Closing the Gender Gap in Education: Making a Difference in Math and Science Education, An Ethnographic Study

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Even though women make up nearly 60 percent of college students, ingrained sexism and gender roles continue to hamper k-12 schooling for both boys and girls. Gender-based stereotypes are, in part, why females have previously not been encouraged to take STEM classes or engage in STEM projects, majors, and career fields.

Purpose & Objectives

- To examine secondary school students' perspectives of STEM subjects in high schools.
- To use focus group questionnaires to gain insight into the courses that high school students deem engaging and appealing.
- To consider the students' first introduction to STEM courses, as well as the students' past and present attitudes toward STEM courses.

Literature Review

- Whitmire and Bailey (2010) explain that over the past 20 years, "discussions of gender equity have fallen into an either/or paradigm in which one group of students has been singled out as the only group needing attention."
- Research indicates that "When you examine state tests...you see that girls have pulled even with boys in math and science. In some cases, they outscore boys in those subjects" (Whitmire & Bailey, 2010).

Methods

Researchers engaged in a systematic study of the males and females at two rural high schools in North Carolina using focus group questionnaires. Throughout the study, students' identity remained anonymous; the only demographic information that students were asked to provide was their self-identified gender.

Steps in Gathering Data:

- 1. Researchers physically visited each high school.
- Researchers me t with administrators to gain insight in current trends in closing the gender gap.
- Researchers visited each math and science classroom to gather focus group questionnaires written responses.

Participation

839 Students from two Sandhills Region 4 high schools in North Carolina participated in the research study:

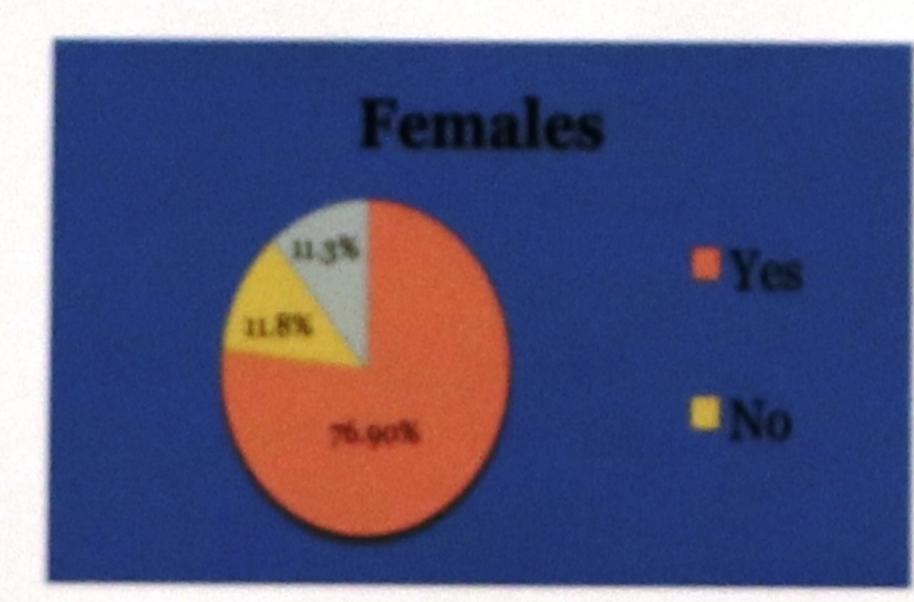
- School A (rural): 90 self-identified females, 91 self-identified males, and 1 self-identified as Other participated in the study.
- School B (urban): 312 self-identified females, 338 self-identified males, and 7 self-identified as Other participated in the study.

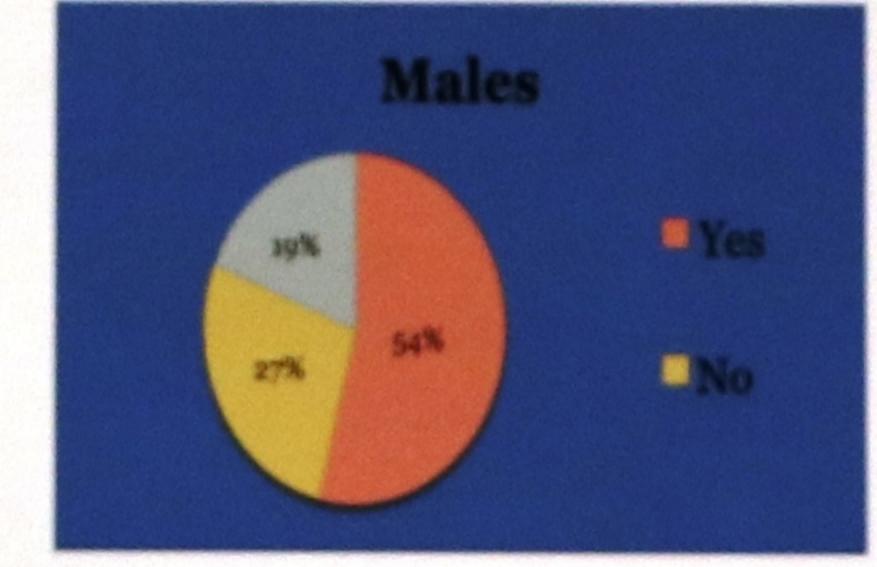
Results

What subject is your favorite? What about this subject do you enjoy?

School A (rural)			School B (urban)	
	Females	Males	Females	Males
English	20	9	78	33
Science	22	26	79	85
Math	20	24	50	64
Arts	11	6	39	19
History	9	11	42	59
Physical Ed.	3	7	12	49

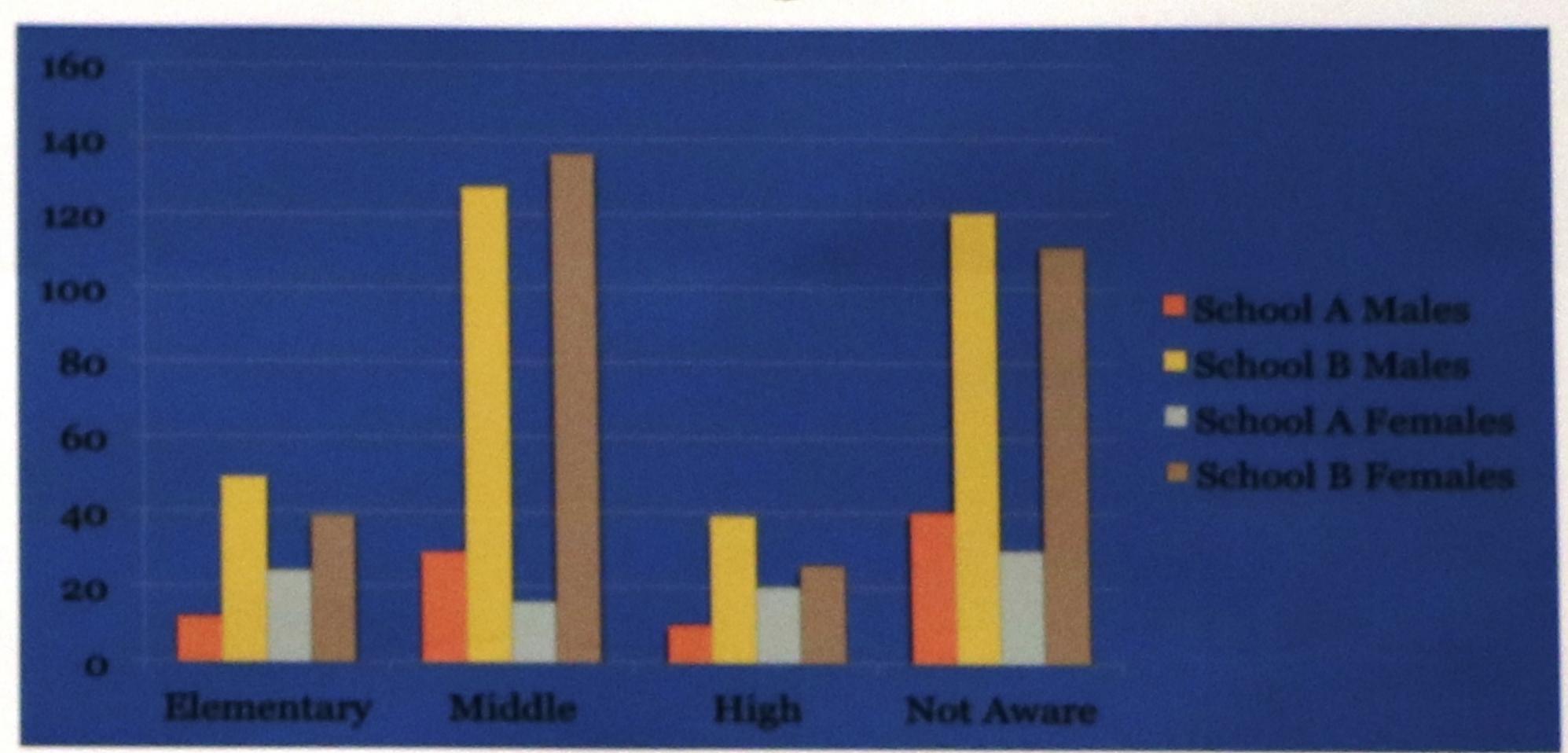
Do you think that you will get into a good college and major in an area needed for a career in science, technology, engineering, or math, why or why not?





*Note: Blue indicates not sure/undecided.

Were you introduced to STEM fields in elementary, middle or high school?



Rank the importance of Science, Technology, Engineering, and Math. Do you prefer English or Social Studies courses better than Math or Science?

School A:

- School A Males ranked math as the highest, but science was the most prevalent response for second
- highest in importance. Following math and science were engineering and technology.
 Once again, about 25% of the students claimed that English was more important than at least one of the
- STEM content areas
 School B:
- School B Females: Science classes were the most important, but instead of following science with
- technology, engineering, or math, the females actually stated English was a close second to science courses.
 About 25% of the female students at School B remarked that all of the courses are essential to learning and growth.
- School B Males: Math ranked highest, with engineering and technology as the second most common in terms of level of importance.
- Science ranked fourth for the majority of males, but some males ranked science as the most important.
- 7 males remarked that English was the most important or of equal importance to the STEM courses.

Discussion

- Females are as likely as males to be interested in STEM content areas throughout the secondary academic years.
- Educators and educational administrators must continue to reinforce the value of females taking science, technology, engineering, and math courses throughout the high school years.
- Current educators, as well as future educators in teacher education programs, need to be cognizant of the fact that some students are not being told about the acronym STEM.
- Students need to be told what STEM means or students will not be aware of their own personal interests in STEM fields.

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