Addressing the Gender Gap in Student Achievement

Emilie Lambertz*
Department of Curriculum and Instruction, College of Education

Abstract. What affect do gender specific strategies have on student achievement in math? The question was researched in a fourth grade classroom setting where four classes were taught in a departmentalized situation. Of the four mathematics classes, two were selected to be the subjects for the research question. Of the two classes, one was the experimental group, the other, the control group. A student survey was administered to determine how students viewed themselves as achievers in mathematics and how effective they felt the gender specific strategies used during instruction were. Pre and post test over chapters in the textbook were also administered. The teacher also kept a reflective log to review lessons and the effectiveness of the gender specific strategies. The following techniques were implemented to foster results: using manipulatives, games, humor, and cooperative learning. The findings of this research indicate that students achieve equally well by instruction given with or without gender specific teaching strategies.

1. Introduction

It has been decades since the gender gap first reared its ugly head. The media overemphasized the fact that boys achieve higher in math and science and girls achieve higher in the language arts areas. Is there such thing as a gender gap anymore? To address this gap, more understanding needs to be developed as to why this gap exists and how as educators we can address the needs of all students. We need to look at the biological differences between male and female and relate those findings to what we are doing in the classroom. Using effective teaching strategies, we can work to meet the needs of both boys and girls in our classroom. My purpose for this research was to implement these gender-specific teaching strategies and see what effect they had on the students in my mathematics classes.

2. Experiment, Results, Discussion and Significance

Participants
All participants in this project are from a suburban city. The population of the elementary school is 600 students in grades K-5. Fourth grade classrooms were the setting for this research. A total of 44 students were involved.

Materials
Students were asked to complete surveys about their attitudes about learning mathematics. Pre and post tests over the chapter in the student textbook were administered. The classroom teacher also kept a reflective log to help evaluate the effectiveness of the gender specific strategies used in instruction.

Procedures
The action research began and the experimental group (M-4) was instructed using a variety of gender specific effective learning strategies throughout the chapter. These strategies included the use of manipulatives, using humor in lessons, and cooperative learning activities. At the end of the chapter, a post test was administered along with another survey that was given to help evaluate what the students thought about the strategies used and how they viewed themselves as learners of mathematics at the end of the unit. At the same time, the control group (C-4) was being taught the same material without the use of the gender specific strategies. The same pre and post tests were given; however, no surveys were given to the control group.
Results

The results of the research do show that both the control and the experimental group improved from pre to post test. M-4, as a whole showed an increase of 44% from pretest to post test. When broken down by gender, the data shows that females from M-4 showed a greater increase than their male classmates by 8%. (Figure 1) Females had an average score of 25% on the pretest and post tested at 73% for an overall increase of 48%. Whereas males pre-tested at a 33% and had an average score of 73% for their post test which shows an overall increase of 40%.

![Experimental Group M-4](image)

**Figure 1.** Results of Experimental Group (M-4) Pre and Post Tests

The control group C-4 showed an even bigger increase from pre to post test. The whole class had an average score of 30% for the pretest and an average of 83% for the post test. This indicates a 53% increase overall. When looking at the genders specifically, the results show that females had an pretest score of 31% and a post test score of 83%. This is an increase of 52% for females. Their male classmates had an average of 29% on the pretest and improved to an 84% post test average score, which is an increase of 55%. (Figure 2)

![Control Group C-4](image)

**Figure 2.** Results of Control Group (C-4) Pre and Post Tests

The reflective log showed that students were more engaged in the activities where cooperative groups were used, however their retention of the material wasn’t as good when it came to test time. Some students in the experimental group found it difficult to work in a group or with a partner, where others really enjoyed the activities and the opportunity to “teach/coach” their classmates. The control group seemed disengaged at times when their instruction just came from the teacher and little was done in groups or partners, but their results were higher than the experimental group.

Discussion

Although the gender specific teaching strategies which were used in this research were well received by most students, the overall results of growth from pre to post test do not show as big of an increase for the experimental group as expected. Females and males both scored very close in relation to each other which show there was no achievement gap due to gender.

3. Conclusion

In conclusion, the results show that there is not a gap in achievement between males and females in mathematics. The gender gap in math achievement as we once knew it is basically non-existent in current time. We have seen a significant increase in females succeeding in what used to be a male’s domain. Using the researched gender specific strategies during mathematics instruction was much more engaging to the students than simply teacher lecture. In the future, I will probably continue to teach using these types of strategies anyway, even though the results were not as dramatic as I had hoped.