



A Student's Attitude Correlates to Achievement

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Abstract

Research shows a strong connection between a student's attitude toward math and their personal achievement in math. In a study (Brassell, 1980) research shows those students who have a negative attitude towards math, lower self-esteem or math anxiety also tend to have a lower level of success in math. The way a student perceives themselves plays a key role in their confidence and willingness to persevere through critical challenging stages of math competency. A student may give up before they even start if they feel they just are not "good" at math.

Introduction & Research Question

How many times have you heard a student say "I hate math", "I'm just not a math person" or "math makes me feel stupid"? There are so many factors that play into a student's self-confidence in terms of math from an early age. As an educator, how are you presenting math to your students, what does your math language sound like and how are you teaching students to deal with adversity? The focus of my research is to show that a student's attitude towards math can affect their achievement levels.

How can teachers change the negative perception of math for our students?

If we can find ways to change our students' perception of mathematics then students will approach math with an open mind. When students walk into math with an open mind, higher confidence and a willingness to try their math achievement levels can improve.

Research Design & Data Collection

The Mathematics Attitude Inventory (MAI) was administered to 714 seventh-grade students. The students were spread out through 5 different junior high schools representing a multitude of backgrounds. The scale includes the perception of the mathematics teacher, anxiety towards math, value of mathematics in society, self-concept, enjoyment of mathematics and motivation in mathematics. The scale - response had four options: strongly agree, agree, disagree and strongly disagree. The students' achievement was based off their score of the California Test of Basic Skills. The mathematics teachers left the room and students were assigned numbers to disclose their identity. Students were also allowed to take as much time as needed to complete the assignment. Teachers were also asked to label all of the students as high, medium and low.

Results

The graph will display the mean scores for each of the attitude scales. The graph also displays where the teacher has placed them in regards to levels of achievement based off of their CTBS scores. The results showed the most dramatic difference in self-concept and anxiety in correlation to students' academic achievement. We also see that medium and low students had the lowest scores for enjoyment in mathematics. The research shows the problem but now as teachers how do we help our students move towards a more positive attitude towards math and their abilities.

Discussion/ Conclusions

It's apparent that a student's self-concept and the anxiety they feel towards math has a connection to their mathematical achievement. As teachers we need to praise and acknowledge our students, embrace a growth mindset, tune in to our mathematical talk and feelings of math, while also engaging in multiple fun and engaging instructional strategies.

Number of Students and Mean Scores on Six Attitude Scales for Teacher-nominated Ability Groups within Classes Grouped by Ability Level

Variable	Student: Class:	High High	Medium High	Low High	High Medium	Medium Medium	Low Medium	High Low	Medium Low	Low Low
Attitude toward teacher		2.95	2.97	2.81	2.80	2.86	2.80	2.78	2.77	2.77
Value of mathematics in society		3.38	3.34	3.42	3.23	3.25	3.20	3.37	3.23	3.11
Anxiety toward mathematics		1.94	2.06	2.13	1.97	2.23	2.34	2.06	2.18	2.20
Self-concept		2.96	2.77	2.65	2.89	2.63	2.45	2.69	2.65	2.50
Enjoyment of mathematics		2.78	2.59	2.67	2.61	2.46	2.30	2.55	2.52	2.44
Motivation		2.35	2.28	2.35	2.32	2.27	2.25	2.23	2.31	2.27
N		39	240	34	30	159	26	28	130	27



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