

A Mathematician and Musician?

An essay about the modern day mathematician, Manjul Bhargava

Mathematics. It's a sad thing, but when many students think of the word (well, most try not to), they think of something boring, difficult and really, just an unnecessary evil. Speaking on behalf of all those students who seem mentally handicapped when it comes to math, I must say, I don't understand the mathematical mind. When I think of a mathematician, I wonder, "Can someone who is truly gifted in math, the unexplainable force that keeps bringing my average down, be interesting? Have a life? A personality?" Sometimes I seem to think that that would be preposterous: a mathematician with a personality, someone I'd want to know or be friends with?!

But, after learning about the 30-year-old university professor, Manjul Bhargava, I've started to reconsider. Bhargava works in the math department at Princeton University. Hmm. So far I'm not impressed. He has many accomplishments, including: he's won numerous prestigious awards, been named as one of the Popular Science magazine's "Brilliant Ten", has worked at the Institute for Advanced Study, has received the Clay Research Award, and also received tenure (which I just found out means that he is now a permanent professor at Princeton, which is a really big deal, especially for someone his age). And sure, that all sounds very impressive, but as I have no aspirations for working in the mathematical field, it really doesn't mean much to me. But, there are some things I've left out. Bhargava is quite the musician and often relates music to math. He has many hobbies, hobbies that we both share in common. And lastly, he is a really good teacher, a quality I respect in all people whether you work at a school or not. Overall, I've realized that even brilliant mathematicians, like Bhargava, can be personable, and be someone I'd like to know, and what I thought was a horrible curse, that made you a calculating robot (being really good in math), is really not a bad thing at all. Even though I know I will never be a math genius, or really any type of genius, I also know how great people like Bhargava are and how important they are in making our future a better place, one discovery at a time. Mathematicians are necessary, and yeah, they can be cool.

First, I'd like to start off with Bhargava's musical talent. I personally have very high regards for those who are musically-talented. I even play the piano, but I'm no prodigy and certainly not gifted in music. But, unlike math, music has always been something I've been in complete awe of, and even aspired to succeed in (obviously with no success). I range from my favourite composer being Tchaikovsky to my favourite rock band being Three Days Grace (note: if over 25 years of age, do not look up the rock band). That's why when I heard about Bhargava not only being fond of music, like I am, but also being referred to as a musician, I was immediately impressed. Bhargava plays a classical Indian instrument, a tabla. Sure, he's not the romantic piano (my favourite instrument ever) player, and I doubt he'll ever play Moonlight Sonata on those little drums of his, but really, music is music. Bhargava once said this: "Music can be appreciated by a very large audience, but mathematics has language to it that takes some time to learn before you can start working in it. That's why it's sometimes harder to convey that beauty to those who haven't learned the language yet." Wow, maybe I can relate to math! Bhargava explains further with an example: "A lot of math comes into the study of music and part of the study of rhythm. Certain rhythmic pieces for the tabla involve long and short strokes. A long stroke takes

two beats of time and a short stroke takes one beat of time. If you have eight beats, how many different ways can you fill them with the strokes?" The answer to that is 34, the eighth number in the Fibonacci sequence, and even more interesting than that is that ancient Indian musicians knew this sequence before Fibonacci discovered it. It is obvious to see that Bhargava has a passion for music as strong as his passion for math, and it really is unthinkable to consider a *musician* personality-less. He must be sort of interesting. Next, Bhargava has many interesting hobbies. Well actually very common hobbies. But, really I'd rather not hear that he does [insert: weird and obscure mathematical or scientific activity that I've never heard of and will never do] in his spare time. Bhargava plays tennis. OMG, I play tennis too! I have something in common with a mathematician. Amazing. He also plays video games, watches films like Harry Potter and listens to modern pop music. "[He] just does things that sound like fun...You can really connect with him," says one of his students, Wei Ho. Personally, I think that it is very important for teachers to be able to connect with their students. *Hmm...so teachers don't spend all their time and life writing excruciating tests, slowly picking through the mistakes in our assignments and read giant textbooks for the next lesson.* What an easier way to connect with your students than to show them that you share common hobbies. Well, Bhargava's really become much more personable. Lastly, Bhargava is a really good teacher. This is something that I really connect with. Many of my family members, including my father, are teachers, and after experiencing more than 25 teachers in my life, I know how important it is to have a really good teacher. It really is not enough to be personable and make your students laugh or like you, but to also be able to get them to understand what you're teaching. I know that if I have knowledge, I'm really good at sharing it with others and helping them understand difficult topics. It's not just enough to have the knowledge, as all teachers do, but to be able to share it (a gift not all teachers' have). Ho explains, "The way he taught made me say, 'Wait a minute, I really like this stuff. I want to be a mathematician.' I understood why people care about the things he talked about and that really made a difference for me personally." *I want to be a mathematician.* Wow, he must really be good. I think it is now clear that if people like Bhargava exist then maybe there is such a thing as a cool mathematician.

In conclusion, Bhargava has really shown me a different side of mathematics. I haven't become any smarter in the subject and I very much doubt I will get a 90 percent on my next test, but maybe my view of math has changed. I now appreciate how much mathematicians contribute to my world. Bhargava will always remind me of this.