

Talk for Undergraduate Forum, November 1, 2012

Part 1: Overview

Why teach?

- Joy of sharing your knowledge and enthusiasm with others. See when the light goes on.
- Value of teaching for learning: You only really learn a subject when you teach it.
- Apprenticeship for future teaching
- The ability to communicate, listen, and explain is necessary to be successful in society.

How you teach depends on who you are. How they learn depends on who they are. Most people learn best from stories, so let me tell you my story. My first experiences with public speaking and being an authority figure came as a coach. So when I got into teaching I found myself constantly behaving like a coach. I encourage the students and try to build a class rapport. Often I'm their friend, their confidant, or even just their cheerleader. I get the class to function like a team, where they are all pulling in the same direction and the exams are the opponents we have to get geared up to defeat. My favorite part was building student confidence. I tried to show them how to think, but then made them do it themselves and gently corrected their errors while giving them lavish praise for successes.

Think about who you are in everyday life and try to see how that appears in your teaching. If you're the type of person who always needs positive feedback, you may find you're constantly checking in with your students about how you're doing (and this is bad unless done in moderation).

Responsibility:

Be aware that teaching comes with responsibility. People now take what you say seriously, and your words/actions reflect on the place where you work. So be professional, dress well, try to cut down on swearing, don't make inappropriate jokes, etc. Think of all the stupid lawsuits you've heard of and try to avoid becoming another one. Be a role model.

Evaluations vs. Students actually learning.

Part 2: Theory and Philosophy of Teaching via Lecture

If your heart is in the right place, everything will go just fine. It may take time, but it will work out.

- Be prepared. Know the material well, know what you're going to present and how, and be confident. Don't wing it, or they will too. For an early lecturer, you should practice.
- Respect your students: be fair, show no favoritism, grade blindly if you can, and grade in a timely way. Don't say disrespectful things, and never mock them, even when you think it's clear you're joking. Think also about how others will react, not just the one you're talking to. Don't hold grudges. Be on time. Be well-rested.
- Like your students. You should want them to come to you, and that will show. Be friendly, but also keep some separation. You'll need it when they are coming in late, trying to get extensions, and being loud during class. Don't wait for late arrivals. Trick: use silence to quiet them. Idea: start class with smalltalk. Stay late so the shy students can ask questions.
- Be a leader. **LISTEN** to the students and be interested.
- Be patient with them and with yourself. It will take time and you will make mistakes. But as long as you have their best interests at heart you'll get better and they'll like you. It may take

- time for them to get comfortably with you, but just stay friendly and keep that group mentality.
- Put yourself in their shoes: repeat important things, write lots on board (and lecture notes), be gracious when asked a question, give them plenty of time to come up with questions, be understanding of their anxiety, don't use terms or notation which you know might throw them, don't try to trick them. Treat them as you would want to be treated. Remember that they are like you were, but also not like you.
- Keep them motivated. Explain why things are important, take their concerns seriously, encourage them strongly when they do something right. Help them face down their anxiety. A great way is to tell stories, especially of times it was hard for you too. Be excited/interested.
- Don't say too many things at once. Give them time to absorb what you've said, and repeat it.
- Be able to adjust the tempo on the fly to accommodate student questions or if you go too fast.
- Admit ignorance if you don't have the answer. “That's a great question.” Don't apologize too much, though, or else you'll lose their respect.
- Encourage group work. Try not to give them answers without making them think.
- Ask them specific questions. Help them learn how to ask questions.

This is not a chance to show off: it's not about how smart you are or how easy the material is for you. The focus needs to be 100% on the students and what action from you will best help them learn. If you find you're only saying or doing something for yourself, then don't say it. You need to be so well-prepared that you can be thinking about teaching when you're teaching rather than thinking about the material.

On the flip side... You may realize while preparing your notes or even when in front of the class that you are confused. That's perfectly okay, but you should admit your confusion rather than trying to bluff. Sometimes working through your confusion in front of the class is beneficial for them (they get to see how one should think through the material). Other times you'll need to go home and work it out, then present it to them next time. Classes are fairly forgiving about this as long as it doesn't happen too much.

Student questions are great. To me, they are necessary for running a good class. You must do all you can to encourage questions, because this shows you where they are at with their understanding and it lets you be maximally useful for them. You can also turn bad questions into good questions. That said, it's okay not to know the answer. It's also okay to defer inappropriate or off-topic questions till after class is over. Another nice way to deal with questions (if you have time) is to turn it around to the class and see what answers others can have. There are pedagogical pros and cons to calling on people, and you have to find your own style. As long as you're respectful and you try to create a friendly environment, you should be fine. Classes of different sizes and breakdowns of people will need different approaches. You never teach the same class twice.

Part 3: Practice of Teaching

The class has read: (how to teach stuff, 8 hot tips, and teaching tips)

- 1) Clear and simple plot/story, focus on teaching not the subject (be prepared), illustrate movement of thought, break down barrier between class and you (ask them questions). Keep trying to get better (this keeps it interesting). Teach the students you have not the ones you wish you had.
- 2) Break down the barrier, weave in stories, be friendly, use positive reinforcement (tell them why it's important), be energetic and dynamic (pitch, gestures,...), humor, self-disclosures.

HOWEVER, it's not necessarily the case that better evaluations mean the students learned.

- 3) Preparation - have a main theme, relate to themes they've seen before, and use headings, intro, and conclusion to highlight it. Select three mathematical punchlines. Use a slogan. Also, erase completely, don't erase too fast (example of changing the equation), write in upper left. Finally, start strong, and repeat yourself a lot. Wait a long time after asking for questions.

Give them the handout and tell them which sections are important. The 1979 thing hits most of the same points again, but says them in a slightly different way and also hits a couple of new points. Chalking It Up and The Art of TAing...

The goal is clarity. This involves speaking, writing, blackboard technique, organization, and more. The more organized you are, the more you will seem at ease. Help them to see that this is all do-able.

Speak clearly and slowly. Consciously slow yourself down (insert pauses). You'll sound smarter and calmer, you'll make fewer mistakes, and you'll give them more time for things to sink in. Don't give them the impression you're in a rush. Repeat things a lot. Do repeat student questions (gives you time to think, too). Try not to say things are “trivial” or “easy.” Vary your pitch and tone. Do make eye contact. Ask if they can see/hear.

Write neatly on the board, and erase completely when you're done (leave no stray marks). Don't erase just part and reuse previous text. Write in a straight line. Know which parts of the board they can see. Also, some colors can't be seen. Try not to block the board with your body. If the chalk squeaks, break it. Practice pictures beforehand. Be aware of your shirt color and don't touch your face. Bring chalk.

Try not to copy the book too much. Try to create new examples.

Preventing cheating

Finding a balance between talking to just the weak students or just the strong.

Getting feedback on your teaching - having someone else observe you, mid-semester eval's, video, etc.

Grading - exams are more important than HW. Use a rubric for exams, and stick to it. Do agonize over points here (maybe not on the HW). Shuffle vs. grading strongest students first. Going one problem at a time on exams, and coming back in the opposite order in case you get grumpy. Look for common mistakes and address those in class. Give them privacy when you return papers. Be ready for complaints and try not to give the mouse a cookie. Rather: explain the curve.

How to make a lesson plan → Copy someone else's, or follow the book and make small changes. If you must go from scratch, select a punchline and then break it down into what steps you need to get to that. Be brutal, and cut everything which is not strictly necessary.

Handouts, Technology, Making a Syllabus, Choosing a Textbook

Whether or not to put students at the board. How much to encourage group work.