RUNNING HEAD: Corollary study of the relationship between Attendance and Graduation Rates

Correlation between Attendance Rates and Graduation Rates

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ABSTRACT

This study was completed to find if there is a correlation between high school attendance rates and graduation rates. Attendance in high school is imperative for student success, academic achievement and graduation. Research has shown that students that do not graduate from high school encounter numerous socioeconomic disadvantages over a lifetime, including decreased wages, poor health, and greater criminal activity (Fall & Roberts, 2012). For this study, archived data was collected from the Missouri Department of Elementary and Secondary Education website. The raw data on attendance rates and graduation rates from the 2002 through 2013 were collected. This study shows that a positive correlation relationship exists between high school attendance and graduation in both large school and small schools. A correlation post-post analysis was conducted from the information collected from Missouri Department of Elementary and Secondary Education examining the relationship between high school attendance rates and high school dropout rates from 2012. After collecting and reviewing the findings of this study, current research and literature, and analyzing raw statistical data from the state, it was found that there is a correlation between attendance rates and graduation rates in the state of Missouri because in large schools r= +.50. A Correlation analysis of large schools attendance rates and graduation rates showed there is a practical relationship between high school attendance rates and high school graduation rates because R^2=25%. In small schools a positive correlation existed because r=+.95. Results from the correlation analysis of small schools attendance rates and graduation rates exhibited a practical relationship between high school attendance rates and graduation rates because R^2=90%.

INTRODUCTION

Background, issues and concerns.

In high schools across the state of Missouri there are growing concerns about high school student's attendance and graduation rates. Each year the Annual Performance Report (APR) are issued to recognize schools in need of support and recognize schools as models of excellence. The performance indicators for standard four and standard five evaluated districts on their attendance rates and graduation rates. School districts recognized as models of excellence have attendance rates of ninety percent and graduation rates of 92% or higher. It is important for school districts to ensure that all students are attending school regularly and successfully graduating from high school. Students must attend high school to have academic success and graduate. Those student that attend school regularly have a greater chance of graduation. There is a positive correlation between high school attendance rates and graduation rates amongst high school students.

Practice under investigation.

Throughout this study the relationship between high school graduation and high school attendance rates was investigated using a correlation study. If there is a correlation, engagement strategies will be studied to see how teachers and administrators can increase student attendance and graduation rates. There will be an investigation to see if there is a significant difference in the attendance rates and graduation rates of White students, African-American, and Hispanic students in Missouri. This will be completed by looking at disaggregated data provided by the Department of Elementary and Secondary Education (DESE).

School policy to be informed by study.

This study will evaluate the correlation between high school attendance rates and high school dropout's rates. From this study, school administrators will be able to statistical show the effect high school attendance rates have on the number of drop outs with the goal or increasing attendance rates and reducing the number of dropouts and increasing the graduation rates.

Conceptual underpinning.

Teachers must engage all learners in the classroom. In high school student must feel academically and socially engaged in each class they attend. In Connell and Wellborn's (1991) Self-System Model of Motivational Development identified that quality learning in the classroom is a direct result of behaviors and emotions. There are four features of the self-system model for motivational development. First that individuals have a psychological need for competence, autonomy and relatedness. Second that self-system processes evolve from the interaction of an individuals psychological needs and social norms within an academic setting. Third, the vital aspects of the social context that lead to the development of the self-system come from structure autonomy, support, and involvement. Fourth inter- and intra-personal variations in the self-system produce a myriad of patterns of action with the academic culture (Connell & Welbourne, 1991, p. 51) If a student is academically engaged students will display initiative, enthusiasm and absorption of classroom material. Students that are academically engaged do not display maladaptive behaviors such as poor attendance, disinterest and high school dropout (Connell & Welbourne, p. 50-53).

Students that are academically and socially engaged have an increased attendance rate and graduation rate.

Statement of the problem.

If there is a continuation of decreased attendance by high school students, then student graduation rates will continue to decrease.

Purpose of the study.

The purpose of this study is to conduct a comparative study to examine the relationship between high school attendance rates and high school graduation rates.

Research questions.

RQ#1: Is there a correlation between high school attendance rates and high school graduation rates?

RQ#2: Is there a difference in the correlation between high school attendance rates and high school graduation rates for large and small schools?

RQ#3: Is there a difference between high school attendance rates and high school graduation rates for white males and African-Americans?

Null hypothesis.

There is no correlation in high school attendance rates and high school graduation rates.

Anticipated benefits of the study.

If there is a positive correlation between high school attendance rates increases and high school graduation rates increases, teachers will need to develop strategies to increase student engagement in the classroom. By increasing student engagement, high school attendance rates and thus graduation rates will also increase.

Definition of terms.

APR-Annual Performance Report-standards set by the Missouri Department of Elementary and Secondary education for school districts to gain accreditation

Attendance-the number of days a student is present at school.

Dropout-a student who withdraws from school before completing the required number of credits to graduate.

General Education Development (GED) - is a high school equivalency exam that measures the academic ability of students in history, science, math, reading and writing.

Graduation rate-the percentage of students who complete the requirements to graduate in relationship to the number of students in enrolled in a graduating class.

DESE- Department of Elementary and Secondary Education

Differentiated Instruction- changing instruction to fit needs of different groups of students so every student is able to master the skills and objectives associated with the course objectives.

Summary.

In the United States, students that have earned a high school degree have a more opportunities once they enter the work force. Students that dropout from high school have an increased probability of incarceration, low-wages, and higher reliance on social services. School districts with higher dropout rates have a lower rate of student attendance. This study will examine the relationship between high school attendance rates and high school dropout rates. The data will examine the reported statistics found on Missouri Department of Elementary and Secondary Education.

REVIEW OF LITERATURE

In the state of Missouri the daily attendance rates in high schools has emerged as a significant indicator for student achievement. High schools across Missouri collect data on daily attendance from the students in their schools. Students that do not attend school daily are academically disadvantaged and at a higher risk of not graduating. In 2006, the U.S. Department of Education reported that 9.3 percent of students aged 16 to 24 years old were not enrolled in school and did not have a high school diploma by October of that year (Koenig, Hauser, & Mason, p. 50). Not graduating high school can have a detrimental effect on a student's future social and economic achievements after high school. High school students that do not graduate face significantly losses in hourly wages throughout their lifetime.

Over the last twenty-five years due the increased wage differentials, the social and economic incentives to graduate from high school have increased (Heckman & LaFontaine, p. 244). Dropouts earn an average wage of 12.75 an hour, and are typically employed in construction, food services, and the landscaping industry (Messacar & Oreopoulos, p. 55). Numerous research studies have focused on the factors associated with leaving school before graduation. Researchers focus on academic engagement as one of the primary indicators for understanding and predicting graduation from high school. Students that are academically disengaged often display behavioral disengagement indicators such as tardies, truancy, and prolonged absence from school (Archambault et al. p. 653-654). Research studies of dropout rates often focus on engagement but identifying research methods to study the engagement of student has proven difficult.

The Self-System Model of Motivational Development (SSMMD) provides a theoretical framework for assessing how social context and engagement relate to academic achievement and student graduation. The SSMMD theory suggests that individuals possess an innate need to connect and interact with others in their environment. The relationship of a social interaction such as family support, teacher, or peer influences the educational outcomes such as student achievement and dropping out (Fall & Roberts, 2012 p. 788). Connell and Welbourne's (2012) self-system model insists that quality learning is attainable only when students are engaged in the academic classroom. Students that are disengaged often display a lack of academic initiative, enthusiasm, and absorption of material. According to Fredricks, Blumenfeld, and Paris (2004), engagement predicts student learning, grades and scores in the short term, such as semesters in high school. Over the long term, engagement can predict a students' pattern of attendance, retention of academic material, and graduation (Fredericks et al, p. 59-60)

In 1975 Vincent Tinto's mediation model stated students interact with the social and academic school system once they enter the school building. The social dynamics in which a student encounters throughout their life influences their engagement level in school-related activities such as reading, math, and homework (Archambault et al. p. 652). If a student becomes disengaged in school activity their academic achievement will decrease as well as their attendance. Thus students that are academically engaged have increased attendance and academic achievement. A student's commitment to school, and therefore their attendance, influences the time spent on the scholarly work associated

with the academic institution. The evolution of a student's academic engagement begins long before the student decides to dropout.

According to Skinner et al. (2008), "engagement predicts students' learning, grades, and achievement test scores; over the long term, it predicts patterns of attendance, retention, graduation, and academic resilience." (p.765) The significance of engagement is far reaching. Students that are not engaged in school perform lower academically. Over time this leads to an increased probability that students will not graduate from high school.

In, Appleton, Christenson, Kim, and Reschly's (2006) studied the psychometric properties of the Student Engagement Instrument with the belief that engagement could best be described as "energy in action, the connection between person and activity." (248). For the authors motivation was related to psychological process which included autonomy, belonging, and competence. While critical to engagement, the lack of motivation is often a long term effect of student disengagement in their academic studies.

Schoeneberger (2012) studied the longitudinal attendance pattern of students in an urban school district. Schoeneberger examined over a hundred student's attendance rates spanning grades 1 through 12 from 1997 to 2009. He believed that increased rates of absenteeism are critical indicators of student disengagement from the academic institution. He stated "poor attendance may suggest that students are uninterested in education environment, have competing interests outside of school or that their family's resources may be impeding their ability to attend school on a consistent basis" (p.8). If not remedied, absenteeism leads to student dropping out of school. Results from his study showed that patterns of student absenteeism can be highly predictive of students at-

risk of dropping out.(Schoeneberger, p. 12) He believed that district leadership should use attendance data systems to create student attendance patterns that could be made available to principals and teachers within the district. Data systems could provide early indicators of student disengagement and at-risk of not graduating from high school.

Lamdin (2001) studied data from the Baltimore public elementary schools to discover if student's attendance significantly related to standardized achievement test performance. During his study on the correlation between student attendance and achievement performance, Lamdin suggests that evidence from his study supported the view to devoting more resources to increasing student attendance in schools. Lamdin warned that attendance is a "proxy for latent variable such as innate student motivation, or parental concern, or the ability of the teacher to stimulate or motivate students, the true influence of attendance per se is overstated."(p.-158). He believed that latent variable such as student motivation and parental concern while difficult to empirically monitor will effect he correlation between the increase in attendance and student achievement performance (p.161). Dropout rates vary by ethnic group and setting Hispanic 36.5, African American 38.5, Asian 8.6, White 19 (Fall & Roberts, p. 787). The dropout epidemic is not exceptional to one particular ethnic group in the United States.

By educating teachers on the correlation between attendance rates and graduation rates instructional curriculum can be modified to increase student engagement in the subject area. Recently class size and school size has become a topic of concern among educators trying to increase graduation rates. In Lindahl and Cain (2012) researched the relationship between size of public high schools and school quality. Lindahl and Cain indicated no significant difference in their corollary study of size of schools effect on

student attendance and academic performance (p.13). Lindahl and Cain's research shows school size and thus classroom size does not significantly affect graduation. Instead teachers and administrators focus must be on getting students engaged and attending school.

RESEARCH METHODS

Research design.

This is a correlation post-post analysis from The Missouri Department of Elementary and Secondary Education examining the relationship between high school attendance rates and high school dropout rates from 2012. The independent variable in this study is the schools being studied. The schools will be divided in to 2 groups' large schools with student populations greater than 600 and small schools with student populations less than 599. The dependent variables are attendance rates and graduation rates from the 2013 school year.

Study group description.

The group being studied is seventy school districts from throughout the state of Missouri. The school districts were divided between large and small school groups as described in the research design. Large school were classified as any school districts with a student population in grades nine through twelve greater than six-hundred students. Small school were classified as school districts with a student population in grades nine through twelve less than 599. Disaggregated information obtained for DESE for the 2012 school year was used to test the significant difference between white, African American, and Hispanic ethnicities.

Data collection and instrumentation.

Archived data was collected from the Missouri Department of Elementary and Secondary Education website. The raw data attendance rates and graduation rates from the 2002 through 2013 were collected and pasted into the excel spreadsheet.

Statistical analysis methods.

The statistical analysis method used to determine if a correlation of significance existed between the attendance rates and graduation rates. A t-test was conducted to discover if any significant difference was apparent between the attendance rates and graduation rates of white, and African American students. The mean, mean D, t-test, df, p-value, and r^2 were concluded from these tests. The Alpha level was set at 0.25 to test the null hypothesis.

FINDINGS

A statistical analysis was conducted to determine if there was a correlation between the graduation rates and attendance rates in small school and large schools. A t-test was used to determine if there was a significant difference amongst varying ethnicities attendance rates and graduation rates for students in large school and small schools. The following tables, graphs, and charts will depict the organized findings based on the statistical raw data found on the Missouri DESE website in 2012. For this study only one year of raw data was used to determine if a correlation existed between attendance and graduation rates.

Figure 1

2012 Correlation between Attendance Rates and Graduation Rates Large Schools

	N	Mean	r	R^2	p-value
Attendance Rates	35	93.3			
Graduation Rates	35	89.2	0.50	25%	0.002

Note: Significant when p<=0.25

Seventy Missouri school districts were randomly selected for a study to determine if there is a correlation between the graduation rates and attendance rates at large and small school districts. The data collected from the Missouri DESE website contains the percentage of students who attended school for the 2012 school year and the graduation rates of students for the 2012 school year. For this study, thirty-five small and large school districts attendance rates and graduation rates were analyzed to determine the existence of a positive correlation. From the correlation study, the mean attendance rate for students was 93.3 and the mean for graduation was 89.2. The relationship between attendance rates and graduation rates was strong because r is 0.50 and is nearer to one. A

positive relationship exists between attendance rates and the graduation rates because r= +0.50. This means that as attendance rates increase the graduation rates will also increase. There is a practical relationship between attendance rates and graduation rates because R^2 is 25% which is more than 10%. There is a significant relationship between large school attendance rates and graduation rates because the p-value is 0.002 which is significantly less than the alpha level of 0.25. The null hypothesis, stated that there is no difference in high school attendance rates and high school graduation rates, is rejected because the p-value is less than the alpha level. This shows that in large school districts that high school attendance rates do significantly impact the graduation rates. As students attend more classes the greater chance students have a graduating from high school.

Figure 2

2012 Correlation between Attendance Rates and Graduation Rates Small Schools

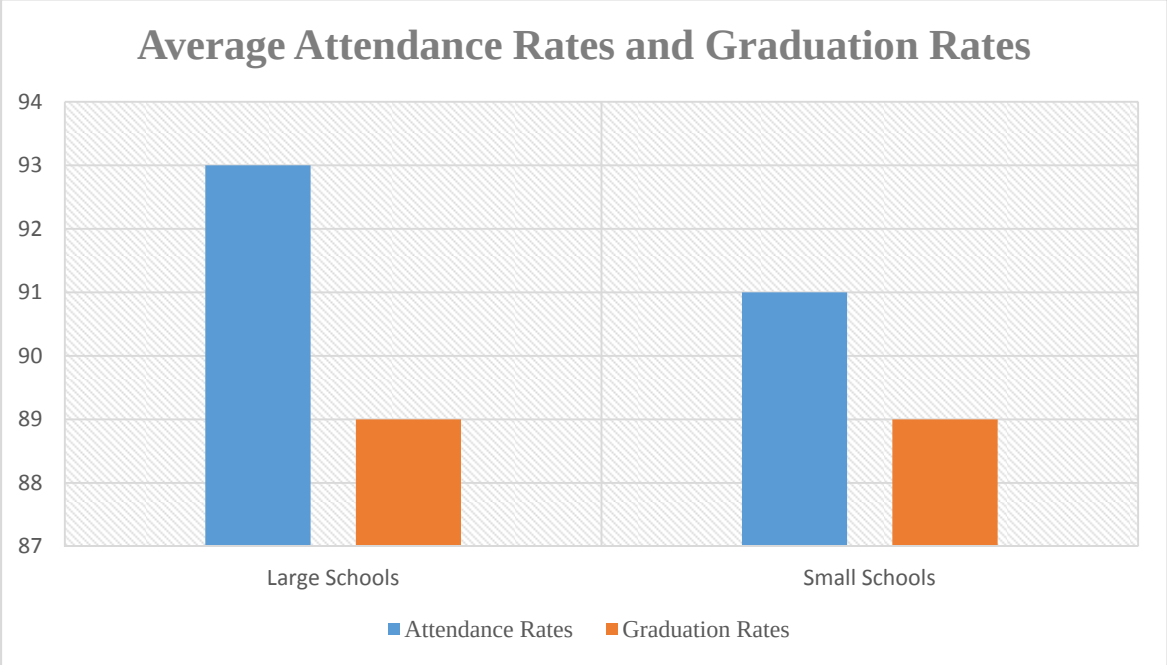
	N	Mean	r	R^2	p-value
Attendance Rates	35	91.71			
Graduation Rates	35	88.97	0.95	90%	1.96 E-19

Note: Significant when p<=0.25

In figure 3, the relationship between attendance rates and graduation rates for small schools were analyzed from raw data collected DESE. There is a strong relationship between attendance rates and graduation rates in small schools because r is 95 and is nearer to one. A positive relationship exists between small school attendance rates and the graduation rates because r=+0.95. There is a practical relationship between attendance rates and graduation rate because R^2 is .90% which is more than 10%. There is a significant relationship between attendance rates and graduation rate because the p-value is 1.96 E-19 which is less than the alpha level of 0.25. The null hypothesis is rejected because the p-value is less than the alpha level. There is a positive relationship between attendance rates and graduation rates in small schools in the state of Missouri. The higher the percentage of students attend high school classes each day the greater the number of students will graduate. The correlation analysis shows that particularly in small schools there is a strong relationship between attendance and graduation from high school.

Figure 3

2012 Average Attendance Rates and Graduation Rates



In 2012, as show in Figure 2, the average attendance rate for large schools with a student population of 600 or more students was 93.3%. This means that 6.7% of the student population did not attend school regularly. The average graduation rate for large schools was 89.2% of the student population. This means that 10.8% of students in schools with a student population of 600 or greater did not graduate during the 2012 school year. The bar graph shows that students less than a difference of 4.1% of students did not graduate but did attend school regularly. Contrary, the average attendance rate for small schools with a student population of 599 or less was 91% with an average graduation rate of 89%. The bar graph shows that less than 1.03% of students in small schools attended regularly but did not graduate from high school. This statistic is

significantly lower than the 4.1% of non-graduates in large schools and creates a greater correlation between high school attendance and graduation in small schools.

Figure 4

t-Test Analysis Results for 2012 Graduation of Whites and African Americans large school districts

Source	Mean	Mean D	*t*-Test	df	*p*-value
White Grad.	88.52				
African American Grad.	87.71	0.80	0.40	34	0.69

Note: Significant when p<=0.25

Seventy Missouri school districts were randomly selected for a study to determine if there is a significant difference between ethnicity graduation rates among large schools and small schools. The data collected from the Missouri DESE website contained disaggregated data of student graduation rates by their ethnic backgrounds. In figure 5, the mean graduation rate of white students was 88.52, and the mean graduation rate for African American was 87.71. The Mean D, or difference between the two ethnicities was 0.80. The t-test result was 0.40 and the df was 34. The null hypothesis is not rejected because the p-value, 0.69, is greater than the alpha level set at 0.25. This shows that there is not a significant difference for graduation rates among white students and African American students in large schools with a population exceeding 600 students.

Figure 5

t-Test Analysis Results for 2012 Graduation of Whites and African Americans small school district

Source	Mean	Mean D	*t*-Test	df	*p*-value
White Grad.	88.5				
African American Grad.	47.82	40.7	5.01	36	0.000014

Note: Significant when p<=0.25

In figure 6, the significance of ethnicity among white students and African American students in small schools was analyzed. The mean graduation rate of white students was 88.5, and the mean graduation rate for African American students was 47.82. The Mean D, or difference between the two ethnicities was 40.7. The t-test result was 5.01, and the df was 36. The hypothesis was rejected because the p-value, 0.000014, is greater than the alpha level set at 0.25. This shows that there is a significant difference for graduation rates among white students and African American students in small schools with a population less than 599 students.

All of the findings assembled for this study answered the research question: “Is there a correlation between high school attendance rates and high school graduation rates?” Figures 1 reported that a positive correlation did exist between the attendance rates and graduation rates of students in large school and small schools. In 2012, the correlation between the attendance rates and graduation rates of students in large schools was less significant in relationship than small schools. Figure 2 reported that a positive correlation did exist among high school attendance and graduation rates of students in small schools. The practical relationship between high school attendance and graduation

in small schools R^2 was greater than 10%. There was a significant relationship between high school attendance and graduation because the p-value was 1.96 E -19 which is significantly less than the alpha level of 0.25.

CONCLUSIONS AND RECOMMENDATIONS

The outcomes reported from this study describe that students must attend high school regularly to increase the graduation rates in the state of Missouri. The findings show there is a positive relationship between attendance rates and high school graduation rates in both large and small schools. In large schools positive correlation existed because r= +.50. A Correlation analysis of large schools attendance rates and graduation rates showed there is a practical relationship between high school attendance rates and high school graduation rates because R^2=25%. In small schools a positive correlation existed because r=+.95. Results from the correlation analysis of small schools attendance rates and graduation rates exhibited a practical relationship between high school attendance rates and graduation rates because R^2=90%. From these results, student's attendance in small schools is critical for graduation from high school. The null hypothesis tested is rejected with confidence. Research questions three asked, is there a difference between high school attendance rates and high school graduation rates for white males and African-Americans? The t-test results for large schools the 2012 year indicated that the p-value was 0.000014, which was significantly lower than the alpha level set at 0.25; therefore, the null hypothesis tested is indefinitely rejected with confidence. There is a difference between attendance rates and graduation rates in small schools. The t-test results from small schools the 2012 year indicated that the p-value was 0. 69, which was greater than alpha level set at 0.25; therefore, the null hypothesis tested was not rejected with confidence. There is not a difference between attendance rates and graduation rates for white students and African American students in large schools.

The conceptual underpinning of theorists James G. Connell and James G.Wellborn's is strongly supported by these research findings. The Self-System Model of Motivational Development identified that quality classroom learning is a direct result of behaviors and emotions. The four features of the self-system model for motivational development explains how behavior and emotions effects student academic achievement in the classroom. First that individuals have a psychological need for competence, autonomy and relatedness. Students should display initiative and individuality in the classroom by completing school work and attending school regularly. Second that self-system processes evolve from the interaction of an individual's psychological needs and social norms within an academic setting. Students should display and evolve social behavior and emotions to the social norms within the academic settings, such as completion of curriculum and classroom assignments. By completing the necessary curriculum students will increase their probability of graduating high school. Third, the vital aspects of the social context that lead to the development of the self-system come from structure autonomy, support, and involvement. The third criteria is the most vital students must develop within the classroom a feeling of support from the teacher. Teachers must express concern for all student learning and success. By doing so teachers will engage the students as valued members of the learning environment. Next students must feel involved in the classroom. Teachers must engage all the students in the learning environment with differentiated learning styles to address all academic needs of the students. Fourth inter- and intra-personal variations in the self-system produce a myriad of patterns of action with the academic culture. In the classroom teach must prevent maladaptive behavior by addressing students inter-and intra-personal needs. Teachers

must communicate the expectations to the students to prevent poor attendance and inadequate academic progress. Teachers should be aware of the each students needs within the classroom and encourage academic engagement. Once students are engaged in the learning environment maladaptive behaviors and emotions towards the learning process will decrease.

After concluding this study there are some further studies that could be conducted. In the ever changing landscape of secondary education, technology has the ability to bridge the gap created in academic achievement for students who are absent from school. Data on districts that have implemented 1:1 technology programs could further explain why attendance had a lower correlation in larger higher schools for graduation. A study by districts could be performed to see the correlation between their attendance rates and graduation rates before and after the implementation of 1:1 programs. This research could explain the importance of twenty-first century communication and flipped lessons on graduation rates.

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