

Using Doubt As Fuel: The Story of Dr. Min Su

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Upon graduating from medical school, Min Su had no idea that both mathematics and medicine would come to equally dominate her career.

Born in Shanghai, China at the height of the Cultural Revolution, Min was fortunate to have been encouraged to undergo rigorous schooling. It was an upbringing totally unlike that of her mother, who grew up in a poor peasant family at a time when some girls weren't even given names. Yet, still, she grew up subjected to different standards than boys. "My father believed that girls should receive a stricter upbringing," Min said. Her brother was given the freedom to roam the streets and play with his friends, but she was expected to stay home and study. While some have praised China's encouragement of women to pursue higher education, Min expressed reservations about China's seemingly progressive education policy.

Mao Zedong was famously quoted as having stated, "Women hold up half the sky." Yet, Min argued, such egalitarian policies alone failed to emancipate Chinese women. While the government encouraged females of all ages to take an active role in the workplace, their households assigned them the same traditional roles they always had. Min, but not her brother, had to complete her homework while also helping with cooking, cleaning and laundry. She worked twice as hard as her male classmates to achieve the same scores.

Despite the hardship she faced as a female student, however, Min excelled in her studies. She remembers mathematics as one of her favorite subjects. "Literature class was too political," she recalled. "I found my home in math and the other sciences." However, her father, the patriarchal head of the household, deemed medicine the career for her to pursue. He wanted Min to become a doctor so she could one day care for him in his old age. Thus, her love for mathematics was pushed to the side.

True to her abilities, however, Min was admitted to the prestigious medical school of Shanghai Jiao Tong University. After graduation, she was assigned a pediatric residency at Shanghai Children's Hospital. Everything seemed to indicate a promising career in medicine for Min. Still, mathematics remained an interest of hers. "I've always had tremendous respect for epidemiology," Min enthused. "Simple calculations taught me, for instance, the terrible causes and trends of neonatal mortality in China's rural provinces."

Min and her husband, however, held ambitions to move to the West. "To us, the Western world represented an opportunity to pursue our dreams, free

from traditions that restricted us,” Min stated. She and her husband knew the drastic risk involved in doing so. Her medical degree, as well as her husband’s degree in biomedical engineering, would not be recognized in Western countries. As immigrants, they would have to start over from scratch. Still, they felt it was worth the risk.

Moving to Toronto was just as difficult as Min imagined. She was once a physician who dictated the work done by laboratories, but her first few jobs saw the tables turn. She cycled through lab technician jobs, while her husband started off working in a call center. Yet, Min expressed no regrets over her choices. “I had a husband who supported me, who encouraged me to wholeheartedly pursue my ambitions,” she said. “Compared to in China, where I faced obligation as a woman at every corner: to have children, to follow my father’s wishes; Canada was a breath of fresh air.”

Min didn’t view re-licensing as a physician to be a feasible option. Instead, she saw her immigration as an opportunity to re-discover her love for mathematics. She earned a Master’s and pursued a Ph.D. in Epidemiology at the University of Toronto. Though her status as an immigrant saw her face several difficult situations, she found strength through her family and friends to persist. Soon, she began working in the regional government’s public health division as an epidemiologist. “Numbers just made sense to me, and I fell in love with math all over again,” Min recalled. “It’s amazing how conducting a set of calculations and analyses can have a huge impact on the health of a large number of people. It’s a perfect combination of mathematics and medicine.”

Since then, Min has transitioned from working in public health to working in health insurance in the United States. Currently, she works as a director of healthcare analytics. “Analytics in insurance is another way of using mathematics to positively influence the health of the population at large,” Min explained. “A lot of my current work is centered around preventive treatment.” Using activity trackers to gather statistics, she helps lead an initiative to promote healthier lifestyles. On top of incentivizing individuals to undertake a lifestyle change by promising health, her work also rewards exercise with prizes such as free movie tickets. In return, the data gathered from users’ exercise help her more closely monitor and identify key benchmarks for a healthy lifestyle. “Mathematics is the foundation of machine learning, and that’s the direction we’re trying to move towards,” Min shared.

To date, Min has endured challenges in many forms: those of traditional Chinese culture, her father’s whims, her status as an immigrant and more. Whenever and wherever she can, she enjoys supporting others undergoing similar challenges, especially those who are interested in math. Having mentored several young girls who were her son’s classmates, Min described the experience as incredibly heartening. “My favorite piece of advice to give was to use others’ doubt as your fuel,” Min laughed. “No matter

what others say, they can't stop you from conducting a statistical analysis!"

From China to North America, Min has paved her path towards mathematics that has exceeded the expectations of all her detractors. Now, she helps young girls do the same. Her inspiring story is just one of many among woman immigrants in the United States. "I'm proud of all that I - or rather, that we - have accomplished," Min smiled. "We are living proof that America really is the 'Land of Opportunity'."

About Me

I'm a freshman, and my intended major in computer science encompasses my interest in mathematics. As a nerd for processing large datasets, I conduct research that involves helping develop various neuroimaging software that do just that. For my career, I hope to continue learning how to use mathematics and technology to improve healthcare. In my free time, I enjoy playing pool and board games with friends.