

Have you ever thrown your hands up at a problem in defeat? I certainly have. I've given up on people putting away their trays properly in this d-hall, and not ending up with a crash once a day due to dish over-stacking. There are certainly many problems in the world to be reasonably cynical about. But, I think that sometimes we are too quick to dismiss a really hard problem as an impossible one. We lose hope before we've even tried.

Over the past two plus years, I've been working to improve the gender gap in Harvard math. Not really a topic that breeds optimism. There are no tenured women on Harvard's math faculty; there was one, and she left for Princeton a few years back. For three out of the last four years, there have been no women in math 55, the most intense freshman math class. In the entire concentration, only two women graduated with a degree in pure math last year. Two. I'm so glad that we are finally talking about gender in finals clubs. But why are we not also talking about women in the math concentration?

And how did it get like this? Is it that women are simply coming into Harvard less interested or less prepared to pursue math, due to insidious cultural factors, or, is it a problem during college? American culture around gender and math certainly contributes to the problem - After all, as I once heard in *Mean Girls*, "You can't join mathletes! It's social suicide!" I can say this, because I was once a mathlete. In high school, I was captain of the mathletes. I was the only girl out of 32 students from all of New York City to participate in the Harvard-MIT Math Tournament in 2010. I got a suite in the ritzy Charles Hotel all to myself, potentially a perk, but also lonely. As I lay on the bed, I listened to a bunch of guys were playing Super smash bro's all evening next door.

And yet, my conclusion is that cultural factors stemming from high school are not the complete picture. The gender gap in Harvard math is at least partially due to the atmosphere here at the college. In order to test my hypothesis, I co-led a survey of Harvard undergraduates in math and related STEM fields. When I looked at our results by gender, things got interesting. Among our findings, we found that women felt less involved in the math department than men, and women in math felt that they could ask for fewer letters of recommendation than men on average. Most female undergraduates in math reported feeling uncomfortable as a result of the gender gap, and uncomfortable in math department common spaces. The full report is online; google Harvard Math Survey.

Armed with this data, and given my optimistic, possibly naive tendencies, I decided to try and do something about this. I was in a course called Gender and Science, and our final project was to make an intervention. So, together with a male freshman math major, we launched the group Harvard Gender Inclusivity in Math last May, with a two-fold goal of 1. creating an inclusive community of women in math and allies and 2. continuing to push for gender inclusivity by holding consciousness-raising events and working with the math department. Our first consciousness raising event, in September, drew over 80 students and faculty from across campus with a 50/50 gender split, and made the headlines of the Crimson.

There are so, so many times when I was ready to give up. Well-intentioned friends and professors even told me to give up at times, seeing the situation as impossibly fixed. Starting a student group of any kind is tough - as you face the Catch-22 of needing membership to form an interesting club, but needing an interesting club to attract anyone. Now, try starting a club with a frustratingly difficult end goal - bridging the gender gap - and a large group of detractors, and

you see my position. And yet, we have succeeded so far. In six months, we have brought in female mathematicians from Brown, Tufts, and Dartmouth to speak, held community dinners right here in Lowell, worked with the math department on issues such as advising, and are planning a conference for women in math and statistics from across the North East in April. And, while we will not achieve our end goal of gender parity anytime soon, we are now moving towards it with positive velocity. So, I think that sometimes, having glowing optimism towards a seemingly intractable problem is the key ingredient. If you become so hell-bent on seeing change, then your optimism becomes contagious, people begin to believe you, and something might just budge.