

Are Mathematicians Socially Useless?

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"I mean, Aris, you are so interested in all of these fields. You are a diverse man, Why MATH?"

1 Introduction

Imagine being at one of the following places:

- a political rally
- a poetry reading
- a football game
- a festive party
- a coffee shop

What do you think is the likelihood that you will see a mathematician in one of these places? We are not so much interested in the actual chance that a mathematician would be there but more about what you *think* that chance is.

In reference to the opening quote, my colleague (Ph. D in political science) had discovered my passionate interests in social issues. When he asked me why I chose mathematics as a discipline, he assumed I had thrown my entire social life away. To him, I was committed to spend the rest of my life with one pencil with an infinite amount of lead and one boundless sheet of paper on which I would just crunch numbers happily until my inevitable end.

And this is a very educated man! What is everyone else thinking about mathematicians? It's not that difficult to figure out that the reputation is not positive overall. The goal of this article is to discuss the stereotypes associated with that reputation, to discuss the implications of that reputation, and to present a challenge to mathematicians.

2 What does a Mathematician do?

A mathematician works on mathematics, otherwise he or she is doing something else. That's it. That's what we do. This is no different from the painter at the local gallery, or the writer in the coffee shop. They paint or write, and then they do something else.

3 What makes us special?

But it's different for us. We get viewed differently. Why?

The answer is not that difficult. Most people didn't have a scary encounter with water colors in grade school and thus wouldn't shiver when meeting an artist. Most people didn't have a traumatizing encounter with "Hamlet" so meeting that writer shouldn't be so bad. But mathematics? That is a different story.

I have met many students who are **afraid** of mathematics. AFRAID. I am not alone here. There is an entire literature on "math phobia." It doesn't matter whether it's real or not, the mere fact that such a term exists speaks to a level of trepidation about the subject that is unmatched.

4 Consequences of this View

When the country as a whole has been declining in Mathematics over the past few decades, what then is the perception of the subject, and its experts?

When I introduce myself as a mathematician, I get weird looks denoting awe and amazement. This is usually followed by "Oh, I hated math in school," or at best "I did well in math until I had Calculus." This is not the best way to start a conversation with someone I just met. Soon thereafter, that person is talking to someone else.

Yes, I know. Poor me. But clearly it goes deeper than just the superficial. What are examples of the consequences when mathematicians are thrown out of important social contexts in general?

1. Billions of dollars will continue to be wasted on playing losing games in casinos.
2. The politician who says "there will only be a 2 percent increase in the tax rate from 8 to 10 percent" will continue to fool those who don't realize that it's actually a 25 percent increase ($2/8=1/4=25$ percent).

3. Multi-billion dollar companies who always hire the 2 white male candidates out of a pool of 4 candidates where one is a minority or woman has to answer to no one. When in fact, if they chose randomly, HALF the time a minority or woman would be chosen.

I could continue. The point is this: these are social INJUSTICES. Any mathematician can show you within minutes why casinos are bad, that the politician fudging the numbers, or that the company is being unfair. But who is willing to listen?

Is it not remarkable that when the time comes to talk about civil rights injustices, that one calls Al Sharpton or Jesse Jackson, while at the same time when someone wants to solve the gambling problem in our country or take a politician to task for "funny" numbers, very rarely does anyone call a mathematician? Is this not because mathematicians are inherently thought of as reclusive, weird, and socially inept? If no one wants to talk to me at a party, why would they call me when they have a real problem?

4.1 One other important consequence

Why do I need to be called at all? Why don't I step up and say something? The answer is simple and leads to one of the most important consequences: *When we have been pushed out of the social circle, then it is hard to come back into it.* It is then easy to convince ourselves that no one will listen to us anyway if we were to start talking about the problems in society. So one then finds many mathematicians across the country simply shaking their heads or laughing when someone says "well, it has to come black soon," when playing roulette.

5 Conclusions

This problem can be solved.

1. Mathematicians need to be more active in social issues. What moral person stands by and says nothing when his fellow citizens are making the decisions that contribute to the ruin of this country?
2. Society needs to realize that they have underutilized and abandoned some of the greatest minds in the nation.
3. Society and mathematicians need to come together to think about and discuss how to rectify the social ills that can be erased simply by doing some analysis; mathematical analysis.

So the answer to the title of this article is a qualified "NO." Unless we as mathematicians don't say anything. Or no one wants to listen.