

A Teacher's Power

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Interviewee: Joan Beardsley

Can you think of something that doesn't involve *any* form of mathematics?

On the first day of 5th grade, my teacher asked this question and at first I thought it would be effortless to answer, but after a minute of thinking I became deeply perplexed, racking my brain to come up with a smart answer. This question still pesters me from time to time, but I have come to the conclusion that math is in everything. Yet without my teacher asking this question my view on math would still be stuck in the classroom. This moment of curiosity, inspired by my teacher, sparked my interest in math, and ever since then I have enjoyed the subject more. Joan Beardsley spent 35 years knitting mathematical concepts into the minds of her students and understands the ubiquity and importance of math. She also appreciates that to light the spark in her students she must teach with insight and empathy.

Joan Beardsley grew up in the small town of Ashland, Massachusetts. Although she might not have realized it at the time, her passion for numbers, patterns, and figuring things out started at a young age. Joan's mother taught her to knit and sew, and she had already learned to sing by the time she could read. Her father was an electrical engineer and she and her brothers would help him build projects and figure out problems. However, she did not have an inspiring experience with math in elementary and high school, primarily because there wasn't a single certified math teacher in her school. The little knowledge she was able to obtain from these classes was entirely superficial, "Math lessons were memorizing lessons," she said about her high school math classes: She had ninth grade math with a biology teacher. Tenth grade with a history teacher. And in eleventh and twelfth grades her math teacher was a deaf football coach.

Joan had no interest in math until college at the University of Massachusetts Amherst. She was planning on going into a career in the humanities as either a Home Economics or Language teacher, but her whole perspective on math changed when she entered her college math class. "It was just basically a freshman math course- the one everybody takes just to get the credit." But for Joan it was not *just* a math course— it opened her eyes to a whole new world of math. One that didn't solely consist of arbitrary numbers and equations, like she'd been taught before, but also the deeper roots and applications of math. "I saw math in a different way through that course...It showed the structure of mathematics, not just the processes."

Joan was in college at a time when the STEM world was dominated by men. However, there was a growing interest in the subjects due to the Space Race and more women were becoming involved. She sometimes thinks back to if she had followed in her father's footsteps and taken engineering, but it was close to impossible for a woman to have such a career at the time when Joan was in college. While her

math classes were evenly divided gender-wise, there was only one woman in her class who was taking engineering, and she was harassed and bullied. Although the gender distribution was fairly equal, the teachers geared their pedagogy toward the men while the women had to scramble to keep up.

After graduating from college and becoming a certified math teacher, Joan went back to her hometown and taught in the Framingham schools, where her favorite subject to teach was geometry. A few years later she got married and moved up to Exeter, New Hampshire, with her husband. While in her second year of teaching in Exeter, Joan was tasked with the responsibility of teaching Algebra to the *entire* 9th grade— five classes. No other teacher would take the responsibility, so Joan, the new and female teacher, was given this massively difficult job. This is just one of the impediments Joan faced for being a woman working in a mostly male workplace.

Joan's way of teaching was commendable. She didn't just assign worksheets and expect answers; if an answer was wrong she wouldn't immediately correct the student, but would try to put herself in their shoes and look at it from their perspective. "I wanted to go beyond their thinking and figure out why it made sense to them... I could not see the point in just saying, 'No, that's wrong.'" Joan applies this way of teaching, putting herself in her students' shoes, to her everyday life as well. If she hears an idea she doesn't quite understand— whether it's in a meeting, a class or a conversation— she'll take a moment to try and figure out what's going on in this person's thought process; why they're making certain assumptions and how their background affects that. Joan's admirable style of teaching helped her students see math differently, in a way that Joan herself wasn't introduced to until college.

Joan taught in the Springfield public school system for 22 years and the last eight years were especially rewarding. She was hired as a math coach for the six middle schools in the district and worked with teachers who were just like her high school math teachers: not certified in teaching math. Joan worked tirelessly with these teachers so that they could pass the state exam and become qualified, "It was very challenging and very fun." Succeeding in this job was a huge accomplishment for Joan because it meant that that many more teachers would be able to provide their students with a better math education than Joan was afforded in her high school experience— and this contribution had a multiplying impact. As she put it, "[the most rewarding part was] teaching other people how to teach math- and why you don't do it the way I had to learn it in high school!"

My name is Beatrix Bornholdt-Collins and I am an 8th grader at Frances C. Richmond Middle School in Hanover, NH. I am on the Hanover Heat Basketball team and also love to bike, swim, practice the piano and play soccer. In addition, I am on the Quiz Bowl team which recently qualified for the National Championship in Chicago. Next year I will be taking multiple honors classes, including geometry, at Hanover High School.