

The Influence of Male Teachers
on Male Student Achievement

by

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Abstract

The purpose of this study was to show if male teachers had an impact on male achievement on the Measure of Academic Progress test. The participants were 11 third and fourth grade male students. All of the participants were taught by female teachers during the 2016-2017 and male teachers during the 2017-2018 school year. This study used a casual comparative design because the researcher was seeking to find relationships between variables over which the researcher had no control. The findings from the study showed that male teachers had no impact on the male student's achievement on the Measure of Academic Progress test.

CHAPTER 1

OVERVIEW

This study aims to examine the influence male teachers have on the achievement of male students. The teacher workforce is one that is dominated by women. As of 2017, 24% of teachers in the United States were male. One out of every 10 elementary teachers are male. Currently out of the 10,095 teachers in Baltimore County Public Schools, only 2,189, 21.6% are male. Male teachers are heavily sought out by school districts due to the role model presence that they bring to the school atmosphere for young male students. Girls are out scoring boys in the majority of school subjects, specifically reading. The shortage of male teachers is consistently viewed as one of the factors contributing to the disparity in school achievement between boys and girls. Educational outcomes are better when girls are taught by women and when boys are taught by men (Dee, 2007). With the shortage of male teachers, male students are not receiving the same learning opportunities based on the lack of access to male teachers. Male teachers could provide a boost of confidence in boys motivation to learn (Deese, 2017). Boys are shown to learn differently than girls and male teachers may offer the push needed to increase learning (Deese, 2017).

Statement of Problem

The purpose of this study to examine if male teachers have an impact on the achievement of elementary school students in the subjects of math and reading. More specifically the researcher will aim to examine if male teachers have a positive impact on male students' third and fourth grade reading and math performance. The topic is research worthy because of the dire need to investigate why boys are underachieving and to learn if access to male teachers is a key to improving educational outcomes for male students.

Hypothesis

Math

Null: There will be no difference in the scores made on the MAP math test by the male students who have a male teacher compared to a female teacher.

Alt: There will be a difference in the percentage of growth scores made on the MAP math test by the male students who have a male teacher compared to a female teacher.

Reading

Null: There will be no difference in the scores made on the MAP reading test by the male students who have a male teacher compared to a female teacher.

Alt: There will be a difference in the percentage of growth scores made on the MAP reading test by the male students who have a male teacher compared to a female teacher.

Operational Definitions

Student Achievement-The amount of academic content a student learns in a predetermined amount of time. As it is used in the study, it will be measured based on the county mandated assessment given adaptive test.

Gender- One of the two biological sexes, female or male. This is the independent variable for the study.

MAP Test- The acronym stands for the Measure of Academic Progress. The measure is a computerized adaptive test which helps the school make educational decision about a student's academic growth. This is the dependent variable for the study.

CHAPTER 2

LITERATURE REVIEW

This literature review focuses on the impact teacher gender has on student achievement. More than 80 % of the teachers in the United States of America are female. With such a female dominant workforce, there is a growing interest to determine if the gender of a teacher affects their evaluation of their students, how they perceive certain students, and if gender plays a part in student achievement. With the extensive amount of research on this particular topic, the range of results varies from study to study. With the extensive number of uncontrollable factors that go into a student's achievement this topic is one that may be difficult to obtain clear data on but one worthy of investigating. The three sections below discuss the role of teacher perception in the classroom, gender effects on evaluation, and male teachers effect on boys' school achievement.

Teacher-Student Relationships and Teacher Perception in the Classroom

Most teachers would agree that building relationships with their students is important for finding out more about how their students are able to grow academically, as well as emotionally. It is hard to teach children when teachers are unable to care for them. Looking at how relationships are formed when the teacher and student are of opposite gender and how this impacts students' mental and emotional state was studied by McFarland, Murray and Phillipson in 2016. The study used a structural equation model to test predictive effects on how students' genders would affect their self-concept (McFarland, et al., 2016). The study predicted that a teacher's gender can negatively or positively impact a student's self-concept. In primary and middle school, self-concept can positively and negatively impact children's ability to learn so unpacking the foundations of students' confidence level towards learning is important and this

study was able to test that foundation. They found that teacher-student relationships did not impact a boy's self-concept, but it did impact the girls.

The achievement of students in the classroom is based on several different factors but one main factor is the evaluation of a student's work by the classroom teacher. Perception in the classroom plays a big role in these ratings. How teachers perceive students will impact how they evaluate their work (Mullola, Ravaja, Lipsanen, Alatupa, Hintsanen, Jokela, & Keltikangas-Järvinen, 2012). A teacher often judges students' academic abilities on their behavior, positive or negative. Students with behavior or anger problems are not always perceived as high achieving students and vice versa. Student temperament, which includes the attitude toward learning, also affects student achievement because of the increased rigor during the advancement of grades. The higher the grade, the more challenging the work will be. A student's temperament can determine how much rigor he or she will be able to handle. Research shows that male teachers viewed male students as having more positive temperaments and female teachers viewed female students as possessing more positive temperaments (Mullola, et al., 2012) The study also found that the students were viewed as more mature by older teachers verses less mature with younger teachers. They concluded that this bias may impact student achievement because of biases that may occur during grading. Due to subjectivity of the evaluations of certain assignments, perception of a student can have an ability to affect their academic achievement.

Classroom management is a determining factor in the effectiveness of a teacher. Behavior problems often arise daily in teachers' classrooms across the United States. Students with behavior and emotional problems may not always be perceived the same way according to the study conducted in seven elementary schools in Florida (Splett, Smith-Millman, Raborn, Brann, Flaspohler, & Maras, 2018). The researchers asked the teachers to rate the students in their class

using a nominal scale based on being a behavioral and emotional risk. Sixty-eight teachers rated 1,241 students using the survey. Of the 1,241 students rated, 68.5 % of them were African American. The gender of the students was split evenly, meanwhile 67% of the teachers were White with 89% of them being females. The results of the data found variances in the overall rating. The predictors that they included that factored into the data were student gender, race, academic performance, prior disciplinary action, teacher gender, as well as teacher and student interactions. Male and female teachers rated female students higher on their ability to manage their emotional and behavioral state better than male students. Although there are many factors that affected these results, factors included teacher gender as well as student gender.

Teacher perception does not only apply to how teachers views their students, but it also applies to how teachers perceive their commitment to their job. Surveying teacher candidates, Moses, Admiraal, and Berry (2016), compared results of student-teachers' anonymous answers relating to the commitment to the job. The researchers generally spoke about the low commitment issue that is happening in the teaching world and used a survey with gender as the independent variable to receive unbiased answers about how much a female student-teacher was committed to teaching compared to a male student-teacher (Moses, et al., 2016). The data showed that the female student teachers were more likely to be committed to a teaching career than their male counterparts, although the researcher found no statistically significant effect on gender role as it relates to student– teachers' commitment to teaching.

Gender Effect on Evaluations and Teacher Preference

With the large disparity between female and male teachers, the gaps surrounding achievement from the perspective of genders becomes a factor in question. Female students are achieving far beyond male students in reading but are underachieving when compared to males

in the subjects of math and science (Dee, 2007). According to Escadibul and Mora (2013), Teacher gender had a positive impact on all students' test results. Students also had a higher possibility of passing the test if their teacher was a female based on the results from the study (Escadibul, 2013). Speaking generally for the United States, there is a gap in student performance in major content areas by gender. Dee (2007) examined this by assigning same gender teachers and comparing their pre and post assessments. From the study, his results showed that same gender teacher significantly improved the achievement of both boys and girls. The study group of girls and boys both had significant growth when the teacher they were assigned to was the same gender as themselves. The study also surveyed the teachers using a perception survey and asking their opinions about the students and student engagement. The results showed that both genders of teachers perceived students of the same gender as they as the "better" student. Better in this sense would be defined as better attitude, motivation, and ability to succeed (Dee, 2007). This study exposed the possible biases in education based solely on gender. Teachers perceive same gender students in more positive ways and due to the subjectivity of grading assignments such as writing, this has a possibility of affecting grading and the quality of education they are providing.

Teacher preference is also a factor that may affect student achievement. Teachers who have preferences in boys or girls can affect the way they teach and/or evaluate their students. A study used 1,500 students to test the theory that same gender teachers would or would not affect student achievement. Using student feedback, a school district addressed the concerns of students who wanted to address gender biases in teachers (Krkovic, Grief, Kupiainen, Vainikainen & Hautamaki, 2014). Both genders of students felt there were biases to their gender in reading books, learning opportunities, and in general teacher gender preferences. The study set out to

answer the question: Does teacher gender negatively or positively affect teacher evaluations of students' performance? (Krkovic, et al., 2014). The study involved students doing several academic skilled tasks in all major content areas. They were then scored by teachers representing both genders. The results showed that there was no difference in the way a teacher evaluated based on differences in gender between the teacher and students. The researchers did however, conduct a survey asking about the students' academic ability and responses on the survey revealed that both genders of teachers thought that girls had more potential for success in school (Krkovic, et al., 2014).

Male Teachers and Their Impact on Male Achievement

The main concern when it comes to student achievement and teacher gender is male students. The teacher field is female dominant, and studies show that boys are the lower achieving gender when it comes to schooling ,especially reading (Helbing, 2012). Helbig's research shows that boys do not benefit from having a male teacher. Helbig collected data from the 2007 Trends in International Mathematics and Science Study and the 2006 Progress in International Reading Literacy Study, focusing on boys and male teachers. The study used 146,315 elementary students from 21 countries. The study revealed the male students did not have any significant increase in achievement on the test due to a male teacher, but girls who had female teachers did reveal a significant increase in achievement. An additional study focused on the impact of male teachers on male students' reading achievement (Sokal &Katz, 2008). The study assigned the male students to male reading teachers. The study also incorporated technology as a motivator for boy students. The books that they read in class were computer based as well as the class evaluations. The boys were surveyed in the beginning, being asked their personal thoughts towards reading. Results from the survey showed that their motivation to

want to read was low and many of them viewed reading as a feminine activity (Helbig, 2012). The subjects were 119 boys who were identified as struggling readers. By the end of the evaluation period, the boys' motivation for reading had increased, as measured from their answers on the surveys, but their achievement on the standardized test did not show significant improvement.

Summary

In conclusion, there has been a wide range of research and experiments done on the topic of teacher gender and the association it has with student performance based on gender. After gathering research, the findings seem to be inconclusive. The purpose of this research is to add to the body of research and include meaningful data and a reliable study to get further into the topic of teacher gender and student achievement.

CHAPTER III

METHODS

Design

This study used a casual comparative design because the researcher was seeking to find relationships between variables over which the researcher had no control. The researcher used two male teachers' classrooms and two female teachers' classrooms for the experiment in order to compare reading and math growth based on the teacher gender which served as the study's independent variable. The third-grade classroom, that was taught by a male teacher during the 2018-2019 school year, was utilized for reading data, which was compared to the second-grade female teacher's classroom from the 2017-2018 school year. The fourth-grade classroom, that was taught by a male teacher during the 2018-2019 school year, was used for math data, which was compared to the third-grade female teacher's classroom from the 2017-2018 school year. In each case, students in classrooms with male teachers were compared to their same grade level peers in a classroom taught by a female teacher. Using the participants' achievement scores from the Measure of Academic Progress (MAP), each student's score was analyzed for a percentage of growth. The percentage of growth made with the female teacher was then compared to the percentage of growth the participants achieved with the male teacher. Separate comparisons were made for third and fourth grade students.

Participants

The site used in this study was an urban elementary school in Baltimore County, Maryland. The school is classified as Title One with 63% of the students being eligible for free or reduced meals (FARMS). Eighty-Eight percent of the students are African -American, making African Americans the predominate race in the school. The Hispanic population is 5%, the Asian population is 4%, the White population is 1%, and 2% was classified as two or more races. There

were 11 male students used in this study. Seven of them are in the fourth-grade classroom and the other four are in third grade classroom. Fifty percent of third-grade participants were African American, 25% were White, and 25% were Hispanic. Out of the fourth-grade participants, 86% were African American and 14% were Asian. There are two male teachers at the school, one is Caucasian and teaches fourth grade. The other is African American and teaches third-grade. Using both can provide more insight to the impact that male teachers have on male student achievement.

Instrument

The instrument used for the study is the Measurement of Academic progress test, also known by the acronym MAP test. The test is designed to gauge student growth and achievement. The test is computer based and adaptive to the responses given by the student. The questions increase in rigor based on correct responses and gradually become less rigorous as student responses become incorrect. When the test is completed, students are given a RIT score. A RIT score represents student achievement as well as grade level equivalency. Students take the test twice during the year to measure growth in student achievement. Scores are displayed immediately for students, and the quick turnaround time of scores allows teachers to give the students quick feedback. The test is also broken down in specific areas, so teachers are able to view students' areas of strengths and weaknesses. The MAP test was deemed to be valid as well as reliable (Northwest Evaluation Association, 2016). The study collected data between Spring 2001 and Fall 2004 from approximately 2.3 million students from 5,616 schools across 32 states (Northwest Evaluation Association, 2016). The standard error of measurement was consistently low in all subjects. Data from 2002 reported a reliability score from .77 in grade 2 to .94 in grade 7 on the MAP mathematics test (Northwest Evaluation Association, 2016).

Procedure

The researcher collected MAP data from the 11 participants' files from the 2017-2018 school year. All 11 students took both the Fall and Spring MAP test during the 2017-2018 school year. The 11 participants were also taught by a female teacher during the 2017-2018 school year. With the scores given, the researcher calculated the percentage that the student increased from the beginning of 2017-2018 school year to middle of the school year in February. With the completion of the Fall and Spring MAP test during the 2017-2018 school year, the researcher had a year of data to compare growth using the next school year's scores. The students involved in the study had completed the fall MAP for the subsequent, 2018-2019 school year. All 11 students were taught by male teachers during the 2018-2019 school year. The scores from the school year with the female teacher will be compared to the students' scores with male teachers. The changes in performance based on the two years with the representation of different gender teachers were compared for conclusions.

CHAPTER IV

RESULTS

The purpose of the study was to determine if male teachers had an effect on male student achievement. The researcher used the MAP test as the determining factor for the effect of male student achievement. The 11 students had female teachers during the 2017-2018 school year and the data collected from the male teachers was during the 2018-2019 school year. The median, range, mean, and standard deviation were calculated using the percentage of growth the male students made with first the female teacher, and then the next year with the male teacher.

Table 1 shows median, range, mean, and standard deviation for the fourth-grade male students. The table is based on the percentages of growth the male students made during their third-grade year MAP scores with a female teacher versus their MAP scores during their fourth-grade year with a male teacher. Based on student achievement scores, the scores were calculated into the given categories in order to compare scores by teacher gender. The median growth for the female teacher was 5.8 and the median growth for the male teacher was 2.7. The range of growth for the female teacher was 7.2 and the range of growth for the male teacher was 10.63. The mean growth for the female teacher was 7.11 and the mean growth for the male teacher is 2.23. Lastly, the standard deviation for the female teacher was 3.84 and for the male teacher the standard deviation is 2.37.

Table 1

Fourth Grade Math MAP Data

Math-Fourth grade	Female Teacher 2016-2017	Male Teacher 2017-10218
Median	5.8	2.7
Range	7.2	10.63
Mean	7.11	2.23
Standard Deviation	3.84	2.37

In reference to Figure 1, the graph shows the same statistics as the tables, but presents them in bar graph form. Figure 1 displays a visual representation of the difference in growth made with a female teacher in comparison to a male teacher based on MAP scores. The figure shows that the third-grade class showed more growth during the 2017-2018 school year when the teacher was a female. Although the range was larger with the fourth-grade male teacher in math, all other categories were in favor of the female teacher. In conclusion, the results suggest there were differences in MAP growth in favor of male students with female teachers. Thus, there was evidence suggesting the null hypothesis was not rejected.

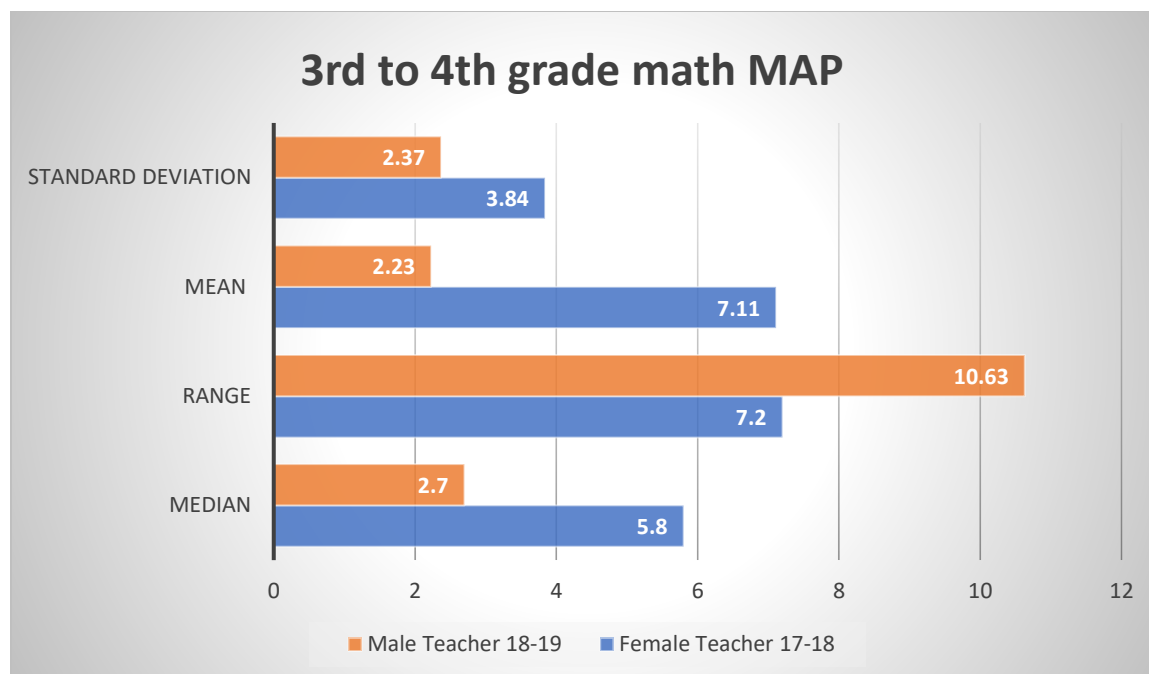


Figure 1: Third to Fourth grade MAP data

Table 2 shows median, range, mean, and standard deviation for the third-grade male students. The table is based on the percentages of growth the male students made during their second-grade year MAP scores with a female teacher versus their MAP scores during their third-grade year with a male teacher. Based on student achievement scores, the scores were calculated from percentage of growth. The percentages of growth made were then put into the given categories in order to compare scores by teacher gender. The median growth for the female teacher is 9.75 and the median growth for the male teacher is 4. The range of growth for the female teacher is 9 and the range of growth for the male teacher is 5.54. The mean growth for the female is 10.68 and the mean growth for the male teacher is 4.37. Lastly, the standard deviation for the female teacher is 3.3 and the standard deviation for the male teacher is 3.41.

Table 2

Third Grade Reading MAP data

Reading – Third grade	Female Teacher 2016-2017	Male Teacher 2017-10218
Median	9.75	4
Range	9	5.54
Mean	10.68	4.37
Standard Deviation	3.30	3.41

In reference to Figure 2, the graph shows the same statistics as the tables in bar graph form. Figure 2 displays a visual representation of the difference in growth made with a female teacher in comparison to a male teacher based on MAP scores. The figure shows that the third-grade class showed more growth during the 2017-2018 school year when the teacher was a female. In conclusion, the results suggest there were differences in MAP growth in favor of male students with female teachers. Thus, there was evidence suggesting the null hypothesis was not rejected.

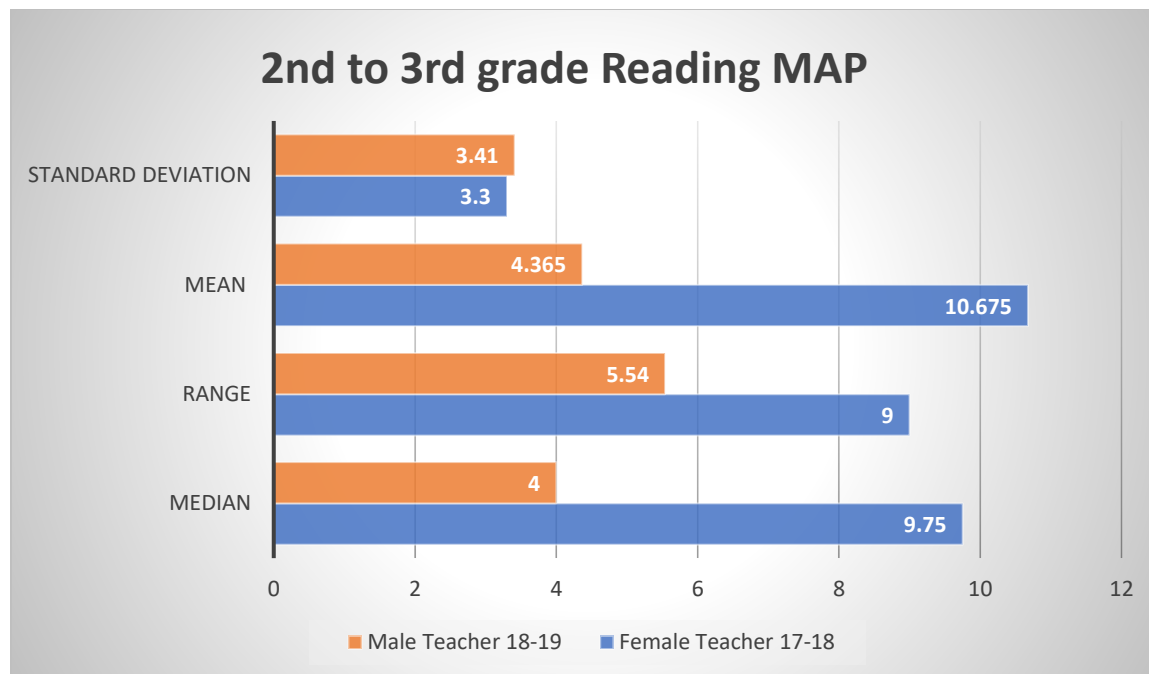


Figure 2: Second to Third grade Reading MAP

Summary

Both third and fourth grade students had more growth on the both the reading and math MAP tests when the teacher was a female. In reference to their individual scores, all male students individually showed more growth with the female teacher. All 11 male students did show growth on the MAP test with the male teachers as well, but in comparison to the female students the achievement growth was lower. In Chapter 5, the researcher will discuss the implications of the results, as well as any limitations and threats to validity in reference to the data.

CHAPTER V

DISCUSSION

The purpose of the study was to examine if male teachers impacted male students' achievement. Using the MAP test, the researcher examined if male teachers would increase student achievement on the test. The null hypothesis is there will be no difference in the growth scores as measured by MAP made by male students with a male teacher compared to the same male students with a female teacher.

Implications

According to the results, male teachers did not have a positive impact on the percentage of growth made by the male students on the MAP test. Ten out of the 11 students made more progress with the female teachers during the 2016-2017 school year. When comparing male student performance with a male teacher to performance with a female teacher, the mean, median, and range all decreased with the exception of range with the fourth-grade male teacher. The median scores decreased notably, with the third-grade reading classroom decreasing by 6.31% and the fourth-grade math classroom decreasing by 4.88%. Based on the results of this study, it can be implied that teacher gender is not important. Being a male teacher alone is not a strong enough factor in terms of improving learning for male students. With 91% of the male students in the study doing better with a female teacher, it can be implied that at this age, male students at the elementary level may do better with female teachers. The fourth-grade male teacher was the behavior specialist during the 2017-2018 school year and the third-grade male teacher was in charge of the primary behaviors during the 2017-2018 school year. As a result, the students may view them as disciplinarians and their behavior is very different this year compared to the year they were taught by female teachers. Both female teachers from the 2016-2017 school

year, have nurturing demeanors, compared to the male teachers who have straight forward demeanors. It can be implied that the male students do better in a nurturing environment, at least at the elementary age. Based on the results, it can be suggested that teacher gender does not have a significant impact on male student achievement.

External Validity

One threat would be the sample group used for the study was small in size. Eleven students is not a large enough number to represent actual results for the school population. Another threat would be that the school sample doesn't represent the larger, societal population. The school population is predominately African-American, which does not represent the larger population of the United states. With a different population, the circumstances and results could vary.

Internal Validity

The biggest threat to validity would be the comparison of two separate grades. The researcher compared a second-grade classroom to a third-grade classroom for one analysis and then the third-grade classroom was compared to the fourth-grade classroom in the second analysis. Comparing two grades will change the validity because the curriculum and grade level expectations vary between grades. Achievement gains are less dramatic the older the students get, so comparing two earlier grades to older grades may affect the percentage of growth, and this is a major limitation to the study's design and subsequent findings.

Connections to Previous Studies

This study focused on the impact male teachers had on male achievement. According to Helbig (2012), male teachers did not have a significant impact on male student achievement. Helbig's sample size was 146,315 elementary students from 22 countries. The large sample

group validated Helbig's study which was able to capture more realistic results. Helbig's (2012) study used 2007 Trends in International Mathematics and Science Study and the 2006 Progress in International Reading Literacy Study as sources of data. Although my sample size was significantly smaller in comparison, my study yielded similar results. Research shows that male teachers viewed male students as having more positive temperaments and female teachers viewed female students as possessing more positive temperaments (Mullola, et al. 2012) They concluded that this bias may impact student achievement because of biases that may occur during grading. Due to subjectivity of the evaluations of certain assignments, perception of a student can affect teachers' rating of a student's academic achievement. It could be inferred that my study showed the opposite side of this Mullola's study (2012) due to the MAP scores being computer calculated. The subjectivity and biases noted by Mullola (2012) do not apply to MAP because the test was given on a computer and automatically graded by the computer.

Implications for Future Research

With teaching being a female dominant profession, there has been a push for more male teachers. Less than 20% of teachers in the United States are male. School districts have been heavily seeking male role models for schools, especially at the elementary level which has a much smaller male presence in comparison to secondary schools. More research should be done to test the benefit of same gender classrooms using several different data sources, unlike my experiment. Due to the male students' low motivation and low scores specifically in reading, society would benefit to know if the male teacher push is one that comes with negative or positive consequences for academic and behavioral outcomes.

Conclusions

From this study it can be concluded that the male teachers did not have an impact on the male students' MAP scores. Some students did benefit, and some did not. This single experiment cannot widely conclude that male teachers have no impact on male students' academic performance at all due to the small sample size and limited data. However, this study does add to the existing research. Moving forward, more research and data should be done to come to a more conclusive result. In an effort to close the achievement gaps in reading between males and females, the study is worth the experiment.

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