teacher absence classification (chronic or not chronic).

$H_0$2: There will be no statistically significant differences in the DIBELS Next Oral Reading Fluency Scores for students in Grade 3 by teacher absence classification.

$H_0$3: There will be no statistically significant differences in the DIBELS Next Oral Reading Fluency Scores for students in Grade 4 by teacher absence classification.

$H_0$4: There will be no statistically significant differences in the DIBELS Next Oral Reading Fluency Scores for students in Grade 5 by teacher absence classification.

$H_0$5: There will be no statistically significant differences in PVAAS Teacher Value Added Math Scores by teacher absence classification.

$H_0$6: There will be no statistically significant differences in PVAAS Teacher Value Added English Language Arts Scores by teacher absence classification.

$H_0$7: There will be no statistically significant differences in PVAAS Teacher Value Added Science Scores by teacher absence classification.

$H_0$8: There will be no statistically significant differences in PVAAS Teacher Value Added Algebra I Scores by teacher absence classification.

$H_0$9: There will be no statistically significant differences in PVAAS Teacher Value Added Literature Scores by teacher absence classification.

$H_0$10: There will be no statistically significant differences in PVAAS Teacher Value Added Biology Scores by teacher absence classification.

$H_0$11: There will be no statistically significant differences in final exam grades by teacher absence classification.

Instruments. The instruments used to examine the third research question included (a) the Pennsylvania System of School Assessment, (b) Keystone Exams, (c) DIBELS Next Oral Reading Fluency Scores, and (d) Hershey High School final exam grades. A description of each instrument is discussed and presented below.

The Pennsylvania System of School Assessment (PSSA) is a valid standards-based, criterion-referenced assessment that has been used since 1992 to measure a student's understanding of academic standards in the English Language Arts (ELA), mathematics, and science and technology. All students in Grades 3 through 8 are annually assessed in the areas of English Language Arts and mathematics. In addition, students in Grades 4 and 8 are also assessed in science and technology. All students receive a performance score based on their proficiency as related to the academic standards in each content area. The four performance levels for the PSSAs are advanced, proficient, basic, and below basic. The PSSA is annually administered in the spring. Since 1992, there have been several versions of the PSSA. The current version of the PSSA is scored by the Data Recognition Corporation (DRC). The validity and reliability of the PSSA is documented in the Pennsylvania System of School Assessment Technical Report that is annually published by the Pennsylvania Department of Education.

The Keystone Exams are standards-based, criterion-referenced, end-of-course assessments that have been used since 2013 by the Pennsylvania Department of Education to measure a student's understanding of the academic standards in algebra I, biology, and literature. Students enrolled in algebra I, biology, and literature are required to take the Keystone Exam prior to completion of the course. Keystone Exams are administered three times during the school year (spring, summer, and winter). Since the Keystone Exam is a requirement for graduation, students who do not attain proficiency on the first attempt are required to retake the Keystone Exam. Similar to the PSSA, student performance levels for the Keystone Exam are advanced, proficient, basic, and below basic. The current version of the Keystone Exam is scored by the Data Recognition Corporation (DRC). The validity and reliability of the Keystone Exam is documented in the Keystone Technical Report that is published annually by the Pennsylvania Department of Education.

Pennsylvania Value-Added Assessment System (PVAAS) is based on a mixed-model, multivariate longitudinal analysis of assessment data. PVAAS is based on the methodology of the Education Value-Added System (EVAAS) and is used to measure the academic growth of groups of students by analyzing existing PSSA and Keystone Exam assessment data. According to the Pennsylvania Department of Education (2019), "PVAAS uses students' scores rather than their academic performance level across grades and subjects to generate a reliable estimate of the true achievement level of a group of students. Then, these estimates of achievement are compared to estimate growth for a group of students" (p. 8). Growth measures are broken into five reporting categories: (a) red (growth measure is more than two standard errors below zero), (b) yellow (growth measure is more than one but no more than two standard errors below zero), (c) green (growth measure is less than one standard error above zero and no more than one

standard error below zero), (d) light blue (growth measure is at least one but less than two standards errors above zero), and (e) dark blue (growth measure is more than two standard errors above zero). According to the Pennsylvania Department of Education (2019), the following criteria must be met for a teacher to receive a Teacher Value-Added Score:

> Teachers need to have at least 11 students' scores for students enrolled with them (in the PVAAS Roster Verification process) in a tested subject, grade, or course during the school year in order to receive a Value Added report in that grade, subject, or course. Additionally, teachers must have an "*active n"* count of 6 students (6 FTE/full time equivalent students) to receive a Value Added report; the "*active n"* count is calculated by considering the instructional responsibility claimed for each student. (p. 35)

The Pennsylvania Department of Education generally releases the Teacher Value-Added PVAAS scores to school districts in the Fall of each school year. Teacher Value-Added PVAAS scores are a component of the Pennsylvania Teacher Effectiveness System, which is used to annually evaluate teachers in Pennsylvania.

According to Good, Kaminski, Dewey, Wallin, Powell-Smith, and Latimer (2011), "DIBELS Oral Reading Fluency (DORF) is a measure of advanced phonics and word attack skills, accurate and fluent reading of connected text, and reading comprehension" (p. 79). DORF consists of two parts that include oral reading fluency and passage retail. The first measure, oral reading fluency, is assessed by giving each student three separate on-grade level passages. The passages should be unfamiliar to the students, and students are asked to read each passage for one minute. Students are scored based on the number of words read correctly and the number of errors for each passage. Median scores across the three passages are used to determine the

student performance level. The passage retell component of DORF is used to assess a student's reading comprehension level. When prompted, students are asked to tell what they have read. Students are assessed on the number of words in the retell that are related to the story. If a student hesitates for five seconds or longer or responds for five seconds in a way that is not relevant to the passage, the response is discontinued. The retell portion of DORF relies heavily on the evaluators' judgement and therefore compromises the reliability and validity of the data. As a result, the retell score will not be used in the study. Student progress is monitored three times a year (fall, winter, spring).

Final exams are end-of-course, criterion-referenced assessments that are administered to high school students at Hershey High School. Final exams are used to measure a student's understanding of the materials presented in a specific course. Only courses that had common final exams were used to determine the impact of teacher absenteeism on student performance. For the purposes of this study, common final exam scores were used in only the data analysis if there were multiple teachers who taught the same course and administered the same exam.

Data collection. The student achievement data for the DIBELS Next Oral Reading Fluency Scores were obtained and extracted from the district's student assessment data warehouse management system (PerformancePlus). PVAAS Teacher Specific scores were downloaded directly from the PVAAS website. PVAAS Teacher Specific scores are not publicly accessible, and only authorized users can download teacher specific scores. The researcher for this project was an authorized user for the district and was able to download directly from the PVAAS website. Final exam grades were extracted from the district's student information system (eSchool Plus). Class rosters were also downloaded from the district's student information system. Teacher attendance data were downloaded from the district's absence

management system. The student achievement data and teacher attendance data were then matched and merged into FileMaker Pro. After the data were merged, all personally identifiable information was removed from the data sets to protect the identity of the subjects. The data sets were loaded into IBM SPSS to perform the data analysis. The independent variable was then coded and described in table 5.

Table 5

Review of Student Achievement Variables

Variable	Type of Variable	Description	Code
DIBELS Next Oral Reading Fluency	Dependent	Continuous	
PVAAS Teacher Value Added	Dependent	Continuous	
Final exam grade	Dependent	Continuous	
Teacher absence classification	Independent	Dichotomous variable	1 = Male 2 = Female

Data analysis. One-way ANOVA tests were used to determine if there was a statistically significant difference between the student achievement scores and teacher absence classification over the three-year period. In addition, One-way ANOVA tests were performed separately for each student achievement variable per school year (2016-17, 2017-18, and 2018-19).

Research Question 4

The fourth research question analyzed the relationship between student achievement scores and the frequency of teacher absences. The hypothesis was formulated to examine the relationship between the various student achievement scores and their influence on teacher

absences. Pearson correlation tests were used to determine the relationships between teacher absences and the various student achievement scores. The dependent variable for DIBELS Next Oral Reading Fluency Scores, PVAAS Teacher Value Added Scores, and final exam grades were continuous, while the independent variable was continuous and included the number of teacher absences.

Null hypotheses

$H_0$1: No correlation exists between the number of teacher absences and DIBELS Next Oral Reading Fluency Scores for students in Grade 2.

$H_0$2: No correlation exists between the number of teacher absences and DIBELS Next Oral Reading Fluency Scores for students in Grade 3.

$H_0$3: No correlation exists between the number of teacher absences and DIBELS Next Oral Reading Fluency Scores for students in Grade 4.

$H_0$4: No correlation exists between the number of teacher absences and DIBELS Next Oral Reading Fluency Scores for students in Grade 5.

$H_0$5: No correlation exists between the number of teacher absences and PVAAS Teacher Value Added Math Scores.

$H_0$6: No correlation exists between the number of teacher absences and PVAAS Teacher Value Added English Language Arts Scores.

$H_0$7: No correlation exists between the number of teacher absences and PVAAS Teacher Value Added Science Scores.

$H_0$8: No correlation exists between the number of teacher absences and PVAAS Teacher Value Added Algebra I Scores.

$H_0$10: No correlation exists between the number of teacher absences and PVAAS Teacher Value Added Biology Scores.

$H_0$11: No correlation exists between the number of teacher absences and final exam grades.

Data collection. The data utilized to examine correlation between student achievement and teacher absences was copied directly from student achievement tables used in the third research question. The dependent variables were then coded and described in table 6.

Table 6

Review of Student Achievement Variables

Variable	Type of Variable	Description
DIBELS Next Oral Reading Fluency	Dependent	Continuous
PVAAS Teacher Value Added	Dependent	Continuous
Final exam grade	Dependent	Continuous
Teacher absences	Independent	Continuous

Data analysis. The student achievement scores and attendance data were loaded into IBM SPSS, and Pearson correlation tests were conducted to test each null hypothesis. Pearson correlation tests were performed separately for each student achievement variable per school year (2016-17, 2017-18, and 2018-19). In addition, a Pearson correlation test was performed for the aggregate totals for each student achievement variable.

Research Question 5

This last primary research question examined the effects of leave category and teacher absences by day of the week on the predictability of a teacher being absent from work. The hypothesis was formulated to examine differences between the various leave factors and their

influence on teacher absences. The frequency and percentages of absences by leave category and teacher absences by day of the week were then used to determine if the effect was significant. Table 7 describes the categories of absences used to examine the predictors of teacher absences.

Null hypotheses

$H_0$1: There are no statistically significant differences in teacher absenteeism rates by leave category.

$H_0$2: There are no statistically significant differences in teacher absenteeism rates by day of the week.

Table 7

Categories of Absences and Their Associated Descriptions

Category	Description of Leave Categories
Emergency	Emergency leave is granted by the Superintendent for extenuating circumstances that occur within 48 hours from the date of absence. Approved emergency leave is deducted from an employee's sick leave. Examples of emergency leave include but are not limited to absences related to car problems, emergency home repairs, flood, fire, and family related issues.
Funeral	Funeral leave is taken without loss of pay as noted: (a) up to five days for the spouse, parent, mother-in-law, father-in-law, son, or daughter of the employee; (b) up to three days for the grandparents, grandchildren, or siblings of the employee; (c) one day for the day of the funeral of the aunt, uncle, niece, nephew, son-in-law, daughter-in-law, brother-in-law, sister-in-law, or first cousin of the employee. However, if the relative resided in the employee's household on the date of death, up to three days will be provided; (d) for circumstances that do not meet the guidelines specified, an employee may seek approval from the Superintendent to grant additional funeral leave.
Jury duty	An employee who is required to appear under subpoena or jury summons in a county common pleas or federal district court trial, other than as a party, will be excused without loss of net pay.
Military	An employee who is called to active duty is entitled to use up to 15 days of leave without loss of pay.

Category	Description of Leave Categories
Personal	Employees may be granted three days of absence for personal reasons without loss of pay provided a request is submitted at least 48 hours in advance to the Building Principal. Personal days are not to be permitted during in-service days or the first or the last five student days of the school year. Any personal leave days not used can be added to the employee's accumulated sick leave total at the end of each school year, or the employee may elect to be reimbursed at the then-current substitute rate per day for each unused day.
Professional	Employees may use professional leave without loss of pay to attend a professional meeting, workshop, or conference.
Sick	Leave taken without loss of pay for personal illness or to care for a spouse, dependent, or parent who is sick. Sick leave may also be taken without loss of pay to attend a personal medical appointment or to attend a medical appointment for a spouse, dependent, or parent. Employees are granted 10 sick days per year, and unused sick leave can be accumulated.
Unpaid	Employees may take additional leave with the prior approval of the Superintendent. This leave is granted without pay.

Data collection. For this question, the attendance data were downloaded from the district absence management system. All personally identifiable information was removed from the data sets to protect the identity of the subjects. The variables were then coded as described in table 8.

Table 8

Review of Leave Variables

Variable	Description	Code
Category of leave	Discrete variable	1 = Emergency 2 = Funeral 3 = Jury Duty 4 = Military 5 = Personal 6 = Professional 7 = Sick 8 = Unpaid
Day of week	Discrete variable	1 = Monday 2 = Tuesday 3 = Wednesday 4 = Thursday 5 = Friday

Data analysis. Frequency distributions were used to determine if there was a significant difference between each variable and the frequency of teacher absences over the three-year period. In addition, frequency distributions were performed separately for every variable per school year (2016-17, 2017-18, and 2018-19).

Secondary Research Questions

The secondary research questions examined the economic impacts associated with teacher absenteeism, the number of chronically absent teachers, and the organizational factors that contribute to teacher absentee rates. The data collection methods for the secondary research questions included obtaining district financial records pertaining to substitute costs for the 2016-17, 2017-18, and 2018-19 school years from the business office. Teacher absentee data were collected from the district's absence management system. District policies addressing teacher

leave were obtained from the district website, and the collective bargaining agreement for professional staff was obtained from the personnel department.

The fiscal implications pertaining to teacher absences at Derry Township School District include the substitute costs, teacher payouts for sick leave retirement, and unused personal days. Substitutes at Derry Township School District earn between $100 to $150 per day based on their specific assignment. However, the actual cost the district incurs per substitute ranges from $130.90 to $197.10 per day. Teachers at Derry Township School District have the option to annually cash out their unused personal days. Teachers who select the cash-out option are provided $100 for each unused personal day. Similarly, upon retirement, teachers receive a monetary sum for their unused sick days. The monetary sum is based on a formula that combines years of service and the number of unused sick days.

The number of chronically absent teachers was calculated by determining the number of teachers in the district who missed more than 10 days of work per year for any absence reason. Teachers in Pennsylvania must work 140 or more days per school year to be credited with a year of service. As a result, teachers who missed more than 50 days of school per year were excluded from the chronically absent teacher counts. District attendance policies, procedures, and the professional staff collective bargaining agreement were reviewed and examined to determine if they influenced teacher attendance rates. Each policy, procedure, and collective bargaining agreement was compared to the existing body of research and literature pertaining to teacher absenteeism.

Validity

The primary purpose of this study was to examine and establish if a relationship or statistically significant difference exists between teacher attendance rates and student

achievement scores and teacher attendance rates and various teacher demographic variables. The casual conditions in this study occurred prior to the research; thus, the intervention (teacher absences) was not implemented by the researcher and occurred prior to the data collection. Generally, when standardized measurements of student achievement are used, questions of validity have been addressed by the test developers. To that end, the validity of the PSSA and Keystone Exams are outlined in their respective technical reports. The DIBELS Next and PVAAS scores have been validated by their respective organizations and are widely recognized as quality instruments for use in assessing student achievement levels.

In order to increase the validity of the study, the researcher analyzed multiple types of student achievement data that included DIBELS Next Oral Reading Fluency scores, PVAAS Teacher Value Added scores, and final exam grades to determine if the trends and patterns were consistent across the various student achievement data sets. To further increase the validity of the data, the researcher analyzed the data sets for the duration of the three-year study and for each individual school year (2016-17, 2017-18, and 2018-19) to determine if the trends and patterns that emerged were consistent from year-to-year. This method was used to increase the validity of the teacher demographic data.

Summary

This study examined the impact of teacher absences on student achievement scores and analyzed the predictors of teacher absences. A quantitative research design that used both primary and secondary data was conducted. The primary data collected included district policies, procedures, and collective bargaining agreements. The secondary data collected included student achievement, teacher demographic, and teacher leave data. The data were analyzed by using a combination of one-way ANOVA and correlation tests. The tests were conducted to determine if

there was a significant statistical difference or relationship between the independent and dependent variables. A detailed analysis of the data is presented in the next chapter of the capstone project.

CHAPTER IV

Data Analysis and Results

The primary purpose of the research project was to determine the impact of teacher absenteeism on student achievement scores. The study also analyzed several probable demographic predicators of teacher absenteeism at Derry Township School District (DTSD) and the associated costs. The previous chapter outlined the research methods and statistical methods used to examine the relationship among teacher absenteeism, student achievement, and various demographic variables. The data collection and analysis provided in this chapter were guided by five research questions:

1. Are age, gender, race, experience, grade(s) taught, level of education, and distance from work predictors of teacher absence?
2. What is the relationship between the frequency of teacher absences and factors such as age, gender, race, experience, school level, degree, and distance from work?
3. Are there significant differences in student achievement scores between teachers who are chronically absent (defined as 10 or more absences per school year) and those who are not chronically absent?
4. What is the relationship between student achievement scores and the frequency of teacher absences?
5. Are there significant differences in teacher absenteeism rates by leave category, days of the week, or absences connected to holiday?

To gain a comprehensive understanding of teacher absenteeism at DTSD, the study was also guided by three secondary questions: (a) how many teachers at DTSD are chronically absent, (b) what are the economic impacts associated with teacher absenteeism from 2016-19, and (c) what

organizational factors contribute to teacher absentee rates (board policies and collective bargaining agreement, professional development) and to what extent?

Predicators of Teacher Absences

Descriptive statistics and one-way Analysis of Variance (ANOVAs) were conducted to determine if differences in teacher absentee rates were statistically significant based on age, gender, experience, school level, degree earned, and distance from work. Correlation tests were used to determine the relationship between teacher absence rates and teacher demographic data. Descriptive statistics and one-way ANOVA tests were used to determine if there was a statistically significant difference between the achievement scores for students who were instructed by chronically absent teachers and those who were not. Chi-square goodness of fitness tests were used to determine if teacher absentee rates were statistically significant based on the day of the week and teacher leave categories.

To compare the effect of age on teacher absenteeism rates at DTSD over the three-year period, one-way ANOVAs were conducted, and descriptive statistics were used determined the means for each age variable. During the 2016-17 school year, an examination of the means suggested that teachers in the 21-25 age group (M = 8.09, SD = 4.44) missed fewer days of work when compared to teachers in the 26-30 age group (M = 12.48, SD = 6.13), 31-35 age group (M = 14.65, SD = 6.5), 36-40 age group (M = 14.81, SD = 8.63), 41-45 age group (M = 14.14, SD = 7.32), 46-50 age group (M = 12.78, SD = 6.38), 51-55 age group (M = 13.12, SD = 6.78), or the 56 or older age group (M = 13.50, SD = 7.14). However, the analysis of variance showed that the effect of age on the number of teacher absences was not statistically significant, $F(7,259) = 1.58$, $p = .143$, $\eta^2 = 0.04$.

The descriptive statistics revealed that teachers who were between 21-25 years of age (M = 10.29, SD = 8.00) during the 2017-18 school year were absent less often than their colleagues in the 26-30 age group (M = 11.92, SD = 9.09), 31-35 age group (M = 14.25, SD = 7.84), 36-40 age group (M = 12.95, SD = 7.29), 41-45 age group (M = 14.49, SD = 7.24), 46-50 age group (M = 13.31, SD = 7.61), 51-55 age group (M = 12.60, SD = 7.70), or the 56 or older age group (M = 13.24, SD = 5.45). The one-way ANOVA found that age does not have significant effect on the number of days a teacher misses per year, $F(7,271) = 0.72$, $p = .652$, $\eta^2 = 0.02$.

The data analysis for the 2018-19 school year revealed through a review of the descriptive statistics that teachers ages 21-25 (M = 8.93, SD = 4.08) were absent less frequently than teachers in 26-30 age group (M = 11.56, SD = 4.97), 31-35 age group (M = 13.46, SD = 7.15), 36-40 age group (M = 13.85, SD = 7.16), 41-45 age group (M = 14.97, SD = 8.31), 46-50 age group (M = 13.81, SD = 7.83), 51-55 age group (M = 12.18, SD = 6.47), or the 56 or older age group (M = 11.68, SD = 5.83). The analysis of variance indicated that the effect of age on the frequency of teacher absences was not significant, $F(7,266) = 2.00$, $p = .055$, $\eta^2 = 0.05$.

An examination of the means over the three-year period of the study indicated that teachers between the ages of 21-25 (M = 9.09, SD = 5.45) missed fewer days of school per year than teachers in the 26-30 age group (M = 12.02, SD = 6.99), 31-35 age group (M = 14.11, SD = 7.19), 36-40 age group (M = 13.94, SD = 7.76), 41-45 age group (M = 14.53, SD = 7.60), 46-50 age group (M = 13.29, SD = 7.27), 51-55 age group (M = 12.58, SD = 6.90), or the 56 or older age group (M = 12.82, SD = 6.09). The one-way ANOVA showed that the effect of age significantly influenced the number of teacher absences, but the effect size was small, $F(7,812) = 3.66$, $p = <.001$, $\eta^2 = 0.03$. Post hoc analyses were conducted using the Games-Howell post hoc test. The Games-Howell post hoc test was used because the analysis of variance failed the

Levine's test for homogeneity of equal variances. The post hoc test indicated that there was a significant difference between teachers in the 21-25 age range and all other age groups with the exception of teachers in the 26-30 age group. The post hoc test also showed that no additional significant differences among the groups existed. The results are presented in Table 9 and Table 10.

Table 9

Mean Difference Absences by Teacher Age

Year	Age	*M*	N	*SD*	Range
2016-17	21–25	8.09	11	4.44	15.50
	26–30	12.48	33	6.13	30.50
	31–35	14.65	44	6.51	30.00
	36–40	14.81	40	8.63	35.50
	41–45	14.14	44	7.32	35.50
	46–50	12.78	52	6.38	25.50
	51–55	13.12	26	6.78	25.50
	56 or older	13.50	17	7.14	26.50
	Total	13.46	267	6.99	38.00
2017-18	21–25	10.29	12	8.00	26.00
	26–30	11.92	33	9.09	47.00
	31–35	14.25	52	7.84	44.00
	36–40	12.95	33	7.29	28.00
	41–45	14.49	43	7.24	26.00
	46–50	13.31	57	7.61	42.50
	51–55	12.60	30	7.70	28.50
	56 or older	13.24	19	5.45	20.50
	Total	13.25	279	7.63	48.00
2018-19	21–25	8.93	20	4.08	13.00
	26–30	11.56	27	4.97	18.00
	31–35	13.46	47	7.15	36.00
	36–40	13.85	31	7.16	27.50
	41–45	14.97	45	8.31	41.00
	46–50	13.81	50	7.83	37.50
	51–55	12.18	37	6.47	21.50
	56 or older	11.68	17	5.83	19.00
	Total	13.01	274	7.06	41.00

Year	Age	*M*	N	*SD*	Range
2016-19	21–25	9.09	43	5.45	29.00
	26–30	12.02	93	6.99	47.00
	31–35	14.11	143	7.19	44.00
	36–40	13.94	104	7.76	38.00
	41–45	14.53	132	7.60	41.00
	46–50	13.29	159	7.27	42.50
	51–55	12.58	93	6.90	29.50
	56 or older	12.82	53	6.09	26.50
	Total	13.24	820	7.23	48.00

Table 10

One-Way ANOVA of Teacher Age on the Number of Absences

Year	Source	*df*	*SS*	*MS*	*F*	*p*	η^2
2016-17	Between groups	7	531.08	75.86	1.58	.143	0.04
	Within groups	259	12470.33	48.15			
	Total	266	13001.31				
2017-18	Between groups	7	296.71	42.39	0.72	.652	0.02
	Within groups	271	15884.23	58.61			
	Total	278	16181.94				
2018-19	Between groups	7	682.67	97.52	2.00	.055	0.05
	Within groups	266	12941.54	48.65			
	Total	273	13624.21				
2016-19	Between groups	7	1310.00	187.14	3.66	<.001*	0.03
	Within groups	812	41524.18	51.14			
	Total	819	42834.18				

*Note: *Welch's ANOVA*

To compare the effect of gender on teacher absenteeism rates, descriptive analysis and one-way ANOVAs were conducted. The results showed that during the 2016-17 school year, male teachers (M = 8.09, SD = 5.98) had a significantly lower absentee rate when compared to female teachers (M = 12.48, SD = 7.19), but the effect size was small, $F(1,265) = 9.98$, $p = .002$, $\eta^2 = 0.04$. The descriptive statistics for the 2017-18 school year indicated that males (M = 11.86, SD = 7.62) missed fewer days of work than females (M = 13.77, SD = 7.59). However, the

analysis of variance indicated that the effect of gender on the number of teacher absences was not significant, $F(1,277) = 3.49$, $p = .063$, $\eta^2 = 0.01$. Although the one-way ANOVA for the 2018-19 school year suggested that males ($M = 12.39$, $SD = 7.19$) missed work less frequently than females ($M = 13.23$, $SD = 7.02$), there was not a significant effect for gender on the number of absences, $F(1,272) = 0.73$, $p = .392$, $\eta^2 = <0.01$. When the absentee data were combined for the three years studied, the analysis of variance revealed that the effect of gender on the number of teacher absences was significant, but the effect size was small, $F(1,818) = 11.31$, $p = <.001$, $\eta^2 = 0.01$. The descriptive statistics showed that males ($M = 11.85$, $SD = 6.95$) are absent less often than females ($M = 13.75$, $SD = 7.27$). The results are presented in Table 11 and Table 12.

Table 11

Mean Difference Absences by Gender

Year	Gender	*M*	N	*SD*	Range
2016-17	Male	8.09	74	5.98	31.50
	Female	12.48	193	7.19	38.00
	Total	13.46	267	6.99	38.00
2017-18	Male	11.86	76	7.62	42.00
	Female	13.77	203	7.59	48.00
	Total	13.25	279	7.63	48.00
2018-19	Male	12.39	71	7.19	37.50
	Female	13.23	203	7.02	41.00
	Total	13.01	274	7.06	41.00
2016-19	Male	11.85	221	6.95	42.00
	Female	13.75	599	7.27	48.00
	Total	13.24	820	7.23	48.00

Table 12

One-Way ANOVA of Gender on the Number of Absences

Year	Source	*df*	*SS*	*MS*	*F*	*p*	η^2
2016-17	Between groups	1	471.83	471.83	9.98	.002	0.04
	Within groups	265	12529.58	47.28			
	Total	266	13001.41				

Year	Source	*df*	*SS*	*MS*	*F*	*p*	η^2
2017-18	Between groups	1	201.02	201.02	3.49	.063	0.01
	Within groups	277	15979.92	57.69			
	Total	278	16180.94				
2018-19	Between groups	7	36.65	36.65	0.73	.392	<0.01
	Within groups	272	13587.56	49.95			
	Total	273	13624.21				
2016-19	Between groups	7	584.17	584.17	11.31	<.001	0.01
	Within groups	818	42250.00	51.65			
	Total	819	42834.17				

A combination of descriptive statistics and one-way ANOVAs were conducted to analyze the effect of race on the number to teacher absences. An examination of the means indicated that during the 2016-17 school year, Caucasian teachers (M = 13.50, SD = 7.00) missed more days of work than African American (M = 12.00, SD = 0.00) or Asian teachers (M = 4.50, SD = 0.00). An analysis of variance showed that the effect of race on the number of teacher absences was not significant, $F(4,262) = 0.42$, $p = .794$, $\eta^2 = <0.01$. Although descriptive statistics for the 2017-18 school year showed that African American teachers (M = 20.5, SD = 12.32) missed work at a higher rate than Asian (M = 7, SD = 0.00) or Caucasian teachers (M = 13.19, SD = 7.56) teachers, there was not a significant effect for race on absentee rates, $F(4,274) = 0.85$, $p = .496$, $\eta^2 = 0.01$. The results for the 2018-19 school year suggested that no statistically significant difference existed among the number of days of school missed by African American (M = 11.25, SD = 1.77), Asian (M = 6.5, SD = 0.00) or Caucasian teachers (M = 13.05, SD = 7.09), $F(4,269) = 0.24$, $p = .914$, $\eta^2 = <0.01$. The absentee data for the three school years studied suggested that African American teachers (M = 16.00, SD = 9.26) tended to be absent from the classroom more often than Asian (M = 6.00, SD = 1.32) or Caucasian teachers (M = 13.25, SD = 7.22). Overall,

the effect of race on absentee rates was not significant, $F(4,815) = 9.97$, $p = .423$, $\eta^2 = <0.01$.

The results are presented in Table 13 and Table 14.

Table 13

Mean Differences Absences by Race

Year	Race	*M*	N	*SD*	Range
2016-17	African American	12.00	1	-	-
	Asian	4.50	1	-	-
	Hispanic	-	0	-	-
	Caucasian	13.50	265	7.00	38.00
	Other	-	0	-	-
	Total	13.46	267	6.00	38.00
2017-18	African American	20.50	3	12.32	24.50
	Asian	7.00	1	-	-
	Hispanic	-	0	-	-
	Caucasian	13.19	275	7.56	48.00
	Other	-	0	-	-
	Total	13.25	279	7.63	48.00
2018-19	African American	11.25	2	1.77	2.50
	Asian	6.50	1	-	-
	Hispanic	-	0	-	-
	Caucasian	13.05	271	7.09	41.00
	Other	-	0	-	-
	Total	13.25	279	7.63	41.00
2016-19	African American	16.00	6	9.26	24.50
	Asian	6.00	3	1.32	2.5
	Hispanic	-	0	-	-
	Caucasian	13.25	811	7.22	48.00
	Other	-	0	-	-
	Total	13.24	820	7.23	48.00

Table 14

One-Way ANOVA of Race on the Number of Absences

Year	Source	*df*	*SS*	*MS*	*F*	*p*	η^2
2016-17	Between groups	4	82.92	20.73	0.42	.794	<0.01
	Within groups	262	12918.50	49.31			
	Total	266	13001.41				

Year	Source	*df*	*SS*	*MS*	*F*	*p*	η^2
2017-18	Between groups	4	197.65	49.41	0.85	.496	0.01
	Within groups	274	15983.29	58.33			
	Total	278	16180.94				
2018-19	Between groups	4	49.00	12.25	0.24	.914	<0.01
	Within groups	269	13575.20	50.47			
	Total	273	13624.20				
2016-19	Between groups	4	202.99	50.75	9.97	.423	<0.01
	Within groups	815	42613.18	42.31			
	Total	819	42834.17				

To analyze the effect of years of experience on teacher absenteeism rates, an examination of the means and one-way ANOVAs were conducted. During the 2016-17 school year, the descriptive statistics suggested that teachers who had 30 or more years of experience (M = 10.67, SD = 5.42) missed fewer school days than teachers with 0-3 years of experience (M = 11.77, SD = 6.13), 4-9 years of experience (M = 13.09, SD = 7.09), 10-14 years of experience (M = 14.72, SD = 6.88), 15-19 years of experience (M = 13.31, SD = 7.17), 20-24 years of experience (M = 15.48, SD = 8.41), or teachers with 25-29 years of experience (M = 14.22, SD = 6.52), However, an analysis of variance showed that the effect of experience on the number of teacher absences was not statistically significant, $F(6,260) = 1.41$, $p = .210$, $\eta^2 = 0.03$.

An examination of the means showed that teachers with 30 or more years of experience (M = 10.82, SD = 5.99) during the 2017-18 school year were absent less often than their colleagues with 0-3 years of experience (M = 11.15, SD = 7.68), 4-9 years of experience (M = 14.32, SD = 8.78), 10-14 years of experience (M = 13.16, SD = 6.45), 15-19 years of experience (M = 13.35, SD = 7.11), 20-24 years of experience (M = 13.94, SD = 7.33), or 25-29 years of experience (M = 15.35, SD = 8.77). A one-way ANOVA found that experience does not have

significant effect on the number of days a teacher is absent from work, $F(6,272) = 1.38$, $p = .224$, $\eta^2 = 0.03$.

The descriptive statistics for the 2018-19 school year revealed that teachers with 0-3 years of experience ($M = 10.32$, $SD = 5.06$) were absent from work less often than teachers with 4-9 years of experience ($M = 13.67$, $SD = 6.09$), 10-14 years of experience ($M = 14.00$, $SD = 5.77$), 15-19 years of experience ($M = 13.29$, $SD = 7.96$), 20-24 years of experience ($M = 13.83$, $SD = 9.56$), 25-29 years of experience ($M = 13.10$, $SD = 7.69$), or 30 or more years of experience ($M = 13.84$, $SD = 6.30$). The analysis of variance indicated that the effect of experience on the number of teacher absences was not significant, $F(6,267) = 1.51$, $p = .174$, $\eta^2 = 0.03$.

An examination of the means over the three-year period of the study suggested that teachers with 0-3 years of experience ($M = 11.08$, $SD = 6.37$) are likely to miss fewer days of school per year than teachers with 4-9 years of experience ($M = 13.62$, $SD = 7.47$), 10-14 years of experience ($M = 14.00$, $SD = 6.68$), 15-19 years of experience ($M = 13.31$, $SD = 7.39$), 20-24 years of experience ($M = 14.36$, $SD = 8.34$), 25-29 years of experience ($M = 14.18$, $SD = 7.67$) or teachers with 30 or more years of experience ($M = 12.13$, $SD = 6.03$). The results of the one-way ANOVA showed that over the course of the three-year study, the effect of experience significantly influenced teacher absentee rates, $F(6,813) = 3.21$, $p = .004$, $\eta^2 = 0.02$. Post hoc analyses were conducted using the Tukey's Honest Significant Difference test. The post hoc test indicated that a statistically significant difference occurred among teachers with 0-3 years of experience and teachers with 5-9 years of experience, 15-19 years of experience, 20-25 years of experience, and 25-29 years of experience. The results are presented in Table 15 and Table 16.

Table 15

Mean Differences Absences by Experience

Year	Years of Experience	*M*	N	*SD*	Range
2016-17	0-3	11.77	46	6.13	33.00
	4-9	13.09	60	7.09	31.50
	10-14	14.72	51	6.88	35.50
	15-19	13.31	52	7.17	31.00
	20-24	15.48	26	8.41	35.50
	25-29	14.22	23	6.52	20.50
	30 or more	10.67	9	5.42	14.50
	Total	13.46	267	6.99	38.00
2017-18	0-3	11.15	50	7.68	33.00
	4-9	14.32	56	8.78	45.50
	10-14	13.16	58	6.45	28.50
	15-19	13.35	53	7.11	29.50
	20-24	13.94	25	7.33	26.00
	25-29	15.35	26	8.77	39.00
	30 or more	10.82	11	5.99	21.50
	Total	13.25	279	7.63	48.00
2018-19	0-3	10.32	47	5.06	20.00
	4-9	13.67	46	6.09	27.50
	10-14	14.00	46	5.77	22.50
	15-19	13.29	56	7.96	37.00
	20-24	13.83	23	9.56	38.00
	25-29	13.10	26	7.69	37.00
	30 or more	13.84	16	6.30	18.50
	Total	13.01	260	6.90	41.00
2016-19	0-3	11.08	144	6.37	33.50
	4-9	13.62	168	7.47	47.00
	10-14	14.00	158	6.68	36.00
	15-19	13.31	163	7.39	38.00
	20-24	14.36	75	8.34	41.00
	25-29	14.18	76	7.67	40.50
	30 or more	12.13	36	6.03	21.50
	Total	13.24	820	7.23	48.00

Table 16

One-Way ANOVA of Experience on the Number of Absences

Year	Source	*df*	*SS*	*MS*	*F*	*p*	η^2
2016-17	Between groups	6	410.46	68.41	1.41	.210	0.03
	Within groups	260	12590.96	48.43			
	Total	266	13001.42				
2017-18	Between groups	6	477.02	79.50	1.38	.224	0.03
	Within groups	272	15703.92	57.73			
	Total	278	16180.94				
2018-19	Between groups	6	448.19	74.70	1.51	.174	0.03
	Within groups	267	13176.01	49.35			
	Total	273	13624.20				
2016-19	Between groups	6	991.31	165.22	3.21	.004	0.02
	Within groups	813	41842.86	51.47			
	Total	819	42834.17				

To compare the effect of school level on teacher absenteeism rates, descriptive analysis and one-way ANOVAs were conducted. The results showed that teachers in the primary school (M = 12.46, SD = 5.36) had a lower absentee rate during 2016-17 school year when compared to teachers in the ECC (M = 14.67, SD = 7.87), intermediate school (M = 13.96, SD = 8.16), middle school, (M = 12.84, SD = 6.05), or high school (M = 13.72, SD = 7.36), but there was not a significant difference $F(4,262) = 0.60$, $p = .665$, $\eta^2 = <0.01$.

An examination of the means for the 2017-18 school year indicated that teachers in the intermediate school (M = 12.25, SD = 7.87) were absent from the classroom less often than teachers in the ECC (M = 12.33, SD = 7.70), primary school (M = 16.22, SD = 8.08), middle school (M = 12.96, SD = 7.84), or high school (M = 13.10, SD = 7.01). However, the one-way ANOVA showed the effect of gender on the number of teacher absences was not significant, $F(4,274) = 1.72$, $p = .146$, $\eta^2 = 0.02$. Although the descriptive statistics for the 2018-19 school

year suggested that teachers in the intermediate school (M = 12.24, SD = 6.65) missed fewer days of school than teachers in the ECC (M = 12.27, SD = 8.45), primary school (M = 13.15, SD = 5.10), middle school (M = 13.31, SD = 6.75), or high school (M = 13.38, SD = 7.68), there was not a significant effect for school level on the rates of absenteeism, $F(4,269) = 0.31$, $p = .869$, $\eta^2 = <0.01$. When the absentee data were combined, the one-way ANOVA revealed that the effect of school level on the frequency that a teacher is likely to miss work was not significant, $F(4,815) = 0.47$, $p = .757$, $\eta^2 = <0.01$. The descriptive statistics determined that teachers who work in the intermediate school (M = 12.83, SD = 7.59) were absent less frequently than teachers who work in the ECC (M = 12.99, SD = 8.02), primary school (M = 13.96, SD = 6.48), middle school (M = 13.04, SD = 6.92), or high school (M = 13.40, SD = 7.33). The results are presented in Table 17 and Table 18.

Table 17

Mean Differences Absences by School Level

Year	School Level	*M*	N	*SD*	Range
2016-17	ECC	14.67	27	7.87	34.00
	Primary	12.46	34	5.36	26.00
	Intermediate	13.96	45	8.16	37.50
	Middle	12.84	70	6.05	31.00
	High	13.72	91	7.36	32.50
	Total	13.46	267	6.99	38.00
2017-18	ECC	12.33	30	7.70	32.00
	Primary	16.22	36	8.08	39.50
	Intermediate	12.25	44	7.87	45.50
	Middle	12.96	75	7.84	42.50
	High	13.10	94	7.01	29.50
	Total	13.25	279	7.63	48.00
2018-19	ECC	12.27	35	8.45	36.50
	Primary	13.15	37	5.10	22.00
	Intermediate	12.24	42	6.65	27.50
	Middle	13.31	71	6.75	39.50
	High	13.38	89	7.68	37.50
	Total	13.01	274	7.06	41.00

Year	School Level	*M*	N	*SD*	Range
2016-19	ECC	12.99	92	8.02	37.50
	Primary	13.96	107	6.48	39.50
	Intermediate	12.83	131	7.59	47.00
	Middle	13.04	216	6.92	42.50
	High	13.40	274	7.33	38.50
	Total	13.24	820	7.23	48.00

Table 18

One-Way ANOVA of School Level on the Number of Absences

Year	Source	*df*	*SS*	*MS*	*F*	*p*	η^2
2016-17	Between groups	4	117.44	29.36	0.60	.665	<0.01
	Within groups	262	12883.97	49.18			
	Total	266	13001.41				
2017-18	Between groups	4	395.63	98.91	1.72	.146	0.02
	Within groups	274	15785.31	57.61			
	Total	278	16180.94				
2018-19	Between groups	4	63.16	15.78	0.31	.869	<0.01
	Within groups	269	13561.05	59.41			
	Total	273	13624.21				
2016-19	Between groups	4	98.78	24.69	0.47	.757	<0.01
	Within groups	815	42735.39	52.44			
	Total	819	42834.17				

A combination of descriptive statistics and one-way ANOVAs were conducted to analyze the effect of degree earned on the number of teacher absences. An examination of the means indicated that during the 2016-17 school year, teachers with a bachelor's (M = 10.71, SD = 5.73) missed fewer days of work than teachers with a master's (M = 13.37, SD = 6.58), master's + 10 (M = 15.17, SD = 8.93), master's + 20 (M = 12.23, SD = 7.04), master's + 30 (M = 15.57, SD = 7.15), or master's + 45 (M = 13.95, SD = 6.91). An analysis of variance showed the effect of degree earned on absentee rates was significant, $F(5,261) = 2.60$, $p = .026$, $\eta^2 = 0.05$. Post hoc analyses were conducted using Tukey's Honest Significant Difference test. The post hoc test

indicated that a statistically significant difference occurred between teachers with bachelor's and teachers with a master's +30 and master's +45.

The results for the 2017-18 school year suggested there were statistically significant differences among the number of absences taken by teachers with a bachelor's (M = 12.05, SD = 8.76), master's (M = 12.63, SD = 7.26), master's + 10 (M = 13.31, SD = 7.34), master's + 20 (M = 14.00, SD = 6.74), master's + 30 (M = 14.40, SD = 8.26), or master's + 45 (M = 13.62, SD = 7.33), $F(5,273) = 0.56$, $p = .734$, $\eta^2 = 0.02$. An examination of the means for the 2018-19 school year showed teachers with a master's + 10 (M = 11.31, SD = 6.5) missed work less frequently than teachers with a bachelor's (M = 11.34, SD = 6.44), master's (M = 13.89, SD = 7.96), master's + 20 (M = 11.67, SD = 5.88), master's + 30 (M = 13.50, SD = 5.96), or master's + 45 (M = 13.75, SD = 7.48). However, there was not a significant effect for degree earned on the number of days a teacher is absent from work, $F(5,268) = 1.30$, $p = .262$, $\eta^2 = 0.02$. The combined absentee data for the three school years studied suggested that a teacher with a bachelor's degree (M = 11.39, SD = 7.09) is less likely to miss work than a teacher with a master's (M = 13.29, SD = 7.29), master's + 10 (M = 13.82, SD = 7.97), master's + 20 (M = 12.68, SD = 6.54), master's + 30 (M = 14.47, SD = 7.10), or master's + 45 (M = 13.77, SD = 7.22). However, the one-way ANOVA showed the effect of degree earned on teacher absentee rates was not significant, $F(5,814) = 3.11$, $p = .787$, $\eta^2 = 0.02$. The results are presented in Table 19 and Table 20.

Table 19

Mean Differences Absences by Degree

Year	Degree	*M*	N	*SD*	Range
2016-17	Bachelor's	10.71	46	5.73	23.50
	Master's	13.37	45	6.58	29.00
	Master's + 10	15.17	21	8.93	36.50
	Master's + 20	12.23	20	7.04	28.50
	Master's + 30	15.57	34	7.15	28.50
	Master's + 45	13.95	101	6.91	36.00
	Total	13.46	267	6.99	38.00
2017-18	Bachelor's	12.05	51	8.76	47.50
	Master's	12.63	52	7.26	33.00
	Master's + 10	13.31	16	7.34	30.50
	Master's + 20	14.00	23	6.74	24.00
	Master's + 30	14.40	31	8.26	41.50
	Master's + 45	13.62	106	7.33	42.00
	Total	13.25	279	7.63	48.00
2018-19	Bachelor's	11.34	57	6.44	36.00
	Master's	13.89	52	7.96	35.50
	Master's + 10	11.31	8	6.50	20.00
	Master's + 20	11.67	21	5.88	22.50
	Master's + 30	13.50	37	5.96	24.00
	Master's + 45	13.75	99	7.48	41.00
	Total	13.01	274	7.06	41.00
2016-19	Bachelor's	11.39	154	7.09	47.50
	Master's	13.29	149	7.29	39.00
	Master's + 10	13.82	45	7.97	38.00
	Master's + 20	12.68	64	6.54	28.50
	Master's + 30	14.47	102	7.10	41.50
	Master's + 45	13.77	306	7.22	42.00
	Total	13.24	820	7.23	48.00

Table 20

One-Way ANOVA of Degree Attained on the Number of Absences

Year	Source	*df*	*SS*	*MS*	*F*	*p*	η^2
2016-17	Between groups	5	616.50	123.30	2.60	.026	0.05
	Within groups	261	12384.91	47.45			
	Total	266	13001.41				

Year	Source	*df*	*SS*	*MS*	*F*	*p*	η^2
2017-18	Between groups	5	162.82	32.56	0.56	.734	0.02
	Within groups	273	16018.12	58.67			
	Total	278	16180.94				
2018-19	Between groups	5	323.64	64.73	1.30	.262	0.02
	Within groups	268	13300.57	49.63			
	Total	273	13624.21				
2016-19	Between groups	5	804.48	160.89	3.11	.787	0.02
	Within groups	814	42029.69	51.63			
	Total	819	42834.17				

The final set of demographic variables analyzed the effect of distance to work on teacher absenteeism rates. To compare the effect of distance to work on teacher absenteeism rates, an examination of the means and one-way ANOVAs were conducted. During the 2016-17 school year, the descriptive statistics indicated that teachers who lived 12.0-15.9 miles from work (M = 12.60, SD = 5.72) missed fewer days of school when compared to teachers who lived 0.0-3.9 miles from work (M = 13.26, SD = 6.89), 4.0-7.9 miles from work (M = 13.05, SD = 7.41), 8.0-11.9 miles from work (M = 14.86, SD = 7.78), or 16 or more miles from work (M = 13.88, SD = 6.31). However, the analysis of variance showed the effect of distance from work on the number of days a teacher missed per year was not statistically significant, $F(4,262) = 0.62$, $p = .651$, $\eta^2 = <0.01$. An examination of the means for the 2017-18 school year showed teachers who lived 0.0-3.9 miles from work (M = 12.48, SD = 7.87) were absent less often than teachers who lived 4.0-7.9 miles from work (M = 13.16, SD = 6.98), 8.0-11.9 miles from work (M = 12.59, SD = 6.34), 12-15.9 miles from work (M = 13.18, SD = 9.46), or 16 or more miles from work (M = 14.69, SD = 8.39). The one-way ANOVA found that distance from work does not have significant effect on absentee rates, $F(4,274) = 0.71$, $p = .588$, $\eta^2 = 0.01$.

Although the descriptive statistics for the 2018-19 school year indicated teachers who lived 0-3 miles from work (M = 11.68, SD = 6.64) missed fewer days per year than teachers who lived 4.0-7.9 miles from work (M = 13.55, SD = 7.45), 8.0-11.9 miles from work (M = 13.69, SD = 6.72), 12-15.9 miles from work (M = 12.98, SD = 7.85), or 16 or more miles from work (M = 12.89, SD = 6.62), the analysis of variance determined that the effect for school level on the number of absences was not significant, $F(4,269) = 0.72$, $p = .580$, $\eta^2 = 0.01$.

The absentee data for the aggregate data set suggested teachers who lived 0-3 miles from work (M = 12.47, SD = 7.15) were more likely to be absent from the classroom than teachers who lived 4.0-7.9 miles from work (M = 13.25, SD = 7.26), 8.0-11.9 miles from work (M = 13.70, SD = 6.96), 12-15.9 miles from work (M = 12.93, SD = 7.78), or 16 or more miles from work (M = 13.83, SD = 7.18). However, the effect of distance to work on the number of days missed per year was not significant, $F(4,815) = 0.88$, $p = .473$, $\eta^2 = <0.01$. The results are presented in Table 21 and Table 22.

Table 21

Mean Differences Absences by Distance to Work

Year	Distance to Work	*M*	N	*SD*	Range
2016-17	0.0-3.9 miles	13.26	53	6.89	31.50
	4.0-7.9 miles	13.05	98	7.41	32.00
	8.0-11.9 miles	14.86	38	7.78	35.00
	12.0-15.9 miles	12.60	26	5.72	20.50
	16 miles or more	13.88	52	6.31	36.50
	Total	13.46	267	6.99	38.00
2017-18	0.0-3.9 miles	12.48	56	7.87	42.50
	4.0-7.9 miles	13.16	101	6.98	32.50
	8.0-11.9 miles	12.59	39	6.34	23.50
	12.0-15.9 miles	13.18	28	9.46	47.50
	16 miles or more	14.69	55	8.39	41.50
	Total	13.25	279	7.63	48.00

Year	Distance to Work	*M*	N	*SD*	Range
2018-19	0.0-3.9 miles	11.68	54	6.64	37.00
	4.0-7.9 miles	13.55	98	7.45	39.50
	8.0-11.9 miles	13.69	40	6.72	36.00
	12.0-15.9 miles	12.98	29	7.85	37.00
	16 miles or more	12.89	53	6.62	23.50
	Total	13.01	274	7.06	41.00
2016-19	0.0-3.9 miles	12.47	163	7.15	42.50
	4.0-7.9 miles	13.25	297	7.26	42.00
	8.0-11.9 miles	13.70	117	6.96	36.00
	12.0-15.9 miles	12.93	83	7.78	47.50
	16 miles or more	13.83	160	7.18	44.00
	Total	13.24	820	7.23	48.00

Table 22

One-Way ANOVA of Distance to Work on the Number of Absences

Year	Source	*df*	*SS*	*MS*	*F*	*p*	η^2
2016-17	Between groups	4	121.17	30.29	0.62	.651	<0.01
	Within groups	262	12880.25	49.16			
	Total	266	13001.42				
2017-18	Between groups	4	165.11	41.28	0.71	.588	0.01
	Within groups	274	16015.83	58.45			
	Total	278	16180.94				
2018-19	Between groups	4	143.98	35.99	0.72	.580	0.01
	Within groups	269	13489.23	50.11			
	Total	273	13624.21				
2016-19	Between groups	4	185.15	46.29	0.88	.473	<0.01
	Within groups	815	42649.03	53.33			
	Total	819	42834.18				

Correlations Between Teacher Demographics and Teacher Absences

Correlation tests were conducted to examine the relationship between the number of teacher absences per year and age, gender, race, experience, school level, degree, and distance from work. The following guidelines were used to describe the correlation coefficient values of the relationship: (a) very strong, $.90 \leq | r | \leq 1.0$; (b) strong, $.70 \leq | r | \leq .89$; (c) moderate, $.50 \leq | r$

| ≤ .69; (d) weak, .30 ≤ | r | ≤ .49; (e) very weak, .00 ≤ | r | ≤ .29. Pearson Correlation tests were used to describe the relationship between teacher absentee rates and age, years of experience, and distance from work. To examine the relationship between the number of teacher absences and gender, a point-biserial correlation test was conducted. The point-biserial correlation test was selected to analyze these two variables because the test is specifically used to measure the strength and direction that exists between one dichotomous variable and one continuous variable, whereas the Pearson Correlation test is used to measure the relationship between two or more continuous variables. Point-biserial correlations were also used to measure the relationship between the number of days a teacher missed per year and the demographic variables for race and school level. To use the Point-biserial correlation to measure the strength and direction of the association between teacher absentee rates and race and school level, the independent variables were dummy coded into a series of dichotomous variables. The Kendall's tau-b correlation coefficient was used to measure the relationship between the ordinal variable, degree earned, and the number of teacher absences per year. As displayed in Table 23, the data suggested that all the relationships between absentee rates and age, gender, race, experience, school level, degree, and distance from work were very weak. Although the results indicated that all the relationships were very weak, there were four associations that were considered to be statistically significant. The data suggested that there was a significant relationship between gender and the number of teacher absences during the 2016-17 school year $r(267) = 0.19$, p =.002. When the data for the three years were combined, the relationship between gender and absentee rates was also found to be significant $r(820) = 0.12$, p =.001. The relationship between school level and the number of days a teacher misses per year was shown to be significant for the primary school during the 2017-18 school year $r(279) = - 0.12$, p =.001. The correlation between degree earned and teacher

absences during the 2016-17 year showed a significant positive correlation $r(267) = 0.10$, $p = .027$. The results suggest that as teachers earn more credits, they are also likely to miss more days of work.

Table 23

Correlations – All Demographic Variables Related Teacher Absences

Variable	*2016-17*		*2017-18*		*2018-19*		*2016-19*	
	r	*p*	*r*	*p*	*r*	*p*	*r*	*p*
Age	-0.03	.626	-0.05	.411	-0.07	.236	-0.05	.128
Gender	0.19	.002*	0.11	.063	0.05	.392	0.12	.001*
Race								
African American	0.01	.834	-0.10	.098	0.02	.348	-0.03	.348
Asian	-0.08	.119	-0.05	.413	-0.06	.357	0.06	.082
Hispanic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Caucasian	-0.07	.291	0.06	.307	-0.05	.410	-0.01	.811
Other	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Years of experience	0.02	.773	-0.02	.776	0.06	.344	0.02	.531
School level								
ECC	-0.06	.347	0.04	.487	0.04	.507	0.01	.822
Primary	0.06	.369	-0.15	.012**	-0.01	.900	-0.04	.333
Intermediate	-0.03	.606	0.06	.345	0.05	.441	0.04	.333
Middle	0.05	.388	0.02	.702	-0.03	.681	0.03	.493
High	-0.03	.669	0.03	.672	-0.04	.555	-0.03	.403
Degree earned	0.10	.027**	0.09	.053	0.09	.051	0.01	.833
Distance from work	0.04	.509	0.09	.147	0.02	.710	0.05	.137

Note: *** Correlation is significant at the 0.01 level (2-tailed).*
**** Correlation is significant at the 0.05 level (2-tailed).*

Student Achievement Scores

Descriptive statistics and one-way ANOVA tests were used to determine if there was a statistically significant difference between achievement scores for students who were instructed by chronically absent teachers and students who were not instructed by chronically absent teachers. An examination of the means for the 2016-17 school year suggested that Grade 2 DIBELS Next Oral Reading Fluency scores were higher for students who were not instructed by chronically absent teachers (M = 39.21, SD = 16.74) than students who were instructed by chronically absent teachers (M = 30.56, SD = 22.18). The analysis of variance showed the effect of chronically absent teachers on Grade 2 DIBELS Next scores was statistically significant, but the effect size was small, $F(1,174) = 6.00$, $p = .006$, $\eta^2 = 0.03$.

The descriptive statistics showed that Grade 2 DIBELS Next Oral Reading Fluency scores for students who were taught by teachers who missed fewer than 10 days of school (M = 31.41, SD = 14.18) during the 2017-18 school year were lower than students who were instructed by chronically absent teachers (M = 40.07, SD = 19.33). However, an analysis of variance found that teacher absence classification does not have a significant effect on Grade 2 DIBELS Next Oral Reading Fluency scores $F(1,152) = 3.19$, $p = .076$, $\eta^2 = 0.02$.

The data for the 2018-19 school year revealed through an examination of the means that students who were instructed by teachers who were regularly present (M = 36.84, SD = 22.23) scored lower on the Grade 2 DIBELS Next Oral Reading Fluency assessment than students who were instructed by teachers who missed 10 or more days of work (M = 38.76, SD = 20.13). The one-way ANOVA indicated the effect of chronically absent teachers on the Grade 2 DIBELS Next Oral Reading Fluency assessment was not significant, $F(1,191) = 0.40$, $p = .530$, $\eta^2 = <0.01$.

An examination of the means over the three-year period of the study indicated students who were instructed by teachers that were not classified as chronically absent (M = 36.98, SD = 19.90) had slightly higher Grade 2 DIBELS Next Oral Reading Fluency scores than their peers who were educated by teachers who were classified as chronically absent (M = 36.41, SD = 20.97). An analysis of variance showed that the effect of teacher absence classification did not significantly influence the Grade 2 DIBELS Next Oral Reading Fluency assessment scores $F(1,521) = 0.08$, $p = .773$, $\eta^2 = <0.01$. The results are presented in Table 24 and Table 25.

Table 24

Mean Difference Grade 2 DIBELS Next Scores by Absence Classification

Year	Absence Classification	*M*	N	*SD*	Range
2016-17	Not chronic	39.21	48	16.74	82.00
	Chronic	30.56	128	22.18	107.00
	Total	32.92	176	21.15	112.00
2017-18	Not chronic	31.41	17	14.18	51.00
	Chronic	40.07	137	19.33	89.00
	Total	39.11	154	18.99	89.00
2018-19	Not chronic	36.84	88	22.23	109.00
	Chronic	38.76	105	20.13	130.00
	Total	37.89	193	21.08	130.00
2016-19	Not chronic	36.98	153	19.90	109.00
	Chronic	36.41	370	20.97	133.00
	Total	36.58	523	20.64	133.00

Table 25

One-Way ANOVA of Grade 2 DIBELS on Absence Classification

Year	Source	*df*	*SS*	*MS*	*F*	*p*	η^2
2016-17	Between groups	1	2609.47	2609.47	6.00	.006*	0.03
	Within groups	174	75641.42	434.72			
	Total	175	78250.89				
2017-18	Between groups	1	1132.60	1132.60	3.19	.076	0.02
	Within groups	152	54044.53	355.56			
	Total	153	55177.13				

Year	Source	*df*	*SS*	*MS*	*F*	*p*	η^2
2018-19	Between groups	1	176.67	176.67	0.40	.530	<0.01
	Within groups	191	85166.82	445.90			
	Total	192	85343.49				
2016-19	Between groups	1	35.45	35.45	0.08	.773	<0.01
	Within groups	521	222408.32	426.89			
	Total	522	222443.77				

*Note: *Welch's ANOVA*

To compare the effect of chronically absent teachers on Grade 3 DIBELS Next Oral Reading Fluency scores, a combination of descriptive analyses and one-way ANOVAs were conducted. The results showed students who were not instructed by chronically absent teachers during the 2016-17 school year (M = 32.56, SD = 17.43) had significantly higher scores than students who were taught by teachers who missed 10 or more days of school (M = 27.17, SD = 16.59), but the effect size was small, $F(1,195) = 4.68$, $p = .032$, $\eta^2 = 0.02$. An examination of the means for the 2017-18 school year indicated students who were instructed by teachers who were absent from the classroom for fewer than 10 days of school (M = 32.18, SD = 18.38) scored lower on the Grade 3 DIBELS Next Oral Reading Fluency assessment than students who were instructed by chronically absent teachers (M = 33.53, SD = 17.94). However, the one-way ANOVA indicated that the effect of teacher absence classification on Grade 3 DIBELS Next Oral Reading Fluency scores was not significant, $F(1,196) = 0.26$, $p = .614$, $\eta^2 = <0.01$. Although the descriptive statistics for the 2018-19 Grade 3 DIBELS Next Oral Reading Fluency scores showed that students who were instructed by teachers who were not chronically absent (M = 27.80, SD = 14.95) scored lower than students in chronically absent teacher classrooms (M = 30.75, SD = 19.20), the effect was not significant, $F(1,184) = 1.21$, $p = .273$, $\eta^2 = <0.01$. When the absentee data were combined for the three school years studied, the one-way ANOVA revealed that the effect of chronically absent teachers on Grade 3 DIBELS Next Oral Reading

Fluency scores was not significant, $F(1,521) = 0.03$, $p = .868$, $\eta^2 = <0.01$. An examination of the means revealed that student achievement scores of teachers who missed fewer than 10 days of work ($M = 30.99$, $SD = 17.09$) were slightly higher than for chronically absent teachers ($M = 30.74$, $SD = 18.14$). The results are presented in Table 26 and Table 27.

Table 26

Mean Difference Grade 3 DIBELS Next Scores by Absence Classification

Year	Absence Classification	*M*	N	*SD*	Range
2016-17	Not chronic	32.56	88	17.43	86.00
	Chronic	27.17	99	16.59	115.00
	Total	29.71	187	17.16	115.00
2017-18	Not chronic	32.18	72	18.38	92.00
	Chronic	33.53	126	17.94	84.00
	Total	33.04	198	18.07	92.00
2018-19	Not chronic	27.80	70	14.95	70.00
	Chronic	30.75	116	19.20	121.00
	Total	29.64	186	17.74	121.00
2016-19	Not chronic	30.99	230	17.09	93.00
	Chronic	30.74	341	18.14	126.00
	Total	30.84	571	17.71	126.00

Table 27

One-Way ANOVA of Grade 3 DIBELS on Absence Classification

Year	Source	*df*	*SS*	*MS*	*F*	*p*	η^2
2016-17	Between groups	1	1351.03	1351.03	4.68	.032	0.02
	Within groups	195	53423.80	288.78			
	Total	186	54774.82				
2017-18	Between groups	1	83.65	83.65	0.26	.614	<0.01
	Within groups	196	64214.03	327.62			
	Total	197	64297.68				
2018-19	Between groups	1	379.92	379.92	1.21	.273	<0.01
	Within groups	184	57832.95	314.31			
	Total	185	58212.87				
2016-19	Between groups	1	8.74	8.74	0.03	.868	<0.01
	Within groups	521	178743.75	314.18			
	Total	522	178752.49				

*Note: *Welch's ANOVA*

Descriptive statistics and one-way ANOVAs were conducted to analyze the effect of teacher absence classification on Grade 4 DIBELS Next Oral Reading Fluency scores. An examination of the means indicated that during the 2016-17 school year, student achievement scores on the Grade 4 DIBELS Next Oral Reading Fluency assessment were lower if instructed by teachers who missed fewer than 10 days of schools (M = 28.09, SD = 20.70) than if taught by chronically absent teachers (M = 31.14, SD = 19.98). An analysis of variance showed the effect of teacher absence classification on Grade 4 DIBELS Next Oral Reading Fluency scores was not significant, $F(1,202) = 0.90$, $p = .344$, $\eta^2 = <0.01$.

An examination of the means for the 2017-18 school year showed students who were educated by teachers who were regularly in attendance (M = 28.86, SD = 15.27) scored lower on the Grade 4 DIBELS Next Oral Reading Fluency assessment than students who were taught by teachers who missed at least 10 days of school per year (M = 30.23, SD = 17.03). The one-way ANOVA indicated that chronically absent teachers did not significantly impact Grade 4 DIBELS Next Oral Reading Fluency scores, $F(1,218) = 0.28$, $p = .619$, $\eta^2 = <0.01$.

The results for the 2018-19 school year suggested that there is no significant difference between Grade 4 DIBELS Next Oral Reading Fluency scores for students instructed by teachers who missed fewer than 10 days of work (M = 28.02, SD = 19.02), and scores for students instructed by teachers who were chronically absent (M = 30.81, SD = 15.93), $F(1,215) = 1.37$, $p = .249$, $\eta^2 = <0.01$. The aggregate absentee data suggested that students instructed by teachers who were not chronically absent (M = 28.38, SD = 18.18) scored lower on the Grade 4 DIBELS Next Oral Reading Fluency assessments than students instructed by teachers who missed a minimum of 10 days of work (M = 30.79, SD = 17.32). However, the effect of chronically absent

teachers on Grade 4 DIBELS Next Oral Reading Fluency scores was not significant, $F(1,639) = 2.43$, $p = .120$, $\eta^2 = <0.01$. The results are presented in Table 28 and Table 29.

Table 28

Mean Difference Grade 4 DIBELS Next Scores by Absence Classification

Year	Absence Classification	*M*	N	*SD*	Range
2016-17	Not chronic	28.09	148	20.70	95.00
	Chronic	31.14	56	19.98	114.00
	Total	28.93	204	20.50	131.00
2017-18	Not chronic	28.86	181	15.27	92.00
	Chronic	30.23	39	17.03	84.00
	Total	29.10	220	15.56	92.00
2018-19	Not chronic	28.02	119	19.02	91.00
	Chronic	30.81	98	15.93	87.00
	Total	29.28	217	17.70	91.00
2016-19	Not chronic	28.38	448	18.18	106.00
	Chronic	30.79	193	17.32	120.00
	Total	29.11	641	17.94	131.00

Table 29

One-Way ANOVA of Grade 4 DIBELS on Absence Classification

Year	Source	*df*	*SS*	*MS*	*F*	*p*	η^2
2016-17	Between groups	1	379.18	379.18	0.90	.344	<0.01
	Within groups	202	84966.72	288.78			
	Total	203	85345.90				
2017-18	Between groups	1	60.13	60.13	0.28	.619	<0.01
	Within groups	218	52974.47	244.00			
	Total	219	53034.60				
2018-19	Between groups	1	418.13	418.13	1.37	.249	<0.01
	Within groups	215	67279.28	312.93			
	Total	216	67697.41				
2016-19	Between groups	1	780.77	780.77	2.43	.120	<0.01
	Within groups	639	205310.02	321.30			
	Total	640	206090.79				

*Note: *Welch's ANOVA*

To analyze the effects of chronically absent teachers on Grade 5 DIBELS Next Oral Reading Fluency scores, an examination of the means and one-way ANOVAs were conducted. During the 2016-17 school year, the descriptive statistics indicated students instructed by teachers who were not classified as chronically absent (M = 21.59, SD = 19.45) scored lower on the Grade 5 DIBELS Next Oral Reading Fluency assessment when compared to students educated by chronically absent teachers (M = 24.58, SD = 14.13). However, the one-way ANOVA showed the effect of teacher absence classification on the Grade 5 DIBELS Next Oral Reading Fluency scores was not statistically significant, $F(1,184) = 1.33$, $p = .250$, $\eta^2 = <0.01$. The descriptive statistics showed students taught by teachers who missed fewer than 10 day of work (M = 28.66, SD = 13.12) during the 2017-18 school year had lower Grade 5 DIBELS Next Oral Reading Fluency scores than their peers who were instructed by teachers who missed 10 or more days of work (M = 29.62, SD = 17.25). An analysis of variance found teacher absence classification does not have a significant effect on Grade 5 DIBELS Next Oral Reading Fluency scores, $F(1,208) = 0.21$, $p = .651$, $\eta^2 = <0.01$.

Although the examination of the means for the 2018-19 school year showed students instructed by teachers who were not chronically absent (M = 20.90, SD = 13.35) recorded lower scores than students instructed by chronically absent teachers (M = 27.73, SD = 19.82), the effect of chronically absent teachers on the Grade 5 DIBELS Next Oral Reading Fluency scores was not significant, $F(1,201) = 2.36$, $p = .126$, $\eta^2 = 0.01$.

The absentee data for the three school years studied suggested students taught by teachers who missed fewer than 10 days of work (M = 24.63, SD = 16.74) were more likely to score lower on the Grade 5 DIBELS Next Oral Reading Fluency assessment than students who were instructed by teachers who were chronically absent (M = 27.63, SD = 18.05). The effect of

teacher absence classification on the aggregate Grade 5 DIBELS Next Oral Reading Fluency scores was shown to be significant, $F(1,597) = 4.13$, $p = .043$, $\eta^2 = $ <0.01. The results are presented in Table 30 and Table 31.

Table 30

Mean Difference Grade 5 DIBELS Next Scores by Absence Classification

Year	Absence Classification	*M*	N	*SD*	Range
2016-17	Not chronic	21.59	109	19.45	161.00
	Chronic	24.58	77	14.13	66.00
	Total	22.83	186	17.46	161.00
2017-18	Not chronic	28.66	102	13.12	62.00
	Chronic	29.62	108	17.25	117.00
	Total	29.15	210	15.35	117.00
2018-19	Not chronic	20.90	21	13.35	44.00
	Chronic	27.73	182	19.82	128.00
	Total	27.02	203	19.34	128.00
2016-19	Not chronic	24.63	232	16.74	161.00
	Chronic	27.63	367	18.05	128.00
	Total	26.47	599	17.60	200.00

Table 31

One-Way ANOVA of Grade 5 DIBELS on Absence Classification

Year	Source	*df*	*SS*	*MS*	*F*	*p*	η^2
2016-17	Between groups	1	405.37	405.37	1.33	.250	<0.01
	Within groups	184	56007.12	304.39			
	Total	185	56412.49				
2017-18	Between groups	1	48.70	48.70	0.21	.651	<0.01
	Within groups	208	49224.43	236.66			
	Total	209	49273.13				
2018-19	Between groups	1	877.26	877.26	2.36	.126	0.01
	Within groups	201	74687.62	371.58			
	Total	202	75564.88				
2016-19	Between groups	1	1273.40	1273.40	4.13	.043	<0.01
	Within groups	597	184017.72	308.28			
	Total	598	185291.12				

Descriptive statistics and one-way ANOVA tests were used to establish if there were statistically significant differences between PVAAS Teacher Value Added Math scores for teachers who were chronically absent and scores for teachers who regularly attended work. During the 2016-17 school year, an examination of the means suggested that PVAAS Teacher Value Added Math scores were higher for teachers who were not chronically absent (M = 1.54, SD = 1.57) when compared to those who were chronically absent (M = 1.01, SD = 1.36). An analysis of variance showed the effect of chronically absent teachers on PVAAS Teacher Value Added Math scores during the 2016-17 school year was not statistically significant, $F(1,21) = 0.69$, $p = .415$ $\eta^2 = 0.04$.

An examination of the means showed PVAAS Teacher Value Added Math scores for teachers who missed less than 10 days of work (M = 0.39, SD = 1.74) during the 2017-18 school year were higher than chronically absent teachers (M = 0.12, SD = 2.33). The one-way ANOVA that was performed for the 2017-18 school year found teacher absence classification does not have significant effect on PVAAS Teacher Value Added Math scores $F(1,22) = 0.11$, $p = .745$ $\eta^2 = <0.01$.

A review of the descriptive data for the 2018-19 school year suggested teachers who are not chronically absent (M = 0.11, SD = 1.37) had lower PVAAS Teacher Value Added Math scores than teachers who missed a minimum of 10 days of work (M = 0.53, SD = 1.64). However, an analysis of variance indicated the effect of chronically absent teachers on PVAAS Teacher Value Added Math scores was not significant, $F(1,21) = 0.48$, $p = .511$, $\eta^2 = 0.02$.

The descriptive data for the three-year period of the study indicated that teachers who were not classified as chronically absent (M = .072, SD = 1.66) had slightly higher PVAAS Teacher Value Added Math scores than their colleagues who were chronically absent (M = 0.52,

SD = 1.83). A one-way ANOVA showed the effect of teacher absence classification did not significantly influence PVAAS Teacher Value Added Math scores $F(1,69) = 0.22$, $p = .643$, $\eta^2 = <0.01$. The results are presented in Table 32 and Table 33.

Table 32

Mean Difference by Absence Classification on PVAAS Math Scores

Year	Absence Classification	*M*	N	*SD*	Range
2016-17	Not chronic	1.54	14	1.57	5.85
	Chronic	1.01	9	1.36	4.53
	Total	1.33	23	1.48	5.85
2017-18	Not chronic	0.39	13	1.74	6.11
	Chronic	0.12	11	2.33	8.27
	Total	0.27	24	1.99	8.34
2018-19	Not chronic	0.11	12	1.37	4.52
	Chronic	0.53	11	1.64	5.61
	Total	0.31	23	1.49	5.61
2016-19	Not chronic	0.72	39	1.66	8.05
	Chronic	0.52	31	1.83	8.27
	Total	0.63	70	1.72	8.34

Table 33

One-Way ANOVA of PVAAS Math Scores on Absence Classification

Year	Source	*df*	*SS*	*MS*	*F*	*p*	η^2
2016-17	Between groups	1	1.54	1.54	0.69	.415	0.04
	Within groups	21	46.84	2.23			
	Total	22	43.38				
2017-18	Between groups	1	.45	0.45	0.11	.745	<0.01
	Within groups	22	90.66	4.12			
	Total	23	91.11				
2018-19	Between groups	1	1.01	1.01	0.48	.511	0.02
	Within groups	21	47.65	2.27			
	Total	22	48.66				
2016-19	Between groups	1	0.65	0.65	0.22	.643	<0.01
	Within groups	69	204.39	3.01			
	Total	69	205.04				

A combination of descriptive statistics and one-way ANOVAs were conducted to determine the effect of teacher absence classification on PVAAS Teacher Value Added English Language Arts (ELA) scores. The descriptive statistics indicated that during the 2016-17 school year, teachers who missed 10 days or fewer (M = 0.64, SD = 2.10) had higher PVAAS Teacher Value Added ELA scores than chronically absent teachers (M = -0.01, SD = 1.60). An analysis of variance showed the effect of teacher absence classification on higher PVAAS Teacher Value Added ELA scores was not significant, $F(1,27) = 0.87$ $p = .359$, $\eta^2 = 0.03$.

An examination of the means for the 2017-18 school year showed teachers who were not chronically absent (M = 0.68, SD = 1.33) scored slightly higher on the PVAAS Teacher Value index for ELA than teachers who missed at least 10 days of school (M = 0.65, SD = 1.76). A one-way ANOVA indicated chronically absent teachers did not have a significant effect on the PVAAS Teacher Value Added ELA scores, $F(1,29) = 0.00$, $p = .957$, $\eta^2 = <0.01$.

The results for the 2018-19 school year suggested that no statistically significant difference existed between the PVAAS Teacher Value Added ELA scores for teachers who missed fewer than 10 days of work (M = 0.95, SD = 1.41), and teachers who missed a minimum of 10 days of school (M = 0.25, SD = 1.33), $F(1,25) = 1.65$, $p = .211$, $\eta^2 = 0.06$. The data analysis for the three school years studied suggested teachers who were not chronically absent (M = 0.73, SD = 1.61) had higher PVAAS Teacher Value Added ELA scores than teachers who were chronically absent (M = 0.28, SD = 1.54). However, the effect of teacher absence classification on PVAAS Teacher Value Added ELA scores was not significant, $F(1,85) = 1.18$, $p = .187$, $\eta^2 = 0.02$. The results are presented in Table 34 and Table 35.

Table 34

Mean Difference by Absence Classification on PVAAS ELA Scores

Year	Absence Classification	*M*	N	*SD*	Range
2016-17	Not chronic	0.64	14	2.10	7.18
	Chronic	-0.01	15	1.60	5.25
	Total	0.30	29	1.85	7.18
2017-18	Not chronic	0.68	18	1.33	5.04
	Chronic	0.65	13	1.76	5.77
	Total	0.67	31	1.50	5.77
2018-19	Not chronic	0.95	10	1.41	4.59
	Chronic	0.25	17	1.33	5.08
	Total	0.51	27	1.38	7.06
2016-19	Not chronic	0.73	42	1.61	8.24
	Chronic	0.28	45	1.54	7.42
	Total	0.50	87	1.58	8.24

Table 35

One-Way ANOVA of PVAAS ELA Scores on Absence Classification

Year	Source	*df*	*SS*	*MS*	*F*	*p*	η^2
2016-17	Between groups	1	3.00	3.00	0.87	.359	0.03
	Within groups	27	93.10	3.45			
	Total	28	96.10				
2017-18	Between groups	1	.01	0.01	0.00	.957	<0.01
	Within groups	29	67.08	2.31			
	Total	30	67.09				
2018-19	Between groups	1	3.04	3.04	1.65	.211	0.06
	Within groups	25	46.10	1.84			
	Total	26	49.14				
2016-19	Between groups	1	4.37	4.37	1.18	.187	0.02
	Within groups	85	209.97	2.47			
	Total	86	214.34				

To determine the effect of teacher absence classification on PVAAS Teacher Value Added Science scores, descriptive analyses and one-way ANOVAs were conducted. The results showed chronically absent teachers (M = 2.19, SD = 1.39) had higher scores on the PVAAS

Teacher Value Added index for Science than teachers who missed at least 10 days of school (M = 2.20, SD = 1.38), $F(1,7) = 0.00$, $p = .995$, $\eta^2 = <0.01$. An examination of the descriptive statistics for the 2017-18 school year indicated teachers who were absent fewer than 10 days of school per year (M = 0.73, SD = 1.48) had lower PVAAS Teacher Value Added Science scores than chronically absent teachers (M = 0.76, SD = 2.62). However, the analysis of variance indicated the effect of chronically absent teachers on PVAAS Teacher Value Added Science scores was not significant, $F(1,7) = 0.00$, $p = .985$, $\eta^2 = <0.01$. Although the examination of the means for the 2018-19 school year showed teachers who were not chronically absent (M = 0.69, SD = 1.08) had lower scores than chronically absent teachers (M = 1.06, SD = 1.35), there was not a significant effect for teacher absence classification on PVAAS Teacher Value Added Science scores, $F(1,7) = 0.21$, $p = .662$, $\eta^2 = 0.03$. The combined data for the three school years studied revealed chronically absent teachers did not have a significant effect on PVAAS Teacher Value Added Science scores, $F(1,25) = 0.79$, $p = .778$, $\eta^2 = <.001$. The descriptive statistics revealed the scores on the PVAAS Teacher Value Added Science index for teachers who missed fewer than 10 days of work (M = 1.21, SD = 1.46) were lower than chronically absent teachers (M = 1.37, SD = 1.56). The results are presented in Table 36 and Table 37.

Table 36

Mean Difference by Absence Classification on PVAAS ELA Scores

Year	Absence Classification	*M*	N	*SD*	Range
2016-17	Not chronic	2.19	6	1.39	3.91
	Chronic	2.20	3	1.38	2.47
	Total	2.19	9	1.30	3.91
2017-18	Not chronic	0.73	7	1.48	3.75
	Chronic	0.76	2	2.62	3.70
	Total	0.74	9	1.58	3.81

Year	Absence Classification	*M*	N	*SD*	Range
2018-19	Not chronic	0.69	5	1.08	2.58
	Chronic	1.06	4	1.35	2.94
	Total	0.86	9	1.14	3.03
2016-19	Not chronic	1.21	18	1.46	5.24
	Chronic	1.37	9	1.56	4.16
	Total	1.26	27	1.46	5.24

Table 37

One-Way ANOVA of PVAAS Science Scores on Absence Classification

Year	Source	*df*	*SS*	*MS*	*F*	*p*	η^2
2016-17	Between groups	1	0.00	0.00	0.00	.995	<0.01
	Within groups	7	13.56	1.94			
	Total	8	13.56				
2017-18	Between groups	1	0.00	0.00	0.00	.985	<0.01
	Within groups	7	20.04	2.86			
	Total	8	20.04				
2018-19	Between groups	1	0.30	0.30	0.21	.662	0.03
	Within groups	7	10.16	1.45			
	Total	8	10.46				
2016-19	Between groups	1	0.16	0.16	0.79	.788	<.0.01
	Within groups	25	55.63	2.23			
	Total	26	55.79				

To analyze the effects of teacher absence classification on PVAAS Teacher Value Added Algebra I scores, an examination of the means and one-way ANOVAs were conducted. During the 2016-17 school, the descriptive statistics indicated teachers who were not classified as chronically absent ($M = 2.06$, $SD = 2.00$) scored lower on the PVAAS Teacher Value Added Algebra I index than teachers who were classified as chronically absent ($M = 2.99$, $SD = 0.00$), but an analysis of variance showed the effect of teacher absence classification on PVAAS Teacher Value Added Algebra I scores was not statistically significant, $F(1,9) = 0.20$, $p = .667$, $\eta^2 = 0.02$.

The examination of the means showed teachers who missed fewer than 10 days of school (M = 2.15, SD = 1.45) during the 2017-18 school year had lower PVAAS Teacher Value Added Algebra I scores than teachers who were absent from the classroom for 10 days or more (M = 2.41, SD = 3.61). An analysis of variance found chronically absent teachers do not have a significant effect on PVAAS Teacher Value Added Algebra I scores, $F(1,7) = 0.03$, $p = .913$, $\eta^2 = <0.01$. The results of the one-way ANOVA indicated that the homogeneity of variance violated the assumption that all comparison groups have the same variance; therefore, the Welch's ANOVA was used to determine the significance level.

The descriptive statistics for the 2018-19 school year showed teachers who were not chronically absent (M = 3.58, SD = 2.38) recorded lower scores on the PVAAS Teacher Value Added Algebra I index than chronically absent teachers (M = 5.31, SD = 0.66). However, there was not a significant effect for teacher absence classification on PVAAS Teacher Value Added Algebra I scores, $F(1,6) = 1.97$, $p = .210$, $\eta^2 = 0.25$.

The absentee data for the three school years studied suggested teachers who miss fewer than 10 days of school (M = 2.13, SD = 1.71) were more likely to score lower on the PVAAS Teacher Value Added Algebra I scores than teachers who missed 10 or more days of school (M = 2.36, SD = 2.28). An analysis of variance determined the effect of teacher absence classification on PVAAS Teacher Value Added Algebra I scores was not significant, $F(1,24) = 0.09$, $p = .771$, $\eta^2 = <0.01$. The results are presented in Table 38 and Table 39.

Table 38

Mean Difference by Absence Classification on PVAAS Algebra I Scores

Year	Absence Classification	*M*	N	*SD*	Range
2016-17	Not chronic	2.06	10	2.00	6.42
	Chronic	2.99	1	--	--
	Total	2.14	11	1.91	6.42
2017-18	Not chronic	2.15	6	1.45	4.39
	Chronic	2.41	3	3.61	6.55
	Total	2.23	9	2.14	6.55
2018-19	Not chronic	3.58	4	2.38	5.52
	Chronic	5.31	4	0.66	1.38
	Total	4.44	8	1.86	5.52
2016-19	Not chronic	2.13	17	1.71	6.35
	Chronic	2.36	9	2.28	6.55
	Total	2.21	26	1.88	6.55

Table 39

One-Way ANOVA of PVAAS Algebra I Scores on Absence Classification

Year	Source	*df*	*SS*	*MS*	*F*	*p*	η^2
2016-17	Between groups	1	0.79	0.79	0.20	.667	0.02
	Within groups	9	35.87	3.99			
	Total	10	36.66				
2017-18	Between groups	1	0.14	0.14	0.03	.913*	<0.01
	Within groups	7	36.58	5.23			
	Total	8	36.72				
2018-19	Between groups	1	5.99	5.99	1.97	.210	0.25
	Within groups	6	18.27	3.05			
	Total	7	24.26				
2016-19	Between groups	1	0.32	0.32	0.09	.771	<.0.01
	Within groups	24	88.33	3.69			
	Total	25	88.65				

*Note: *Welch's ANOVA*

Descriptive statistics and one-way ANOVAs were used to analyze the differences between PVAAS Teacher Value Added Literature scores for teachers who were chronically

absent and teachers who were not classified as chronically absent. During the 2016-17 school year, an examination of the means showed PVAAS Teacher Value Added Literature scores were lower for teachers who were not chronically absent (M = 2.29, SD = 1.44) compared to teachers who were chronically absent (M = 3.92, SD = 3.35). The analysis of variance indicated chronically absent teachers did not have a statistically significant effect on PVAAS Teacher Value Added Literature scores, $F(1,5) = 0.41$, $p = .551$ $\eta^2 = 0.08$.

An examination of the means showed PVAAS Teacher Value Added Literature scores for teachers who missed fewer than 10 days of school (M = 2.69, SD = 0.00) during the 2017-18 school year were higher than chronically absent teachers (M = 2.19, SD = 1.73). A one-way ANOVA found teacher absence classification does not have a significant effect on PVAAS Teacher Value Added Literature scores $F(1,5) = 0.07$, $p = .799$ $\eta^2 = 0.01$.

The descriptive statistics for the 2018-19 school year revealed that teachers who are not chronically absent (M = 2.94, SD = 2.25) had higher PVAAS Teacher Value Added Literature scores than teachers who missed 10 or more days of school (M = 2.07, SD = 1.45). An analysis of variance indicated chronically absent teachers do not have a significant effect on the PVAAS Teacher Value Added Literature scores, $F(1,6) = 0.44$, $p = .531$, $\eta^2 = 0.07$.

An examination of the means over the three-year period of the study indicated teachers who were not classified as chronically absent (M = 2.63, SD = 1.37) had slightly lower PVAAS Teacher Value Added Literature scores than their colleagues who were considered chronically absent (M = 2.65, SD = 2.26). A one-way ANOVA showed the effect of teacher absence classification did not significantly influence PVAAS Teacher Value Added Literature scores $F(1,20) = 0.00$, $p = .980$, $\eta^2 = <0.01$. The results are presented in Table 40 and Table 41.

Table 40

Mean Difference by Absence Classification on PVAAS Literature Scores

Year	Absence Classification	*M*	N	*SD*	Range
2016-17	Not chronic	2.29	2	1.44	2.03
	Chronic	3.92	5	3.35	8.08
	Total	3.45	7	2.91	8.08
2017-18	Not chronic	2.69	1	--	--
	Chronic	2.19	6	1.73	4.34
	Total	2.26	7	1.59	4.34
2018-19	Not chronic	2.94	2	2.25	3.18
	Chronic	2.07	6	1.45	3.90
	Total	2.28	8	1.55	4.24
2016-19	Not chronic	2.63	5	1.37	3.26
	Chronic	2.65	17	2.26	8.08
	Total	2.65	22	2.06	8.08

Table 41

One-Way ANOVA of PVAAS Literature Scores on Absence Classification

Year	Source	*df*	*SS*	*MS*	*F*	*p*	η^2
2016-17	Between groups	1	3.83	3.83	0.41	.551	0.08
	Within groups	5	47.91	9.38			
	Total	6	50.74				
2017-18	Between groups	1	0.22	0.22	0.07	.799	0.01
	Within groups	5	15.00	3.00			
	Total	6	15.22				
2018-19	Between groups	1	1.15	1.15	0.44	.531	0.07
	Within groups	6	15.61	2.60			
	Total	7	16.76				
2016-19	Between groups	1	0.00	0.00	0.00	.980	<.0.01
	Within groups	20	89.37	4.47			
	Total	21	89.37				

A combination of descriptive statistics and one-way ANOVAs were conducted to analyze the effect of teacher absence classification on PVAAS Teacher Value Added Biology scores. A review of the descriptive statistics indicated that during the 2016-17 school year, teachers who

missed fewer than 10 days of school (M = 6.91, SD = 3.72) had higher PVAAS Teacher Value Added Biology scores than chronically absent teachers (M = 0.05, SD = 1.87). However, an analysis of variance showed the effect of teacher absence classification on PVAAS Teacher Value Added Biology scores was not significant, $F(1,2) = 5.43$ $p = .188$, $\eta^2 = 0.73$.

A one-way ANOVA for the 2017-18 school year could not be calculated because all the high school biology teachers missed 10 or more days of school. The results for the 2018-19 school year suggested no statistically significant differences existed between PVAAS Teacher Value Added Biology scores for teachers who missed fewer than 10 days of work (M = 2.10, SD = 0.00) and teachers who missed at least 10 days of school (M = 4.60, SD = 5.15), $F(1,3) = 0.19$, $p = .693$, $\eta^2 = 0.06$. The absentee data for the three school years combined suggested teachers who were not chronically absent (M = 5.31, SD = 3.82) had higher PVAAS Teacher Value Added Biology scores than teachers who were chronically absent (M = 3.86, SD = 4.16). However, the effect of teacher absence classification on the PVAAS Teacher Value Added Biology scores was not significant, $F(1,11) = 0.29$, $p = .603$ $\eta^2 = 0.03$. The results are presented in Table 42 and Table 43.

Table 42

Mean Difference by Absence Classification on PVAAS Biology Scores

Year	Absence Classification	*M*	N	*SD*	Range
2016-17	Not chronic	6.91	2	3.72	5.26
	Chronic	0.05	2	1.87	2.65
	Total	3.48	4	4.64	10.82
2017-18	Not chronic	--	0	--	--
	Chronic	5.03	4	3.45	7.25
	Total	5.03	4	3.45	7.25
2018-19	Not chronic	2.10	1	--	--
	Chronic	4.60	4	5.15	9.54
	Total	4.10	5	4.60	9.54

Year	Absence Classification	*M*	N	*SD*	Range
2016-19	Not chronic	5.31	3	3.82	7.44
	Chronic	3.86	10	4.16	10.82
	Total	4.20	13	3.98	10.82

Table 43

One-Way ANOVA of PVAAS Biology Scores on Absence Classification

Year	Source	*df*	*SS*	*MS*	*F*	*p*	η^2
2016-17	Between groups	1	47.13	47.13	5.43	.188	0.73
	Within groups	2	17.35	8.63			
	Total	3	64.48				
2017-18	Between groups	--	--	--	--	--	--
	Within groups	--	--	--			
	Total	--	--				
2018-19	Between groups	1	5.00	5.00	0.19	.693	0.06
	Within groups	3	79.57	26.52			
	Total	4	84.57				
2016-19	Between groups	1	4.82	4.82	0.29	.603	0.03
	Within groups	11	184.86	16.81			
	Total	12	189.68				

One-way ANOVAs were conducted to compare the effect of teacher absence classification on high school final exam grades. For the purposes of this study, final exam grades were calculated for only courses that had at least one teacher who met the chronically absent teacher classification requirements and one teacher who did not meet the chronically absent requirements. Descriptive statistics were used to make comparisons between the two teacher absence classifications.

The examination of the means showed that Algebra I final exam grades for students who were instructed by teachers who missed 10 or fewer days of school (M = 80.56, SD = 15.29) during the 2018-19 school year were slightly higher than students who were instructed by teachers who missed a minimum of 10 days of work (M = 79.28, SD = 13.78). An analysis of

variance found teacher absence classification does not have a significant effect on Algebra I final exam grades $F(1,126) = 0.22$, $p = .639$, $\eta^2 = <0.01$. The results are presented in Table 44 and Table 45

Table 44

Mean Difference by Absence Classification on Algebra I Final Exam

Year	Absence Classification	*M*	N	*SD*	Range
2018-19	Not chronic	80.56	82	15.29	59.00
	Chronic	79.28	46	13.78	53.00
	Total	80.10	128	14.72	60.00

Table 45

One-Way ANOVA of Algebra I Final Exam on Absence Classification

Year	Source	*df*	*SS*	*MS*	*F*	*p*	η^2
2018-19	Between groups	1	48.16	48.16	0.22	.639	<0.01
	Within groups	126	27475.52	218.06			
	Total	127	27523.68				

Descriptive statistics for the 2017-18 school year showed students who were not instructed by a chronically absent teacher ($M = 83.45$, $SD = 2.91$) scored higher on the English 9 final exam than students who were instructed by a chronically absent teacher ($M = 72.71$, $SD = 11.54$). A one-way ANOVA indicated the effect of teacher absence classification on the English 9 final exam grades was not significant, $F(1,26) = 9.05$, $p = .002$, $\eta^2 = <0.01$. The Levene's test indicated that the homogeneity of variance was violated. Therefore, the Welch's ANOVA was used to determine the significance level. The results are presented in Table 46 and Table 47.

Table 46

Mean Difference by Absence Classification on English 9 Final Exam

Year	Absence Classification	*M*	N	*SD*	Range
2017-18	Not chronic	83.45	11	2.91	7.00
	Chronic	72.71	17	11.54	48.00
	Total	76.93	28	10.52	48.00

Table 47

One-Way ANOVA of English 9 Final Exam on Absence Classification

Year	Source	*df*	*SS*	*MS*	*F*	*p*	η^2
2017-18	Between groups	1	771.6	771.6	9.05	.002*	<0.01
	Within groups	26	2216.26	85.24			
	Total	27	2987.86				

*Note: *Welch's ANOVA*

An examination of the means for the 2017-18 school year showed students who were instructed by teachers who were regularly in attendance (M = 84.56, SD = 4.88) scored higher on the CP English 9 final exam than students who were taught by teachers who missed 10 or more days of school (M = 74.03, SD = 12.79). An analysis of variance indicated there was a significant effect for teacher absence classification on the CP English 9 final exam grades, $F(1,122) = 37.07$, $p = .000$, $\eta^2 = <0.23$. Likewise, the results for the 2018-19 school year suggested a statistically significant difference existed between the CP English 9 final exam grades for students instructed by teachers who missed fewer than 10 days of work (M = 84.02, SD = 5.91) and teachers who missed at least 10 days of school (M = 74.00, SD = 10.72), $F(1,106) = 32.76$, $p = .000$, $\eta^2 = 0.24$. Moreover, an examination of the means for the two years included in the study indicated students who were instructed by teachers who were not classified as chronically absent (M = 84.33, SD = 5.32) had slightly higher CP English 9 final exam grades than their peers who were educated by teachers who were considered chronically absent (M =

74.02, *SD* = 11.75). An analysis of variance showed the effect of teacher absence classification had significant influence on the CP English 9 final exam grades $F(1,230) = 71.12$, $p = .000$, $\eta^2 = 0.24$. The results of all three one-way ANOVAs indicated the homogeneity of variance violated the assumption that all comparison groups have the same variance; therefore, the Welch's ANOVA was used to determine the significance level for CP English 9 final exam grades. The results are presented in Table 48 and Table 49.

Table 48

Mean Difference by Absence Classification on CP English 9 Final Exam

Year	Absence Classification	*M*	N	*SD*	Range
2017-18	Not chronic	84.56	63	4.88	21.00
	Chronic	74.03	61	12.79	52.00
	Total	79.38	124	10.94	52.00
2018-19	Not chronic	84.02	46	5.91	21.00
	Chronic	74.00	62	10.72	56.00
	Total	78.27	108	10.25	57.00
2017-19	Not chronic	84.33	109	5.32	22.00
	Chronic	74.02	123	11.75	58.00
	Total	78.86	232	10.62	58.00

Table 49

One-Way ANOVA of CP English 9 Final Exam on Absence Classification

Year	Source	*df*	*SS*	*MS*	*F*	*p*	η^2
2017-18	Between groups	1	3431.70	3431.70	37.07	.000*	0.23
	Within groups	122	11293.49	92.57			
	Total	123	14725.10				
2018-19	Between groups	1	2652.24	2652.24	32.76	.000*	0.24
	Within groups	106	8580.98	80.95			
	Total	107	11233.22				
2017-19	Between groups	1	6147.51	6147.51	71.12	.000*	0.24
	Within groups	230	19882.08	86.44			
	Total	231	26029.59				

*Note: *Welch's ANOVA*

The descriptive statistics for the 2017-18 school year showed students instructed by teachers who were not chronically absent (M = 72.81, SD = 14.46) scored lower on the CP Honors English 9 final exam than students instructed by chronically absent teachers (M = 74.13, SD = 12.99). The results of the one-way ANOVA showed there was not a significant effect for teacher absence classification on the CP Honors English 9 final exam, $F(1,99) = 0.19$, $p = .664$, $\eta^2 = <0.01$. The results are presented in Table 50 and Table 51.

Table 50

Mean Difference by Absence Classification on Honors English 9 Final Exam

Year	Absence Classification	*M*	N	*SD*	Range
2017-18	Not chronic	72.81	26	14.46	56.00
	Chronic	74.13	75	12.99	62.00
	Total	73.79	101	13.32	62.00

Table 51

One-Way ANOVA of Honors English 9 Final Exam on Absence Classification

Year	Source	*df*	*SS*	*MS*	*F*	*p*	η^2
2017-18	Between groups	1	33.93	33.93	0.19	.664	<0.01
	Within groups	99	17706.71	178.86			
	Total	100	17740.64				

The results for the 2017-18 school year suggested no statistically significant difference existed between the CP English 10 final exam grades for students instructed by teachers who missed fewer than 10 days of work (M = 72.81, SD = 14.46) and teachers who missed 10 or more days of work (M = 74.13, SD = 12.99), $F(1,99) = 0.19$, $p = .664$, $\eta^2 = <0.01$. The 2018-19 school year revealed that students who were not instructed by chronically absent teachers (M = 74.67, SD = 13.06) scored lower on the CP English 10 final exam when compared to students who were educated by chronically absent teachers (M = 76.17, SD = 14.33). An analysis of

variance indicated the effect of chronically absent teachers on the English 10 final exam grades was not significant, $F(1,10) = 0.04$, $p = .854$, $\eta^2 = <0.01$. The combined final exam grades for the two years studied suggested students instructed by teachers who missed fewer than 10 days of school ($M = 73.16$, $SD = 14.03$) scored slightly lower on the CP English 10 final exam than students instructed by teachers who missed at least 10 days of school ($M = 74.28$, $SD = 13.00$). However, an analysis of variance showed the effect of teacher absence classification on the CP English 10 final exam was not significant, $F(1,111) = 0.17$, $p = .685$, $\eta^2 = <0.01$. The results are presented in Table 52 and Table 53.

Table 52

Mean Difference by Absence Classification on CP English 10 Final Exam

Year	Absence Classification	*M*	N	*SD*	Range
2017-18	Not chronic	72.81	26	14.46	56.00
	Chronic	74.13	75	12.99	62.00
	Total	73.79	101	13.32	62.00
2018-19	Not chronic	74.67	6	13.06	32.00
	Chronic	76.17	6	14.33	36.00
	Total	75.42	12	13.10	40.00
2017-19	Not chronic	73.16	32	14.03	59.00
	Chronic	74.28	81	13.00	62.00
	Total	73.96	113	13.25	62.00

Table 53

One-Way ANOVA of CP English 10 Final Exam on Absence Classification

Year	Source	*df*	*SS*	*MS*	*F*	*p*	η^2
2017-18	Between groups	1	33.93	33.93	0.19	.664	<0.01
	Within groups	99	17706.71	178.86			
	Total	100	17740.64				
2018-19	Between groups	1	6.75	6.75	0.04	.854	<0.01
	Within groups	10	1880.17	188.02			
	Total	11	1886.92				

Year	Source	*df*	*SS*	*MS*	*F*	*p*	η^2
2017-19	Between groups	1	29.17	29.17	0.17	.685	<0.01
	Within groups	111	19626.69	176.82			
	Total	112	19655.86				

During the 2018-19 school year, the examination of the means indicated students who had teachers who were not chronically absent (M = 81.81, SD = 10.81) scored higher on the CP Biology final exam than students instructed by chronically absent teachers (M = 78.03, SD = 13.13). However, the one-way ANOVA revealed the effect of teacher absence classification on the CP Biology final exam was not statistically significant, $F(1,85) = 1.43$, $p = .234$, $\eta^2 = 0.02$. The results are presented in Table 54 and Table 55.

Table 54

Mean Difference by Absence Classification on CP Biology Final Exam

Year	Absence Classification	*M*	N	*SD*	Range
2018-19	Not chronic	81.81	21	10.81	42.00
	Chronic	78.03	66	13.13	52.00
	Total	78.94	87	12.66	52.00

Table 55

One-Way ANOVA of CP Biology Final Exam on Absence Classification

Year	Source	*df*	*SS*	*MS*	*F*	*p*	η^2
2018-19	Between groups	1	227.54	227.54	1.43	.234	0.02
	Within groups	85	13547.17	159.38			
	Total	86	13774.71				

An examination of the means showed students instructed by teachers who missed fewer than 10 days of school (M = 84.60, SD = 7.68) during the 2017-18 school year scored higher on the CP Chemistry final exam than their peers who were instructed by teachers who missed a minimum of 10 days of school (M = 73.80, SD = 13.05). An analysis of variance found teacher

absence classification did have a significant effect on the CP Chemistry final exam scores, but the effect size was small, $F(1,78) = 20.33$, $p = .002$, $\eta^2 = 0.21$. The Levene's test indicated the homogeneity of variance was violated. Therefore, the Welch's ANOVA was used to determine the significance level. The results are presented in Table 56 and Table 57.

Table 56

Mean Difference by Absence Classification on CP Chemistry Final Exam

Year	Absence Classification	*M*	N	*SD*	Range
2017-18	Not chronic	84.60	60	7.68	32.00
	Chronic	73.80	20	13.05	51.00
	Total	81.90	80	10.35	51.00

Table 57

One-Way ANOVA of CP Chemistry Final Exam on Absence Classification

Year	Source	*df*	*SS*	*MS*	*F*	*p*	η^2
2017-18	Between groups	1	1749.60	1749.60	20.33	.002*	0.21
	Within groups	78	6713.60	86.07			
	Total	79	8463.20				

*Note: *Welch's ANOVA*

The descriptive statistics for the 2018-19 school year showed students who were instructed by teachers who were not chronically absent ($M = 82.95$, $SD = 9.22$) scored higher on the Honors Chemistry final exam than students who were enrolled in chronically absent teacher classrooms ($M = 80.55$, $SD = 9.40$). An analysis of variance indicated chronically absent teachers did not have a significant effect on the Honors Chemistry final exam scores, $F(1,175) = 2.90$, $p = .090$, $\eta^2 = 0.02$. The results are presented in Table 58 and Table 59.

Table 58

Mean Difference by Absence Classification on Honors Chemistry Final Exam

Year	Absence Classification	*M*	N	*SD*	Range
2018-19	Not chronic	82.95	78	9.22	40.00
	Chronic	80.55	99	9.40	44.00
	Total	81.60	177	9.37	45.00

Table 59

One-Way ANOVA of Honors Chemistry Final Exam on Absence Classification

Year	Source	*df*	*SS*	*MS*	*F*	*p*	η^2
2018-19	Between groups	1	251.98	251.98	2.90	.090	0.02
	Within groups	175	15206.34	86.89			
	Total	176	15458.32				

Correlations Between Student Achievement Scores and Teacher Absences

Pearson Correlation tests were conducted to measure the strength of the linear association between the number of teacher absences per year and student achievement scores. A value of r = 1 indicated a perfect positive correlation, while a value of r = -1 signified a perfect negative correlation, and a value of r = 0 meant that no relationship existed between the two variables. A review of the data suggested that very weak relationships existed between the majority of independent and dependent variables. However, there were a number of associations that were shown to be either moderately or highly correlated. The correlation tests revealed there was a significant relationship between PVAAS Teacher Value Added Biology scores and the number of teacher absences during the 2017-18 school year $r(4) = -0.95$, $p = .045$. The results indicated that the relationship between the two variables had a very strong negative correlation. Additionally, the data indicated a moderately negative correlation existed between PVAAS Teacher Value Added Biology scores and the number of teacher absences during the 2016-17 school year, but that relationship was not significant $r(4) = -0.62$, $p = .378$.

The relationship between the final exam grades for English 9 and the number of teacher absences during the 2017-18 school year was shown to be significant with a moderate negative correlation $r(28) = -0.51$, $p = .006$. The results showed a significantly weak relationship between: (a) the CP English 9 final exam grades and teacher absences for the 2017-18 school year, $r(124) = -0.48$, $p = .000$; (b) the 2018-19 school year, $r(108) = -0.49$, $p = .000$); and (c) the aggregate grades for CP English final exams, $r(232) = -0.47$, $p = .00$. The correlation between the CP Chemistry final exam grades and teacher absences for the 2017-18 school year indicated a significantly weak correlation $r(80) = -0.46$, $p = .000$.

The data suggested there was a significant relationship between Grade 2 DIBELS Next Oral Reading Fluency scores and the number of teacher absences during the 2016-17 school year $r(175) = -0.22$, $p = .004$, and between the number of teacher absences and the combined Grade 4 DIBELS Next Oral Reading Fluency scores $r(640) = 0.08$, $p = .000$. The correlation between the Grade 2 DIBELS Next Oral Reading Fluency scores was categorized as a very weak negative relationship, while the Grade 4 DIBELS Next Oral Reading Fluency scores indicated a very weak positive relationship. The results are presented in Table 60.

Table 60

Correlations – All Demographic Variables Related to Teacher Absences

Variable	*2016-17*		*2017-18*		*2018-19*		*2016-19*	
	r	*p*	*r*	*p*	*r*	*p*	*r*	*p*
DIBELS								
Grade 2	-0.22	.004*	0.03	.718	-0.05	.071	-0.04	.346
Grade 3	-0.14	.054	0.03	.732	0.07	.338	0.03	.519
Grade 4	0.08	.214	0.07	.327	0.08	.239	0.08	.045**
Grade 5	0.07	.334	0.07	.318	0.11	.134	0.05	.273

Variable	*2016-17*		*2017-18*		*2018-19*		*2016-19*	
	r	*p*	*r*	*p*	*r*	*p*	*r*	*p*
PVAAS								
Math	-0.35	.101	-0.16	.453	-0.11	.606	-0.19	.113
ELA	-0.17	.367	0.03	.877	-0.15	.466	-0.10	.358
Science	-0.02	.959	-0.11	.788	0.02	.961	0.01	.946
Algebra I	0.12	.728	0.10	.796	0.17	.696	-0.01	.974
Literature	0.34	.450	-0.21	.650	-0.30	.468	0.13	.581
Biology	-0.62	.378	-0.95	.045*	0.26	.669	-0.29	.332
Final Exam Grades								
Algebra I	--	--	--	--	-0.04	.639	--	--
English 9	--	--	--	--	-0.51	.006*	--	--
CP English 9	--	--	-0.48	.000*	-0.49	.000*	-0.47	.000*
Honors English 9	--	--	0.01	.232	--	--	--	--
CP English 10	--	--	0.04	.664	0.06	.854	0.03	.738
CP Biology	--	--	--	--	-0.12	.288	--	--
CP Chemistry	--	--	-0.46	.000*	--	--	--	--
Honors Chemistry	--	--	--	--	-0.13	.090	--	--

*Note: * Correlation is significant at the 0.01 level (2-tailed).*

Teacher Absence Data

A chi-square goodness of fit test was used to determine if teacher absenteeism rates by leave category differed from randomness. During the 2016-17 school year, absenteeism rates among sick ($N = 1889$), professional ($N = 1290.5$), personal ($N = 618.5$), emergency ($N = 32$), unpaid ($N = 318$), funeral ($N = 87.5$), jury duty ($N = 13$), and military leave ($N = 15$) were determined to be statistically significant, χ^2 (7, $N = 4032.5$) = 6012.37, $p = .000$. Likewise, the absentee rates by leave category for the 2017-18 school year were also found statistically different among sick ($N = 1764$), professional ($N = 1204$), personal ($N = 654$), emergency ($N = 39.5$), unpaid ($N = 250.5$), funeral ($N = 91$), jury duty ($N = 18$), and military leave ($N = 11$), χ^2

(7, $N = 4376$) = 5148.75, $p = .000$. Moreover, the absentee rates by leave category for the 2018-19 school year were statistically different among sick ($N = 2031$), professional ($N = 1153$), personal ($N = 656.5$), emergency ($N = 26.5$), unpaid ($N = 407$), funeral ($N = 99.5$), jury duty ($N = 29$), and military leave ($N = 0$), χ^2 (7, $N = 3527.5$) = 4713.41, $p = .000$. Over the three-year period of the study, the absentee rates by leave category indicated that there was a statistically significant difference among sick ($N = 5658$), professional ($N = 3647.5$), personal (1929), emergency ($N = 98$), unpaid $N = (975.5)$, funeral ($N = 27$), jury duty ($N = 60$), and military leave (26), χ^2 (7, $N = 12643$) = 19010.47, $p = .000$. The results of the aggregated data are presented in Figure 1 below.

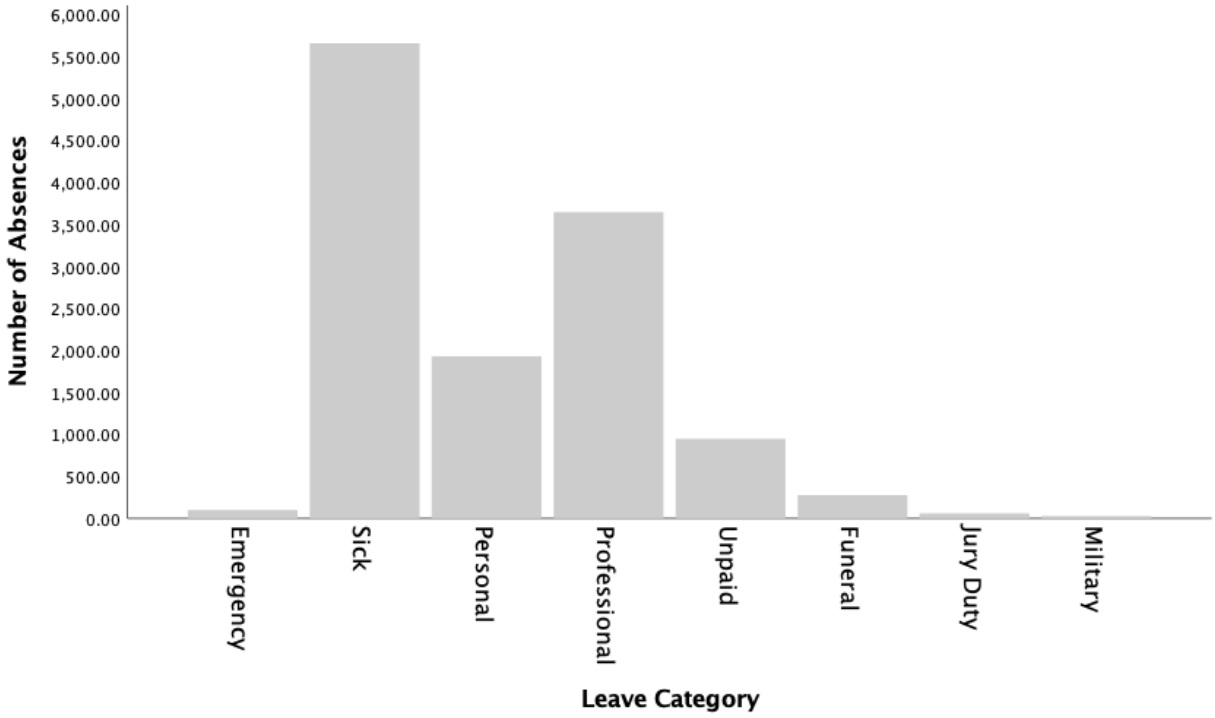

Figure 1. 2016-19 Total Number of Absences Per Year by Leave Category

A chi-square goodness of fit test was used to determine if teacher absenteeism rates by day of the week differed from randomness. During the 2016-17 school year, absenteeism rates among Monday ($N = 698.5$), Tuesday ($N = 817$), Wednesday ($N = 816.5$), Thursday ($N = 878.5$),

and Friday ($N = 1024$) were found to be significantly different, χ^2 (4, $N = 4234.5$) = 66.18, p = .000. The number of absences by day of the week for the 2017-18 school year were also shown to be statistically different: Monday ($N = 682.5$), Tuesday ($N = 751.5$), Wednesday ($N = 749$), Thursday ($N = 870.5$), and Friday ($N = 979$), χ^2 (4, $N = 4032.5$) = 68.72, p = .000. Likewise, the absentee rates by day of the week for the 2018-19 school year were statistically different: Monday ($N = 740.5$), Tuesday ($N = 849$), Wednesday ($N = 783.5$), Thursday ($N = 952$), and Friday ($N = 1051$), χ^2 (4, $N = 4376$) = 72.90, p = .000. Throughout the three-year period of the study, the absentee rates by day of the week indicated there were statistically significant differences among Monday ($N = 2121.5$), Tuesday ($N = 2417.5$), Wednesday ($N = 2349$), Thursday ($N = 2701$), and Friday ($N = 3054$), χ^2 (4, $N = 12643$) = 203.88, p = .000. The results of the aggregated data are presented in Figure 2 below.

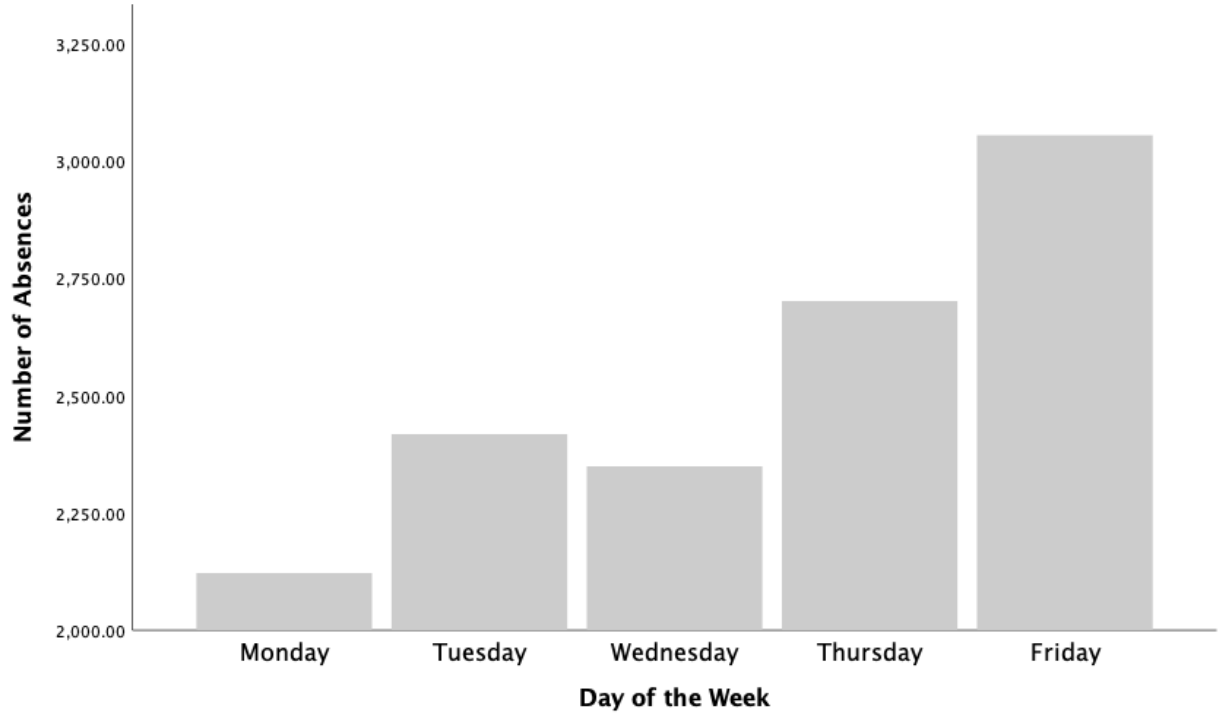

Figure 2. 2016-19 Total Number of Absences Per Year by Day of the Week

Secondary Research Questions

A review of the district's absentee records revealed that 180 teachers were deemed chronically absent during the 2016-17 school year. The data for the 2017-18 school year indicated that 167 teachers were classified as chronically absent. The district's absentee records also showed that 178 teachers missed more than 10 days during the 2018-19 school year. The percentage of chronically absent teachers during each year of the study was 63% for the 2016-17 school year, 59% during the 2017-18 school year, and 61% for the 2018-19 school year.

A review of the district's financial records indicated the substitute costs for the 2016-17 school year totaled $741,643.03. The cost to secure substitutes for the 2017-18 and 2018-19 school years decreased to $684,952.96 and $676,820.27, respectively. The combined cost for substitutes during the three-year span of the study totaled $2,103,416.26. The district's agreement with Educational Staffing Solutions (ESS), which serves as the district's substitute staffing agency, indicated that the rate for day-to-day substitutes was $100.00 per day, while building level and long-term substitutes were paid at a rate of $150.00 per day. The agreement noted that the mark-up rate for the 2016-17 and 2017-18 school years was 30.9% and 31.4% for the 2018-19 school year. As a result, the actual cost incurred by the district for a full-day substitute during the 2016-17 and 2017-18 school years was $130.90 for day-to-day substitutes and $196.35 for both building level and long-term substitutes. The day-to-day substitute costs for the 2018-19 school year increased to $131.40, and the cost for long-term and building level substitutes increased to $197.10 per day.

The collective bargaining agreement for the Hershey Education Association (HEA) indicates the following leave provisions are provided to professional employees: sick, personal, professional, doctoral study, emergency, funeral, jury duty, military, child rearing, and unpaid

leave. According to the agreement, sick leave may be taken without loss of pay for personal illness or to care for a spouse, dependent, or parent who is sick. Sick leave may also be taken without loss of pay to attend a personal medical appointment or to attend a medical appointment for a spouse, dependent, or parent. Professional employees are granted 10 sick days per year, and any unused sick leave can be accumulated from year-to-year.

Professional employees are granted three days of professional leave per year and can accumulate up to five days per year. Employees may request professional leaves of absence for personal reasons without loss of pay, provided the request is submitted at least 48 hours in advance to the building principal. Personal days are not permitted during in-service days or the first or last five student days of the school year. Personal leave days not used during the year can be: (a) carried over to the following year to a maximum of five days, (b) added to the employee's accumulated sick leave total, or (c) reimbursed at the current substitute rate per day for each unused day. The substitute rate during the course of the study was valued at $100.00 per day. The agreement notes that professional employees must contact their principal at least 24 hours in advance if they wish to cancel their personal leave request, or otherwise, the employee will be required to pay the difference between his or her per diem rate and any costs associated with securing the substitute. There was no language in the collective bargaining agreement or board policy that limited the number or percentage of teachers who could be absent per day due to personal leave reasons.

Doctoral study leave is available to employees who are doctoral candidate students. Employees can request up to five days of leave per school year without loss of personal leave days or pay provided the leave is approved by the Superintendent. Teachers are entitled to jury duty leave if required to appear under subpoena or jury summons in a county common pleas or

federal district court trial. Teachers required to appear under a subpoena or jury summons are excused from work without loss of net pay. Teachers who are called into active duty are entitled to use a maximum of 15 days of leave without loss of pay.

Funeral leave may be taken by professional employees without loss of pay as follows: (a) up to five days for the spouse, parent, mother-in-law, father-in-law, son, or daughter of the employee; (b) up to three days for the grandparents, grandchildren, or siblings of the employee; (c) one day for the day of the funeral of the aunt, uncle, niece, nephew, son-in-law, daughter-in-law, brother-in-law, sister-in-law, or first cousin of the employee. However, if the relative resided in the employee's household on the date of death, up to three days will be provided; or (d) for circumstances that do not meet the guidelines specified, an employee may seek approval from the Superintendent to grant additional funeral leave.

Employees have the option of using emergency leave provided the leave request is granted by the Superintendent. Emergency leave is approved for only extenuating circumstances that occur within 48 hours from the date of absence. Approved emergency leave is deducted from an employee's sick leave bank. Examples of emergency leave include but are not limited to absences related to car problems, emergency home repairs, flood, fire, and family related issues.

Teachers may use professional leave without loss of pay to attend professional meetings, workshops, or conferences. Similar to personal leave, there are no limits as to the number of teachers who can be approved for professional leave on any given day throughout the school year. Employees have the ability to request unpaid leave. However, unpaid leave must be approved by the Superintendent, and the leave is granted without pay. The agreement indicates that all leave options can be used in either half-day or full-day increments.

Professional employees who retire with unused sick days are provided a monetary sum based on a formula that combines years of service and the number of unused sick days. The collective bargaining agreement indicates that a maximum of 175 days can be cashed-in at the time of retirement. Teachers who retire with at least 30 years of service with the district have the ability to earn up to $17,500.00 by cashing-in their unused sick days.

The agreement also notes that professional employees who have earned three years of credited service with the district are eligible for child rearing leave for a total period of up to one calendar year. However, the agreement notes that child rearing leave is inclusive of any FMLA leave taken for the birth, adoption, or foster care of a child. Since the District employs more than 50 workers, professional employees are eligible for the leave entitlements associated with the Family and Medical Leave Act (FMLA). The FMLA entitlements provide 12 weeks of job protected leave for the following reasons: (a) an employee's serious health condition; (b) the birth of a child or placement of child for adoption or foster care; (c) to care for a spouse, child or parent who has a serious health condition; (d) because of qualifying exigency arising from the fact that the employee's spouse, child, or parent is on covered active duty or call to covered active duty status with the Armed Forces; or (e) because the employee is the spouse, child, parent, or next of kin of a covered servicemember with a serious health condition or injury.

Derry Township School District board policy also provides employees the ability to request uncompensated leave for a maximum period of two years. This option is available to only employees who are unable to work because of personal illness or disability and who have exhausted all other leave options. Additionally, professional employees have the ability to apply for compensated professional or restoration of health leave. Both leave types provide employees with at least one-half of the employee's regular salary. The maximum amount of time an

employee can request off due to compensated professional leave or restoration of health leave is one year.

Summary

The data analysis methods used to determine if age, gender, race, experience, grade(s) taught, level of education, and distance from work are statistically significant predictors of work involved the computation of descriptive statistics and an examination of one-way ANOVAs. A combination of descriptive statistics and one-way ANOVAs were also used to determine if there was a significant difference between achievement scores for students instructed by chronically absent teachers and students who were not taught by chronically absent teachers. Correlation tests were performed to establish if there were any significant relationships between any of the independent and dependent variables. A chi-square goodness of fitness test was used to determine if there were significant differences between the numbers of absences by day of the week and by leave category. The data for each school year was analyzed individually and also compared against each other to determine if any trends or patterns existed between the school years. The aggregate data sets for the three school years were analyzed and compared against the individual data sets for each school year. In addition, the data analysis involved a review of the district's collective bargaining agreement, board policy, and financial records to determine the organizational factors that contribute to teacher absenteeism and the cost of teacher absences.

The results of the one-way ANOVAs indicated that there was a significant difference between the number of absences and teacher age. The analysis of variance showed that teachers in the 21-25 age range missed significantly fewer days of work when compared to the other age groups, with the exception of teachers in the 26-30 age range. Gender was also found to be a significant predictor of teacher absence, with females being absent from the classroom at a

higher rate than males. A post hoc test for years of experience determined that teachers with 0-3 years of experience miss significantly fewer days of work than teachers with more years of experience, with the exception of teachers in the 10-14 years of experience category. The one-way ANOVA showed that during the 2016-17 school year, there was a significant difference among teachers with a bachelor's and teachers with either a master's + 30 or master's + 45. The results indicated that teachers with a bachelor's missed fewer days of school than the other two groups. One-way ANOVAs indicated that there were no additional statistically significant differences between the various demographic variables and the number of teacher absences.

The correlation tests showed that there were four significant relationships between the number of teacher absences and the various demographic variables. The significant correlations included a weak correlation between gender and the number of teacher absences during the 2016-17 school years and for the three combined years of the study. The results revealed that during the 2016-17 school year, a very weak correlation existed between the number of teacher absences and degree earned. The final significant correlation indicated that teachers in the primary school missed more days of work than teachers in the other buildings.

The one-way ANOVAs used to determine if significant differences existed between teacher absence classification and student achievement scores found there were eight student achievement variables that were deemed to be statistically significant. The analysis of variance showed that students instructed by teachers who missed 10 or fewer days of school had significantly higher scores on the following student achievement assessments: (a) the 2016-17 Grade 2 DIBELS Oral Reading Fluency assessment, (b) the Grade 3 DIBELS Oral Reading Fluency assessment, (c) the 2016-19 Grade 5 DIBELS Oral Reading Fluency assessment, (d) the 2017-18 English 9 final exam, (e) the 2017-2018 CP English 9 final exam, (f) the 2016-17 CP

English 9 final exam, (g) the 2018-19 CP English 9 final exam, and (h) the 2017-18 CP Chemistry final exam.

The one-way ANOVAs for each assessment found to be significantly different indicated that students perform better if instructed by a teacher who is not chronically absent. However, the one-way ANOVA for the Grade 5 DIBELS assessment revealed students instructed by chronically absent teachers scored higher than their peers who were not instructed by chronically absent teachers.

Pearson correlation tests indicated that there were two significant relationships between the number of teacher absences and the DIBELS Next scores. The correlation tests also revealed five significant relationships between the number of teacher absences and final exam grades. The Grade 2 DIBELS Next scores for the 2016-17 school year indicated that there was a negative relationship between the two variables, which means student achievement scores decreased as the number of teacher absences increased. A negative relationship existed between the 2017-18 and 2018-19 CP English 9 final exam grades and the number of teacher absences. Additionally, the combined grades for the CP English 9 final exam showed a negative relationship as did the relationship between the 2017-18 CP Chemistry final exam and the number of teacher absences. Conversely, the results for the Grade 4 DIBELS Next Oral Reading Fluency assessment indicated a positive relationship, meaning that student achievement scores increased as the number of teacher absences increased.

The chi-square goodness of fit test indicated that a significant difference existed between the number of teacher absences and both day of the week and leave category. Frequency distributions showed that teachers were absent on Fridays at a greater rate than any other day of

the week. The results showed that teachers used sick leave to a greater extent than any of the other leave types.

In summary, the results indicated that only a few statistically significant differences existed between the number of teacher absences and age, gender, race, experience, grade(s) taught, level of education, and distance from work. Likewise, there were a minimal number of significant correlations between the demographic variables and the number of teacher absences. The data analysis also revealed that the majority of student achievement results were not significantly different based on teacher leave classification and that few correlations existed between the student achievement variables and teacher leave classification.

CHAPTER V

Conclusions and Recommendations

The following section discusses and analyzes the results of the study within the conceptual framework and the current literature. The section begins by restating the purpose of the project and the research questions that guided the study. Correlations between the primary research questions and previous studies are then discussed, followed by recommendations for future research. Additionally, the section provides recommendations that are specific to the Derry Township School District (DTSD), which are intended to reduce substitute teacher costs and teacher absenteeism rates. Limitations and special considerations that resulted from the 2020 Novel Coronavirus pandemic are addressed, and the section concludes by summarizing the overall findings of the research project.

Purpose of the Research

The purpose of this action research project includes three primary objectives: (a) improve teacher attendance rates at DTSD by reviewing previous studies, (b) analyze the impact of teacher absenteeism on student achievement at DTSD, and (c) decrease the costs associated with teacher absenteeism at DTSD. The ancillary goals of the study include improving staff and student wellness, improving staff and student morale, increasing staff and student engagement, and decreasing employee health care costs. Furthermore, the desired outcome of this action research project is to provide substantial recommendations to Derry Township School District and other public school systems to meaningfully address the problems associated with teacher absenteeism.

The primary research questions that guided the study included: (a) are age, distance from work, experience, gender, grade(s) taught, level of education, and race predictors of teacher

absence; (b) what is the relationship between the frequency of teacher absences and factors such as age, distance from work, experience, gender, grade(s) taught, level of education, and race; (c) are there significant differences in student achievement scores between teachers who are chronically absent (defined as 10 or more absences per school year) and teachers who are not chronically absent; (d) is there a relationship between student achievement scores and the frequency of teacher absences; and (e) are there significant differences in teacher absenteeism rates by leave category or days of the week?

The study also analyzed three secondary questions in order to gain a better appreciation for the impacts and costs associated with teacher absenteeism at DTSD. The three secondary questions that were investigated included the following: (a) how many teachers at DTSD are chronically absent per year, (b) what are the economic impacts associated with teacher absenteeism from 2016-19, and (c) what organizational factors contribute to teacher absentee rates (board policies and collective bargaining agreement, professional development) and to what extent?

Correlations to Previous Studies

By analyzing the predictors of teacher absenteeism, the study aimed to determine if previous research that suggested age, distance from work, experience, gender, grade(s) taught, level of education, and race had a statistically significant influence on the number of days a teacher at Derry Township School District is likely to miss per year. Prior studies have also implied that leave type and day of the week are significant predictors of teacher absenteeism. Therefore, a goal of this project was to compare the absentee data at DTSD to the results of prior research studies to determine if patterns and trends exist between the two sets of data. More importantly, the study examined the relationship between chronic teacher absenteeism and

student achievement scores to determine if the amount of time a teacher is absent from the classroom impacts student achievement scores at DTSD, and if so, how does the data connect to other research studies?

Porter and Steers (1973) argued that age is positively related to absenteeism, meaning that as employees get older, the number of workdays missed increases. Conversely, Martocchio (1989) found an inverse relationship between age and the absenteeism rates of employees. The aggregate data for this study determined that age is a significant indicator of teacher absenteeism. The results indicated that during the three years studied, teachers who were between the ages 21-25 missed significantly fewer days of school than the other age groups examined, with the exception of teachers in the 26-30 age group. However, the results of the individual school years suggested there was no significant relationship between the two variables. Contrary to the previous studies, the results of this project revealed that the relationship between age and absenteeism was neither positively nor negatively correlated but rather more representative of a bell-shape curve, as illustrated in Figure 3. The illustration suggests that the number of absences per year drastically increases during the first 10 years of a teacher's career, peaking and then flattening out during the middle portion of a teacher's career, while finally decreasing at a slower rate near the end of a teacher's career. The findings do not allow for the acceptance or rejection of the null hypothesis for Research Question 1 but do allow for the acceptance of the null hypothesis for Research Question 2.

Question 1 – $H_0$1: There are no statistically significant differences in teacher absenteeism rates by age.

Question 2 – $H_0$1: No correlation exists between the number of teacher absences and age.

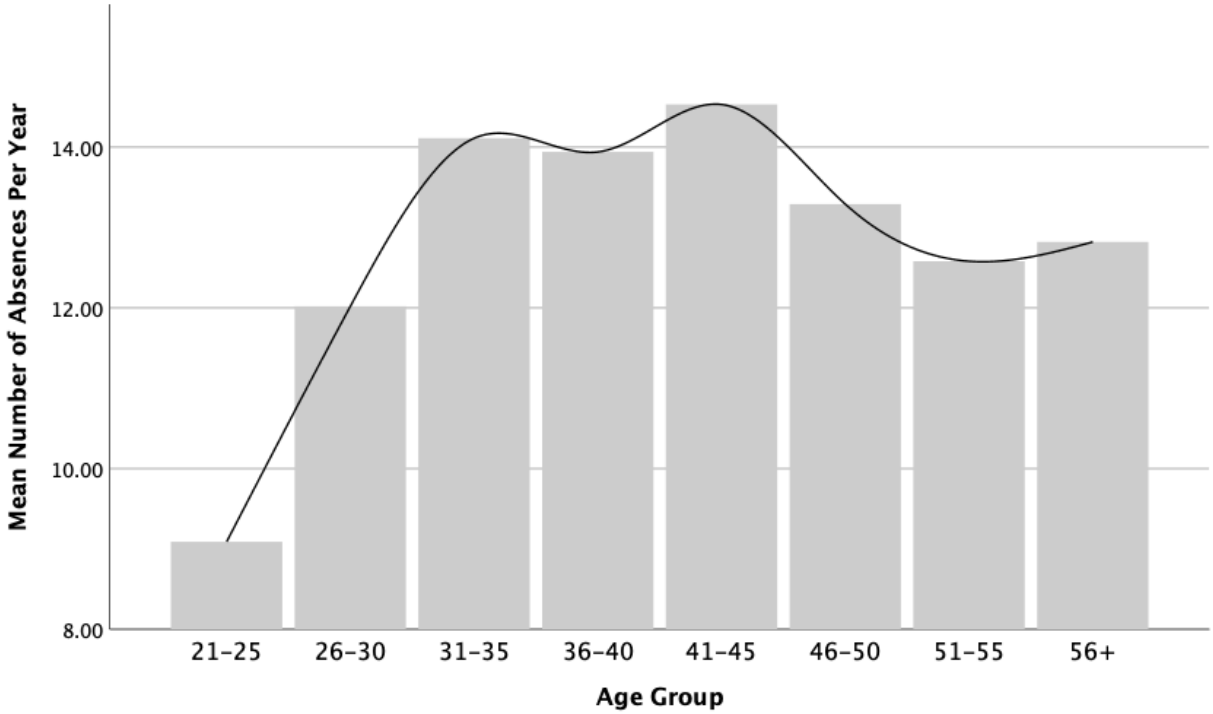

Figure 3. 2016-19 Mean Number of Absences Per Year by Teacher Age Group

Previous studies have produced mixed results in terms of the influence gender has on teacher absenteeism rates. The majority of research suggests that female teachers miss more days of work when compared to their male colleagues (Miller, 2008; Pitts, 2014; Scott & McClellan, 1990). However, there are a few studies that indicate there is not a statistically significant difference between the absenteeism rates of men and women (Bermejo-Toro & Prieto-Ursúa, 2014; Capote Fermin, 2018). The aggregate data for this project supports the majority of research that suggests gender is a significant predicator of absenteeism. Although the data sets for the 2017-18 and 2018-19 school years indicate that there was not a significant difference between the two variables, the data for the 2016-17 school year found that gender had a significant effect on the number of teacher absences at Derry Township School District, with women being absent more often than men. The differences between teacher absentee rates and gender were also found to be significant when analyzing the absentee data over the three-year period of the study. The

mean difference in the number of absences per year between the two genders ranged from a high of 4.39 days during the 2016-17 school year to a low of 0.94 days during the 2018-19 school year. The combined data set indicated that female teachers miss 1.90 more days of school per year than male teachers. Although the correlation between the number of days missed between men and women was determined to be very weak, the relationship was still deemed to be significant for both the aggregate data set and the 2016-17 school year. There was no significant correlation between the two variables for the 2017-18 and 2018-19 school years. The findings do not allow for the acceptance or the rejection of the null hypotheses for Research Question 1 or Research Question 2.

Question 1 – $H_0$3: There are no statistically significant differences in teacher absenteeism rates by gender.

Question 2 – $H_0$3: No correlation exists between the number of teacher absences and gender.

Losina, Yang, Deshpande, Katz, and Collins (2017) found that Caucasian workers missed work at a statistically significant higher rate than non-white employees regardless of the absence reason. The aggregate data of this research project indicated that African American teachers missed more days of work than Asian or Caucasian teachers. However, the one-way ANOVA showed that there was not a significant difference among the number of days missed by African American, Asian, and Caucasian teachers. Likewise, the correlation tests indicated no significant linear relationships existed among the races and absentee rates. Therefore, the results of this study neither support nor contradict the research conducted by Losina et al. The findings allow for the acceptance of the null hypotheses for Research Questions 1 and 2.

Question 1 – $H_0$3: There are no statistically significant differences in teacher absenteeism rates by race.

Question 2 – $H_0$3: No correlation exists between the number of teacher absences and race.

Although the one-way ANOVAs for the individual school years suggested there was no statistical differences between the independent and dependent variables for years of experience, the results of the aggregate indicated that experience was a significant predictor of teacher absenteeism in the Derry Township School District. The results of the post hoc test for the three years studied showed that teachers with 0-3 years of experience missed significantly fewer days of work, with the exception of teachers who were approaching retirement. An analysis of the means found that during 2016-17 and 2017-18 school years, teachers with 30 or more years of experience were less likely to miss work than teachers with fewer years of experience. The data sets, when combined, also indicated that teachers with 30 or more years of experience missed fewer days of work. The aggregate data for this project supports the research conducted by Clotfelder et al. (2009) that showed teacher leave increases annually until a teacher acquires five years of experience. The study conducted by Clotfelder et al., determined that after a teacher accumulates five years of experience, the number of leave days used per year flattens out until the final portion of a teacher's career, at which point the number of absences per year decreases. The leave pattern described by Clotfelder et al. mirrored the leave trend found in this study, as illustrated in Figure 4. The findings did not allow for the acceptance or rejection of the null hypothesis for Research Question 1 but did allow for acceptance of the null hypothesis for Research Question 2.

Question 1 – $H_0$4: There are no statistically significant differences in teacher absenteeism rates by experience.

Question 2 – $H_0$4: No correlation exists between the number of teacher absences and experience.

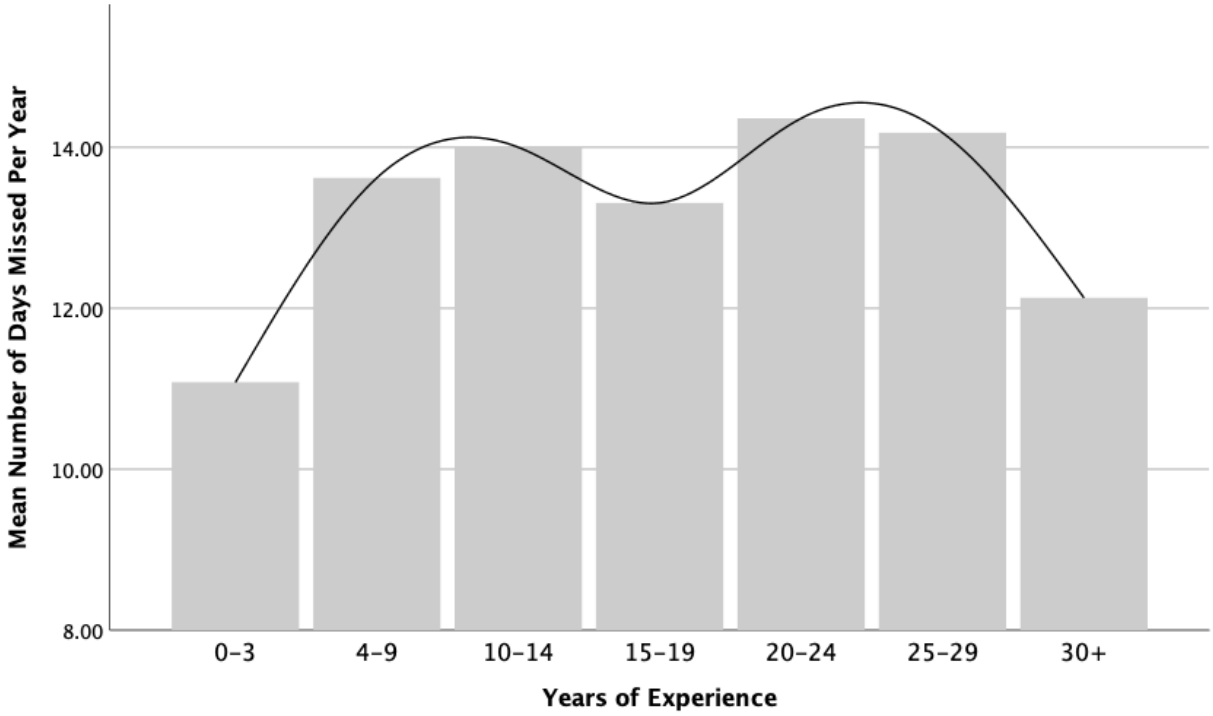

Figure 4. 2016-19 Mean Number of Absences Per Year by Experience

The data analysis for the research project found that the number of absences was not significantly influenced by the grade configuration of the school. While the results were not statistically significant, the descriptive statistics indicated the absentee rates of second and third grade teachers during the course of the study were higher than the absentee rates of teachers in the other school buildings. The data further suggested that high school teachers had the second-highest rate of teacher absenteeism, followed by middle school teachers. The district's intermediate elementary school was found to have the lowest number of teacher absences per year, closely followed by teachers at Early Childhood Center (ECC). As depicted in Figure 5, the

results of this study do not support prior research that suggests absentee rates are highly correlated with elementary teachers missing more days of work than middle school teachers, while middle school teachers are absent at a higher rate than high school teachers (Clotfelter et al., 2009; Miller, 2008; Miller et al., 2008). Although previous research indicated a linear relationship existed between absentee rates and grade configurations, this study found that no significant relationship existed between the school buildings and the number of days missed per year, with the exception of the 2017-18 school year, where correlations between the primary school and the number of teacher absences per year was found to be very weak but significant. The findings allow for the acceptance of the null hypothesis for Research Question 1, but because of the very weak yet significant correlation between the primary school and the absentee rates during the 2017-18 school year, the hypothesis for Research Question 2 cannot be accepted or rejected.

Question 1 – $H_0$5: There are no statistically significant differences in teacher absenteeism rates by school level.

Question 2 – $H_0$5: No correlation exists between the number of teacher absences and school level.

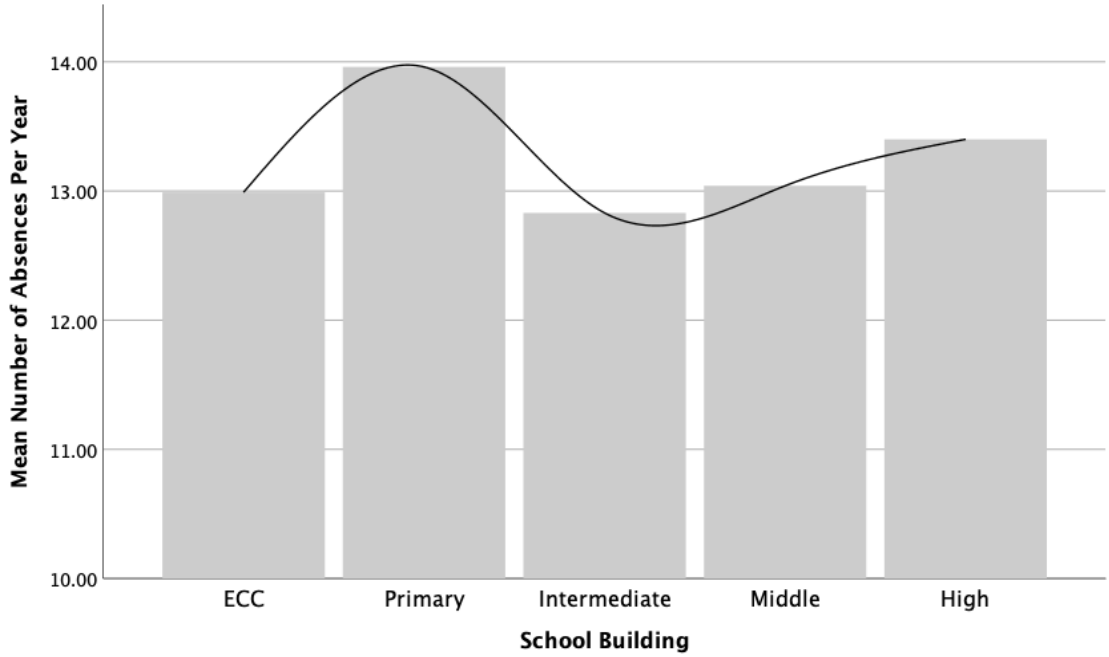

Figure 5. 2016-19 Mean Number of Absences Per Year by School Level

Research suggests the education level of an employee is a significant predicator of absenteeism. The literature indicates employees with higher degrees tend to have lower rates of absenteeism than employees with lower levels of education (Wee, Yeap, Chan, Wong, Jamil, Natha, & Siau, 2019). The results of this study found that the level of education had a statistically significant effect on the rate of teacher absenteeism during the 2016-17 school year, but the results were not significant during the 2017-18 or 2018-19 school years. Likewise, the aggregate data showed that there was not a significant effect between the degree earned and the number of times a teacher was absent per year. However, an analysis of the means indicated teachers with a bachelor's were likely to miss fewer days of work than teachers who had attained higher levels of education. Similarly, the results of the study indicated that during the 2016-17 school year, there was a very weak but significant linear relationship between degree earned and the number of teacher absences, but the relationship between the two variables was found not to be significant for any of the other data sets that were analyzed. The results of this project do not

support the previous findings of Wee et al., which suggests level of education significantly influences employee absentee rates. The results of the study do not allow for the acceptance or the rejection of the null hypotheses for Research Questions 1 and 2.

Question 1 – $H_0$6: There are no statistically significant differences in teacher absenteeism rates by degree.

Question 2 – $H_0$6: No correlation exists between the number of teacher absences and degree.

An examination of the means indicated that over the three-year period of the study, teachers who lived closer to school (0-3 miles) missed fewer days of work than teachers who lived further away. The descriptive statistics also suggested that teachers who had the longest commute (16 or more miles) were absent at a higher rate than teachers who lived closer to work. However, the one-way ANOVAs conducted for each school year and the results of the aggregate data found that distance to work did not have a statistically significant effect on the number of days a teacher missed per year. The data sets for both the aggregate years and the individual school year showed that there was no significant correlation between the two variables. The results of the study do not support the body of research, which implies that commuting distance is a significant predicator of teacher absenteeism (Miller, 2008; Steers & Rhodes, 1978). The findings allow for the acceptance of the null hypotheses for both Research Question 1 and 2.

Question 1 – $H_0$7: There are no statistically significant differences in teacher absenteeism rates by distance from work.

Question 2 – $H_0$7: No correlation exists between the number of teacher absences and distance from work.

The study found that 13 out of the 16 one-way ANOVAs that were conducted to examine the effect between teacher absence classification and DIBELS Next Oral Reading Fluency scores indicated no statistically significant differences existed between the two variables. The results of this project support the findings of a recent study that concluded there was no statistically significant difference between the number of days missed and the reading proficiency levels for students in kindergarten through third grade on DIBELS Next composite scores (Niemeyer, 2013). The three analyses of variances that showed a significant difference existed between the two variables included: (a) the 2016-17 Grade 2 DIBELS Next Oral Reading Fluency assessment, (b) 2016-17 Grade 3 DIBELS Next Oral Reading Fluency assessment, and (c) the aggregate scores for the Grade 5 DIBELS Next Oral Reading Fluency assessment. The 2016-17 Grade 2 and Grade 3 DIBELS Oral Reading Fluency scores indicated that students who were instructed by teachers who were not chronically absent scored higher on the assessment than students who were educated by teachers who were chronically absent. Conversely, the aggregate data for the Grade 5 DIBELS Next Oral Reading Fluency scores indicated that students achieve higher scores if instructed by a teacher who was chronically absent. Although the results were mixed, the majority of the data sets indicated teacher absence classification did not significantly affect student achievement scores on the DIBELS Next Oral Reading Fluency assessment.

Similarly, only two of the 16 correlations indicated a statistically significant relationship between the two variables. The two correlations found to be significant included the 2016-17 Grade 2 DIBELS Next Oral Reading Fluency scores and the combined data sets for the Grade 4 DIBELS Next Oral Reading Fluency assessment. The 2016-17 Grade 2 DIBELS Next Oral Reading Fluency correlation indicated a very weak negative relationship, while the aggregate data for the Grade 4 DIBELS Next Oral Reading Fluency showed a very weak positive

relationship. The findings allow for the acceptance of the null hypothesis $H_0$3, which is included in Research Question 3, and for the acceptance of the null hypotheses $H_0$2 and $H_0$4, which are included in Research Question 4.

Question 3 – $H_0$3: There are no statistically significant differences in the DIBELS Next Oral Reading Fluency scores for students in Grade 4 by teacher absence classification.

Question 4 – $H_0$2: No correlation exists between the number of teacher absences and DIBELS Next Oral Reading Fluency scores for students in Grade 3.

Question 4 – $H_0$4: No correlation exists between the number of teacher absences and DIBELS Next Oral Reading Fluency scores for students in Grade 4.

The findings do not allow for the acceptance or rejection of null hypotheses $H_0$1, $H_0$2, or $H_0$4, which are included in Research Question 3, or null hypotheses $H_0$1 and $H_0$3, which are included in Research Question 4.

Question 3 – $H_0$1: There are no statistically significant differences in the DIBELS Next Oral Reading Fluency scores for students in Grade 2 by teacher absence classification.

Question 3 – $H_0$2: There are no statistically significant differences in the DIBELS Next Oral Reading Fluency scores for students in Grade 3 by teacher absence classification.

Question 3 – $H_0$4: There are no statistically significant differences in the DIBELS Next Oral Reading Fluency scores for students in Grade 5 by teacher absence classification.

Question 4 – $H_0$1: No correlation exists between the number of teacher absences and DIBELS Next Oral Reading Fluency scores for students in Grade 2.

Question 4 – $H_0$4: No correlation exists between the number of teacher absences and DIBELS Next Oral Reading Fluency scores for students in Grade 5.

Previous research studies that analyzed the effect of teacher classification and student achievement scores have produced mixed results. A study that examined the effect of absentee rates of teachers on student achievement scores found that students who were instructed by teachers who were absent less than 2% of the school year outperformed their peers who were instructed by teachers in all other absence classifications (Cantrel, 2003). Conversely, Colquit (2009) divided teacher leave into four separate classifications to determine if student achievement scores are significantly influenced by the amount of leave a teacher uses per year. The study conducted by Colquit found no statistically significant differences among the four teacher leave categories and student achievement scores. The results of the study indicated no significant differences existed between PVAAS Teacher Value Added Math, English Language Arts (ELA), Science, Algebra I, Literature or Biology scores, and teacher absence classification. The study also found no significant differences existed between the final exam grades for Algebra I, Honors English 9, CP English 10, CP Biology, or Honors Chemistry, and teacher absence classification. However, one-way ANOVAs conducted for English 9, CP English 9, and CP Chemistry indicated there was a significant difference between final exam grades and teacher absence classification. The analysis for variance for the three courses showed that students instructed by a teacher who missed fewer than 10 days of school per year scored higher on the final exam than students who were taught by teachers who were chronically absent. The result of

this project, with the exception of final exam grades for English 9, CP English 9, and CP Chemistry, support the research conducted by Colquit.

The findings allow for the acceptance of null hypotheses $H_0$5, $H_0$6, $H_0$7, $H_0$8, $H_0$9, and $H_0$10, which are included in Research Question 3.

Question 3 – $H_0$5: There are no statistically significant differences in PVAAS Teacher Value Added Scores Math sores by teacher absence classification.

Question 3 – $H_0$6: There are no statistically significant differences in PVAAS Teacher Value Added Scores English Language Arts scores by teacher absence classification.

Question 3 – $H_0$7: There are no statistically significant differences in PVAAS Teacher Value Added Scores Science scores by teacher absence classification.

Question 3 – $H_0$8: There are no statistically significant differences in PVAAS Teacher Value Added Scores Algebra I scores by teacher absence classification.

Question 3 – $H_0$9: There are no statistically significant differences in PVAAS Teacher Value Added Scores Literature scores by teacher absence classification.

Question 3 – $H_0$10: There are no statistically significant differences in PVAAS Teacher Value Added Scores Biology scores by teacher absence classification.

The findings do not allow for the acceptance or rejection of the null hypothesis $H_0$11, which is included in Research Question 3.

Question 3 – $H_0$11: There are no statistically significant differences in final exam grades by teacher absence classification.

Although early studies generated conflicting results, the majority of recent research indicated that teacher absenteeism rates and student achievement scores are significantly

correlated (Brown & Arnell, 2012; Clotfelder et al., 2009; Ehrenberg et al., 1991; Miller et al., 2008; Woods & Montagno, 1997). A notable study conducted by Clotfelder et al. (2009) found a significant relationship existed between teacher absences and student achievement scores. Likewise, Miller et al. (2008) suggested for every 10 days a teacher is absent from the classroom, achievement scores in math decrease by 3.2% of a standard deviation. The results of these two studies were further supported by the research of Brown and Arnell (2012), who concluded that student achievement scores decrease as teacher absences increase. However, the results of this project indicated that a significant linear relationship existed in only six of the 52 correlations that were performed. The six correlations that showed a significant relationship included: (a) the 2016-17 Grade 2 DIBELS Next Oral Reading Fluency scores, (b) the combined data sets for the Grade 4 DIBELS Next Oral Reading Fluency scores, (c) the 2017-18 PVAAS Teacher Value Added Biology scores, (d) the 2017-18 CP English 9 Final Exam grades, (e) the 2018-19 CP English 9 Final Exam grades, and (f) the aggregate CP English 9 Final Exam grades. Five of the six correlations that were statistically significant indicated a negative relationship between the number of teacher absences and student achievement scores. The Grade 4 DIBELS Next Oral Reading Fluency Assessment was the only correlation that demonstrated a positive relationship between the two variables. Overall, the correlation data suggests that student achievement scores and teacher absentee rates are not significantly related. The findings allow for the acceptance of null hypotheses $H_0$2, $H_0$4, $H_0$5, $H_0$6, $H_0$7, $H_0$8, and $H_0$9, which are included in Research Question 4.

Question 4 – $H_0$2: No correlation exists between the number of teacher absences and DIBELS Next Oral Reading Fluency scores for students in Grade 3.

Question 4 – $H_0$4: No correlation exists between the number of teacher absences and DIBELS Next Oral Reading Fluency scores for students in Grade 5.

Question 4 – $H_0$5: No correlation exists between the number of teacher absences and PVAAS Teacher Value Added Math scores.

Question 4 – $H_0$6: No correlation exists between the number of teacher absences and PVAAS Teacher Value Added English Language Arts scores.

Question 4 – $H_0$7: No correlation exists between the number of teacher absences and PVAAS Teacher Value Added Science scores.

Question 4 – $H_0$8: No correlation exists between the number of teacher absences and PVAAS Teacher Value Added Algebra I scores.

Question 4 – $H_0$9: No correlation exists between the number of teacher absences and PVAAS Teacher Value Added Literature scores.

The findings do not allow for the acceptance or rejection of null hypotheses $H_0$1, $H_0$3, $H_0$10, and $H_0$11, which are included in Research Question 4.

Question 4 – $H_0$1: No correlation exists between the number of teacher absences and DIBELS Next Oral Reading Fluency scores for students in Grade 2.

Question 4 – $H_0$3: No correlation exists between the number of teacher absences and DIBELS Next Oral Reading Fluency scores for students in Grade 4.

Question 4 – $H_0$10: No correlation exists between the number of teacher absences and PVAAS Teacher Value Added Biology scores.

Question 4 – $H_0$11: No correlation exists between the number of teacher absences and final exam grades.

The results of this study showed a statistically significant difference between teacher absentee rates and day of the week. The data analysis revealed teachers in the Derry Township School District were absent the most on Friday and missed the least amount of work on Monday. Specifically, 24.7% of teacher absences for the three years studied occurred on Friday, while only 16.6% of the absences occurred on Monday. The findings of this study support prior research that strongly suggested that teachers are absent from classrooms at higher rates on Fridays when compared to other days of the week (Miller et al., 2008; Pitts, 2010). Although the research strongly supports the assumption that teachers are absent at a higher rate on Friday, there is mixed evidence as to the day of the week teachers are least likely to be absent. Research conducted by Miller (2008) implies that teachers are commonly absent on Monday, while the study conducted by Pitts (2010) suggests teachers miss fewer days of work on Monday than any other day of the week. The result of this project supports the research that suggested teachers are least likely to be absent on Monday. A chi-square goodness of fitness test determined there is a significant difference between the amount of leave used by leave category. The aggregate results of the study indicated that sick leave accounted for 43.8% of all teacher absences, followed by professional leave (32.9%) and then personal leave (16.9%). The remaining leave categories combined accounted for 6.4% of leave. The findings allow for the rejection of null hypotheses $H_0$1 and $H_0$2, which are included in Research Question 5.

Question 5 – $H_0$1: There are no statistically significant differences in teacher absenteeism rates by leave category.

Question 5 – $H_0$2: There are no statistically significant differences in teacher absenteeism rates by day of the week.

Recommendations for Future Research

The aggregate data set for age indicated that younger teachers are absent less often than other teachers, but the reason for the significant difference was not explored or examined in the context of the research project. Therefore, since age was found to be a strong predictor of teacher absenteeism, additional research should be conducted to determine the reasons behind the discrepancies.

While the study revealed that gender had a significant effect on the number of days a teacher missed annually at Derry Township School District, the research question failed to address the reasons for the differences in absentee rates between male and female teachers. Previous research has suggested that the disparity is likely due to a combination of factors that include the fact that women have traditionally served as the primary caretaker for sick family members and that historically, mothers have generally taken more time off than fathers after the birth of a child (Miller, 2018). Although the results of the research project may support the findings of previous studies, additional research should be conducted to establish if the customary roles associated with motherhood account for the differences in absentee rates at DTSD.

Miller (2008) suggested that one of the most common reasons for the decrease in the number of workdays missed by teachers nearing retirement is a result of the teacher's ability to cash out unused sick leave. Since the Derry Township School District does have language in the collective bargaining agreement that provides a retirement sick leave benefit to teachers, the results of the study suggest that the cash-out option may contribute to the decrease in absence rates for teachers approaching retirement. However, further research is recommended before any

definitive conclusions can be made as to the reasons why the absenteeism rate of teachers nearing retirement begins to decline.

Although the conclusions reached in this project do not support previous research studies that suggest employees with higher degrees miss less work than employees with lower levels of education, further exploration of this predicator of absenteeism should be investigated. This recommendation is due in part because previous studies have implied that highly educated employees are hesitant to call off sick because they believe their talent and skill sets cannot be replaced at work. In the field of education, the general assumption is that all educators have a comparable set of skills, regardless of their level of education. As a result, this assumption likely explains the difference between the results of this project and previous studies.

Cantrell (2003) suggested that significant differences in student achievement scores was even more dramatic when comparing teachers who missed the most amount of days against teachers who were absent from the classroom the least amount of time. While this study compared the differences between teachers who missed 10 or more days of school and those who missed fewer than 10 days of work, the project did not examine differences between teachers on opposite ends of the absentee spectrum. A more in-depth analysis of the extremes is worth further consideration to determine if student achievement results are impacted at DTSD by teachers who have absentee rates at opposite sides of the attendance spectrum.

Recommendations for Derry Township School District

The overall results of the study indicated that student achievement scores were not significantly impacted by teacher attendance. However, as noted in the literature review, recent studies estimate teacher absences cost school districts in excess of $5.6 billion annually (Folger, 2019; Kocakülâh, Bryan, & Lynch, 2019). The National Council on Teacher Quality (2014)

determined the cost associated with teacher absences equates to roughly $1,800 per-teacher, per-year. For the three years studied, Derry Township School District spent approximately $700,000 per year on substitute costs, or the equivalent of about $2,400 a year per teacher. The financial data clearly indicates the district's expenditures for substitute costs on a per-teacher basis far outpace the national average, creating a need for corrective actions to reduce the district's financial burden associated with teacher absences. The results of this research project and the review of literature serve as the driving force behind the following set of recommendations that are designed to decrease absenteeism rates, improve substitute fill rates, and ultimately reduce the costs associated with teacher leave in the Derry Township School District.

The first recommendation the Derry Township School District should consider is the implementation of a policy that requires teachers to report absences directly to their building principal or immediate supervisor. The review of literature found that school districts that required their teachers to submit absences only via an online management system or district-wide call-in system generally had higher rates of absenteeism (Miller et al., 2008). Moreover, a study conducted by Boudreau et al. (1993) suggested that unplanned leave could be reduced by at least 35% if employees were required to call their immediate supervisor. The current absence notification procedure at DTSD requires teachers to submit absences only via the district's online absence management system. If Derry Township School District were able to reduce the use of emergency and sick leave by 35% by requiring teachers to report their absences directly to their principal or immediate supervisor as suggested by Boudreau et al. (1993), the district could save at least $50,000 per year on substitute teacher costs. To reduce the use of discretionary sick and emergency leave and to realize the potential savings, the district should consider revising the

current absence reporting protocol to include a provision that requires teachers to report sick and emergency leave absences directly to their building principal or immediate supervisor.

An examination of the district's leave requests indicated teachers in the Derry Township School District were absent from the classroom a total of 3647.5 days during the course of the study for reasons associated with professional leave. The number of days teachers missed for professional leave during the three years studied accounted for roughly 29% of teacher absences, while sick leave accounted for only approximately 45% of teacher leave. The result of this project conflicts with a study conducted by Miller (2008) that examined the leave patterns of more than 5,000 teachers in a large urban district in the northern part of the United States. The author concluded that sick leave accounted for 59% of all teacher absences. Furthermore, a report issued by the National Council on Teacher Quality (2014) found only 20% of teacher absences are due to professional leave reasons. The district's high rate of professional leave is likely the contributing factor for the discrepancies in the percentage of sick and personal leave usage among the studies.

The results of previous studies indicate the district's rate of professional leave appears to be excessive. Therefore, the district is encouraged to limit the number of times a teacher can be approved for professional leave to five days per year. The rationale for this recommendation is based on the fact that the district's absentee data showed 36% of the teaching staff were absent for five or more days for professional leave reasons during the 2016-17 school year, followed by 29%, surpassing the proposed threshold during the 2017-18 school year, and during the 2018-19 school year, 29% of teachers were found to have been absent from work for professional leave on at least five occasions. The financial costs to secure substitutes for professional leave was approximately $121,000, $115,000, and $105,000, respectively, during the course of the study.

The district could have saved an estimated $25,000 a year if the recommended limits would have been in place. These figures are based on the then-contracted substitute rate for a day-to-day substitute and included only professional leave requests that required a substitute teacher. To realize these potential savings, the district is encouraged to set maximum limits on the amount of professional leave a teacher can use per year.

A review of the Hershey Education Association collective bargaining agreement and Derry Township School District's leave policies determined that there are no maximum limits on the number of teachers who can miss work due to planned absences in the district or school building. The researcher recommends the district cap the number of teachers who miss work due to a combination of personal and professional leave by building. The recommended limits are as follows: high school (5), middle school (5), intermediate school (3), primary school (3), and ECC (3). An analysis of the district's absentee records indicate that Derry Township School District could have saved a minimum of $76,000 if the recommended limits would have been enforced during the time of the study.

In a study that analyzed 10 years of teacher leave data for the entire state of North Carolina, Clotfelder et al. (2009) suggested that charging teachers a $50 fee for every sick leave absence taken beyond 12 days would reduce the mean number of sick leave absences taken to 5.8 and would cost the average teacher $300 per year. Although this recommendation does not go to the extreme of requiring teachers to pay for the use of sick leave, the recommendation does include charging educators for the cost of the substitute teacher for every unpaid leave absence taken that does not qualify for FMLA. An examination of the district absence data indicated that teachers used 43.5 days of unpaid leave in the 2016-17 school year, 69.5 days in the 2017-18 school year, and 86.5 days during the 2018-19 school year. The total cost savings for the Derry

Township School District during the span of the study would have been approximately $26,000 if teachers would have been charged a fee for the use of unpaid leave. The leave trend shows the number of unpaid leave days increased each year of the study. If the trend continues, the savings could exceed $11,000 each year. A secondary goal of this recommendation is to decrease the number of unpaid leave days teachers take per year. Although it would be difficult to predict if the cost associated with acquiring a substitute would reduce the number of days teachers use unpaid leave in the Derry Township School District, the study conducted by Clotfelder et al. suggested the district could expect the use of unpaid leave to decline.

The next recommendation is not intended to result in a cost savings for the district but rather to improve the overall substitute fill rate. The result of this study concluded teachers in the Derry Township School District use personal leave at a much higher rate on Fridays and Mondays when compared to the other days of the week. During the three-year span of the study, teachers used personal leave 42.1% on Friday, 18.8% on Monday, 12.3% on Tuesday, 10.9% on Wednesday, and 15.9% on Thursday. The results of this study support previous research that implied teachers tend to use personal leave connected to previously established days off to extend their weekends and holidays (Miller, 2008; Miller et al., 2008; Pitts, 2010). An analysis of the district's substitute fill rate indicated that during the 2016-17 school year, the combined fill rate for Mondays and Fridays in May was 97.5% and 98.4% for all other school days. The differences between fill rates on Mondays and Fridays in May and the rest of the days in the school year widened to 94% and 97.4%, respectively, during the 2017-18 school year. The disparity in fill rates was even more dramatic during the 2018-19 school year, with only 84.2% of teacher positions being filled on Mondays and Fridays in May compared to 95.1% of the substitute requests being filled on the other days of the year. The goal of this recommendation is

to restrict the use of personal leave on days that have historically been known to be difficult to secure substitute teachers.

Pitkoff (2003) concluded sick leave banks generally lead to increased teacher absentee rates. Furthermore, the researcher argued that sick leave banks actually encourage teachers to use sick leave. The study found teachers in districts that have sick leave bank provisions generally did not accumulate as many sick leave days in their individual leave banks when compared to teachers in districts that did not have district sponsored sick leave banks. The assumption was that since teachers have the sick leave bank available to them for catastrophic injuries or illnesses, there was little incentive to accumulate sick leave. A review of the district's absences records revealed that at the end of the study, 32% of teachers had fewer than 30 days of sick leave. This data implies that Pitkoff's analysis of sick leave banks has some merit in terms of teachers failing to accumulate adequate amounts of sick leave in the event of a catastrophic illness or injury. For these reasons, the district should consider removing the sick leave bank provisions from the Hershey Education Association collective bargaining agreement during the next round of negotiations.

A review of the district's student attendance policy indicated that students who miss more than 10 days of school are required to furnish a doctor's note for any additional days of school missed during the course of the year. However, comparable language could not be found when examining the district's employee leave policy. Although the overall results of the study suggest that teacher absenteeism does not impact student achievement scores, Brown and Arnell (2012) suggest that school leaders should limit the number of days teachers miss a year to no more than 10. Furthermore, the Pennsylvania Public School Code of 1949 provides districts the ability to require a teacher to submit a note from a physician or health care provider if the teacher was

unable to perform his or her duties and was compensated for the time missed. This recommendation is based on the belief that if teachers are required to furnish a doctor's note, the number of sick leave absences will likely decrease. Although there is no research indicating that a doctor's note will reduce teacher absentee rates, research does suggest that reporting absences directly to a supervisor reduces employee absenteeism (Boudreau et al., 1993; Miller et al., 2008). Therefore, requiring teachers to take an extra step when reporting sick leave absences in excess of 10 days should likely result in lower absenteeism rates.

Limitations

This study examined several demographic variables that could be used to predict teacher absences. However, the study did not analyze teacher or student background variables such as income, mental, or physical health. Therefore, the results of this study as it relates to teacher absenteeism and student achievement do not account for the complex relationships among the vast array of demographic and social variables and their connections between students and teachers. This intertwined web of connections may in part explain the lack of a significant relationship and significant difference between student achievement scores and teacher absenteeism.

Similarly, the study did not consider the impact of the substitute on student achievement scores. Damle (2009) suggested the majority of substitute teachers receive minimal training before entering classrooms. Conversely, many substitutes who work in the Derry Township School District have teaching certificates and are adequately prepared to provide quality instruction to students. However, without knowing the educational background of the substitute, classroom teachers often prepare lesson plans that lack the quality and rigor that students

typically receive on a day-to-day basis (Damle, 2009; Miller et al., 2008; Woods & Montagno, 1997).

Student achievement scores for all three assessments captured only student performance at single points in time and did not account for the overall academic knowledge or growth of a student during the course of the year. The scores that were analyzed in the study failed to account for any mitigating factors that may have had a significant effect on a student's performance on the day of the assessment. For example, a student who was physically or mentally ill on the day of the assessment most likely would have scored lower on the assessment than if that student had been in good health.

Another limitation of the study involved the self-reporting of teacher absences via the district's online absence management system. Although not common, teachers occasionally select the wrong leave category or at times indicate a substitute is not required when a substitute is in fact needed. Furthermore, there have been a few times that teachers have completely forgotten to enter leave.

Special Considerations

On March 13, 2020, Pennsylvania Governor Tom Wolf ordered the closing of all public and private schools in the Commonwealth due to the Novel Coronavirus pandemic (COVID-19). The order was originally issued to be in effect until May 1, 2020, but was ultimately extended to June 30, 2020. The result of this order forced school districts to quickly transition from an in-person instructional delivery model to an emergency remote-distance learning model. The transition required many teachers in the Derry Township School District to work additional hours beyond the eight hours negotiated in the collective bargaining agreement. The additional hours, the transition to emergency distance learning, and the fear of the unknown caused many

teachers to experience increased amounts of stress and anxiety throughout the pandemic, as noted by the District's Director of Safe and Support Schools. As a result, the committee for this capstone project believed it was in the best interest of the staff to eliminate a portion of the study that included a teacher survey. The survey was designed to explore the reasons behind teacher leave that could not effectively be captured by merely examining the demographic variables. Additionally, the survey included questions asking what ideas and suggestions teachers had with respect to improving teacher attendance. Although the survey was not included in the study, the primary research questions that guided the project were not affected.

Summary

Overall, this research project determined that there are little to no significant differences between the achievement scores for students instructed by chronically absent teachers and students instructed by teachers who miss fewer than 10 days of work per year. Likewise, the results of the study suggest significant relationships between the number of teacher absences and student achievement scores do not exist. The demographic variables of age, gender, and years of experience were all determined to be significant predicators of teacher absences at Derry Township School District. However, with the exception of gender, there were no significant linear relationships between absentee rates and the demographic variables of age, race, years of experience, degree earned, school level, and distance to work.

The leave data confirmed prior research that suggested there is a significant difference between the number of days teachers use by day of the week and leave category (Miller, 2008; Miller et al., 2008; Pitts, 2010). The results indicated that teachers are absent from classrooms the most on Fridays and the least on Mondays. In terms of leave category, sick leave is the most frequent cause of teacher absences, followed by professional leave and personal leave.

The results of the study indicated that more than 62% of teachers in the Derry Township School District are considered to be chronically absent. The cost associated with securing substitutes between the 2016-19 school years exceeded $2.1 million. In addition, the substitute fill rate in the district continues to decline. In order to effectively address these concerns, the district is strongly urged to consider implementing one or more of the following recommendations:

1. Require teachers to report absences directly to the building principal or designee.
2. Limit the use of professional leave.
3. Establish limits for personal and professional leave use by school building.
4. Require teachers to pay the substitute teachers costs for unpaid leave.
5. Prevent the use of personal leave on Mondays and Fridays during the month of May.
6. Eliminate the Hershey Education Association (HEA) Sick Leave Bank.
7. Require teachers to submit a note from a physician for excessive sick leave absences.

In conclusion, while some absences are unavoidable due to colds, flu, or other health related reasons, a teacher's presence in the classroom is crucial to the academic and emotional success of students (Miller, 2008). Therefore, school administrators should closely examine the absentee data in their school buildings to understand the trends and patterns associated with teacher leave. By doing so, school administrators can effectively combat teacher absenteeism and reduce the more than $5.6 billion districts annually spend on substitute teacher costs (Folger, 2019; Kocakülâh, Bryan, & Lynch, 2019).

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