

Tips for presenting mathematics:

Have a point:

Some people struggle with social anxiety, and this causes them to socialise in many ways which are not due to their conscious decisions but instead are due to fear. For instance, it is fine to be quiet in social situations, but only if you have decided to be quiet, rather than because you feel pushed into it due to fear of how you will be received. Explicitly, most people are quiet in social situations because they feel like they can't be loud. This means that they have been quiet out of necessity, and not out of choice. Therein lies the problem.

Presenting mathematics exhibits many similar circumstances. A classic and very visible example is the tendency to say "um", or "like" incessantly. This person has clearly not made the choice to put "like" in between every second word, so what has compelled them to do it? The answer is fear, and our aim is to remove this fear.

In fact, this is our intermediate aim, our aim is to give a conscious presentation. That is, to have a vision of how your presentation will go, to realise this vision, and to realise this vision with intention.

Anxiety

I have written about anxiety more generally in my Obdurate posts, but to summarise I will briefly say here that the key method for overcoming anxiety is not to convince oneself that the thing they are terrified of is not going to happen but instead is to build up strength in self so that one can manage the scary thing even if it does occur. Do not convince yourself that you will not be rejected by your crush but instead learn that life continues even if you are, etc...

Here is an anecdote: one time I gave a presentation where the goal was to state and prove a difficult result. A few days before the presentation, I was in the office of a particular mathematician who took some time to explain a point to me which I wasn't entirely sure I understood by the time I left their office. During the lecture, I made a statement which was blatantly false (but which I thought was true) and the error was precisely that which the mathematician had explained to me just a few days prior. They were in the audience, so they spoke up and corrected me, but I still didn't understand entirely, though in that moment I realised with resounding clarity that indeed the argument I had prepared was erroneous. This was all within the first few minutes of the lecture.

I pressed on with the talk and tried to give as good of a lecture as I could, but ultimately what I presented was wrong and needed the fix which had already been explained to me and which I was yet to understand. After a gruelling hour the talk was over, and I approached the mathematician. I told them that I still did not understand that solution to the problem in my proof and they responded by saying "yes, clearly" and then laughed, a few others heard them and laughed too.

I died of embarrassment. I then went out for coffee with a few members from the audience and I spent the entire time mentally lashing myself.

Anyway, time passed and a year or so later that same mathematician and me were having a conversation and they mentioned the stress of presenting a lecture to an undergraduate audience where they're meant to be the authority figure yet still it's possible to become confused. I brought up the lecture I had given a year prior to them, and how I was able to relate to such a moment of embarrassment... The mathematician, who themselves had corrected me on that day, did not even remember the moment! I was surprised they did not, but eventually they did, to which they said, "oh don't waste time thinking about that, it wasn't a big deal at all".

The point is that life continues, even if the most "terrifying" thing possible happens. In hindsight, I cannot believe I was even embarrassed by this story. Nowadays, if somebody were to laugh at me during a public presentation, it would not affect me the same way at all. This means I am not scared of such things which in turn leads to me giving better presentations because I can focus on more important things. A friend of mine said it best, "those who are cringe are free", and a mind willing to be laughed at is more capable of creating pioneering thoughts, so embrace that which terrifies you, it will maximise your chances of speaking well, and if you fail, then fail proudly and move on.

One last point on anxiety. When I took acting classes as a child, they taught me "the person on stage is the least important person in the room". It's a bit over the top but I like the sentiment. You're not presenting mathematics for yourself, but rather for the audience. If you are really struggling with anxiety, try to take the focus off yourself and put it onto the audience. You're there to enlighten them, not to prove yourself. It's like social anxiety, if you're really struggling then focus more on making the other people feel good, rather than focusing on making yourself look good. You will feel relief to have the attention taken off you, and that will be a good starting point.

Technical points

Write big,

Underline the word you're defining in your definitions,

Do not say "um",

Do not say "like" unless it's as a proper word,

If you do have this tendency, then combat it by physically slowing yourself down whilst speaking, take deep breaths, and try to talk less.

Allow your presentation to be boring. We're mathematicians, not entertainers. You should focus on making only true statements. One great way to make this easier for yourself is to speak less (silence is only deafening to the anxious presenter; long patches of silence whilst you think through the next argument you're presenting, or whilst you're writing up something long, are completely unnoticed by the audience).

Have a goal. What should the audience leave with that they didn't come with?

Tips for improving

Record your lectures and watch them back. This might be excruciating to begin with, but if you are putting yourself out there as a presenter, and you do not have a good idea of what that physically looks like from the perspective of an audience member, then you are missing a crucial aspect of self-awareness. This lack of self-awareness will create many blind spots. The removal of these blind spots is the goal, because then you can be conscious of how you conduct your presentation.

Get feedback. Ask people what they thought and how you could improve, people love to tell you what you did wrong... so let them!