Expected But Not Taught

Book 1: Technical Presentations

By Yvonne Ng

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Forward: Why I Wrote This Series

I actually wanted to call this series, *Everything I Meant to Tell You*. Why? Because this series is the accumulation of what I shared or wanted to share with my students at St. Catherine University.

Previous to teaching at St. Kate's (as it was affectionately called), I had worked in industry. Specifically, I worked in a consulting company where I was dropped into factories to figure out why their systems weren't working, or to design new systems for them that would link various parts of their company together: inventory, lab, weighing stations, storage machines, product developers, compliance, and even quality control.

I loved working in industry. Despite the warnings I was given as a woman engineer that factories were bastions of male chauvinism, I found my time at the factories to be some of my favorite moments. I also loved consulting. I would have to walk in to a new factory, figure out what everyone did with respect to the data, and then figure out what the tool should do and look like so they could do their jobs better or more easily.

It involved group brainstorming, problem solving, role playing, and a lot of empathy—putting myself into someone else's shoes. I also learned about powers of persuasion because despite the developer's belief that

the new creation will make everything better, most people—from the factory floor to the research lab—really dislike change.

If more women knew about this, I thought, they would really like working in engineering and technology. If students knew more about this, then they would be better prepared—they would know that being a good employee would be more than just delivering quality code.

So, I went into teaching. I really wanted to share what I had learned and loved with students. To get them prepared and psyched about being savvy computer experts.

I started my teaching experience with night classes. These consisted of non-traditional students, usually older folks working a day job and wanting to change careers. For them, my experience in the industry was valued because I could tell them why they were learning about loops and conditional. I warned them about what to watch out for when stepping through arrays if you were working with not-so-careful languages (like C) that would let you step right into garbage memory locations, or worse, your own program.

Then, I was offered the opportunity to teach at St. Kate's. Since presenting "the real world" to women was a motivator for me to go into teaching, it made sense for me to take it.

My first class consisted of 15 women. Though smaller than my normal 25-30 student classes, the number of female faces staring back at me was at first disconcerting. Normally, there were only two women in the crowd, with one usually in the front of the classroom and one trying to hide in the back.

I can't tell you how odd it felt to have so many women asking questions about the intricacies of programming. It recommitted me to sharing as much as I could with the students. I wanted to not only make them competent, but successful.

The first year, I taught in very much the same way I taught at co-ed institutions—albeit a clearer, more active and visual way, than I was taught, but still pretty much focused on programming concepts. As the years went on, I realized I needed to help students learn how to act like professionals.

Part of doing that meant I needed to put students in situations that felt like "real life." Lectures became projects, which then required students to learn presentation skills and project management basics.

Later, I found I needed to provide team and professional development lessons so they could actually work effectively with each other and become "job ready." Students came out of their first computer course (CS1) with three projects under their belt (one of which was a 2-part team project), experience doing technical presentations to end-users, and the start of an interview portfolio. Many of these exercises and stories come directly from these lessons.

Since leaving teaching, I re-entered industry as a Business Systems Analyst. My years of teaching experience made me quite the expert in setting up project descriptions so the student could be successful. This is pretty much what I do as an analyst.

However, I have come to realize that the basic professional skills I taught students in college are not consistently known by those working in the industry. So in the hopes of helping our future IT workforce, I'm compiling these lessons from my classes along coupled with my experience as an analyst.

Consider this just a starting point: A jump start for those still in school and an insider's guide for those starting their first job as a member of the workforce. Because apparently, though these skills are expected at work, they still aren't taught in school.

Why Technical Presentations?

A lot of people are scared of presentations, but giving them are an essential part of work in industry, even as a computer or engineering professional. The presentation may just be a meeting with many other people or it may be more formal like what they make you do at school or a TED talk.

While a general "public speaking" communications class can teach you the basics of giving a presentation, there are some specific things about technical presentations which are unknown to those instructors. These are what I share with you in this book.

What Do You Need to Know About Technical Presentations?

In Brief:
Technical presentations are done all the time in industry. It is the easiest way to communicate progress, ask for decisions, and tap into team expertise.

When preparing a presentation, you need to know:

1. What your audience needs to know
2. What you want your audience to do as a result of your presentation
3. What your audience needs to see
4. How you can make it as easy as possible for your audience to listen carefully and understand so they can do what you need them to do

Public speaking is considered by many to be the scariest thing they ever have to do in their lives. As a computer or engineering professional, you will have to do presentations at least informally as part of a team. If you plan to advance or even own your own company, you definitely will need to make presentations.

If you can give short pithy presentations, you will rise above the others because no one likes to spend their day in long meetings. Ideally, meeting time is

informative and productive to so all attendees are up-to-date and on-board.

Presentations are sometimes made to a small group where participants have various expertise. They need to understand quickly what others are doing and what they need to do to interface with their work: Programming and electrical folks need to decide if the problem should be solved in hardware or software. Mechanical folks need to know about electrical decisions that will affect them.

Sometimes a slightly larger meeting is needed because marketing and sales need to be involved to be sure that the features being added make sense to the customer. They may also want to be sure the product stays within reasonable cost constraints and that the basic requirements are met. Sometimes it is a very large meeting when the big wigs (management, CEOs, etc.) need to be brought up to speed.

Why Are Technical Presentations Difficult?

In Brief:
Even if you took public speaking classes or did debate, technical presentations require you to explain technical problems and options to non-technical audiences so they can make key decisions.

Knowing how to do technical presentations helps in different stages of your life:

1. **College:** You will do well in class, independent study, capstone, or senior thesis projects which usually require presenting project results
2. **First job:** Your interview is like a mini-presentation, and some interviewers require you to do a short presentation. On the job, you will stand out as someone who can succinctly explain your contribution and how that fits into the larger context
3. **Future jobs:** If you can communicate to groups of people well, the sky's the limit, whether that's tech manager, VP of Engineering or CTO, or CEO

Technical presentations have some nuances that differentiate them from the standard presentations you may have presented in high school English classes. In some ways, the expectations are similar as business presentations: Brief, visual, focused.

However, the technical presenter faces an added challenge of how to condense a lot of technical information and problem solving into a short period of time and often, to a non-technical audience. Even if the audience is technical, their expertise may be different from the presenter's (e.g. electrical engineers presenting to mechanical or civil engineers).

Studies and surveys of working engineers and computer professionals show that there is a knowledge gap regarding presentations: Presentations are expected in the industry but are not taught much or at all in school. Professionals indicate that presentation skills are essential for doing their jobs better as well as getting ahead. Those who communicate better are listened to more, are noticed more, are asked for recommendations more, are remembered more, and as a result, are rewarded and promoted more.

How to do it

Recall the main purpose of your presentation is to communicate. This is accomplished largely through:

1. Presentation Slides:
    a. What your audience needs to know
    b. What you want your audience to do as a result of your presentation
    c. What your audience needs to see
2. Presentation Delivery:
    a. How you can make it as easy as possible for your audience to listen carefully and understand so they can do what you need them to do

Tip 1: Present for a Reason

When giving a status or final presentation, **know what decision or action must happen as a result of your information**.

In the classroom, you are demonstrating what you have accomplished or learned while doing the project so the professor can give you guidance on a successful project (status report) or so the professor can award a grade (final report).

In the working world, you are informing the audience about the status of the product or process so that a decision can be made such as keep going, stop, change directions, or make key decisions.

Tip 10: Manage Your Q&A

The end of any presentation is the time for the audience to ask questions and for the speaker to answer them (hence the Q&A). You should know how to both ask questions and answer them.

The **ability to ask questions** of a speaker 1) helps clarify what you heard, 2) shows you were listening, and 3) often communicates appreciation to the speaker. It's actually very sad when a speaker comes to the end of the presentation and there are no questions or comments. I actually tell classmates to work with each other to have questions ready in case the guests don't have any. This allows everyone to practices asking questions and makes sure at least one question is asked so the presenting team can show their ability to answer questions.

The **ability to answer questions** 1) helps clarify what you were trying to communicate, 2) allows for exchange of ideas and perspectives, and 3) engages the audience in other aspects of the topic that may not have been directly covered in the formal presentation.

The following describe more tips on improving your ability to give an effective Q&A session.

Listening
First, become a good listener. You can do this in every class you take and meeting you attend. The key is becoming an active listener. Some guidelines are:

☑ **Focus**

This means getting focused on listening to your speaker. Tips include:

- **Work at actually listening.** Avoid the "entertainment syndrome" where you assume the speaker is supposed to entertain you. Think about professors you have had. Sure, some may have been entertaining, but did you learn what you needed to from all of them? Think about some boring professors. Sure, they were boring, but did some of them convey information clearly?
- **Reduce or eliminate sources of distraction.** If you are uncomfortable (e.g. in an uncomfortable chair, can't see or hear, too hot or cold), change the situation to make yourself more comfortable so you can listen (e.g. move to another chair or location, put on a sweater, adjust the thermostat or open a window or door). If there is a lot of external noise (e.g. coughing, noise in the hallway), take action to eliminate or mitigate it (e.g. offer a cough drop or glass of water, close the door). On the other hand, don't be a "finicky cat"—too much adjustment can be distracting to others. For adjustments that will affect others, look around to see if others are uncomfortable (e.g. sweating, hugging themselves to keep warm, leaning forward to hear). In these cases, speak up politely and propose a solution (e.g. "I'm so sorry to interrupt. I'm quite hot. Does anyone mind if I open a window?"). Do this only once or you *will* be a finicky cat!

Tip 11: Develop a Healthy Presentation Perspective

Who would have guessed there was so much involved in just delivering a good presentation? Some folks who are uncomfortable with speaking can get worked up and even negative about the process.

Developing a good perspective about presenting, questions, answers, feedback, and such makes it easier to become a professional. These are some guidelines I gave students as well as new professionals when it seems like every meeting is a mini-presentation:

Questions are Good
These include questions from you, to you, and for you. Don't cringe when they are asked and don't be afraid to ask them.

Evaluate Intentions
I won't lie to you. Questions are asked for a variety of reasons:

- **A sincere desire to understand** the topic more
- **An attempt to challenge** you to see the depths of your understanding (most usual in a classroom setting or interview). It is an assessment strategy, not a belligerent attack.
- **A desire to antagonize you.** If the person does not outright say antagonistic things such as "You're an idiot" or "You don't know what you are talking about" or "You are talking garbage" then assume that the intention is one of the first two items. Often, in a technical environment, the

asker may be trying to understand but lacks the sophistication of doing so in a polite way. Thus, you should treat as bullet #1: "a sincere design to understand" and not get offended or defensive. Doing so gains you points in the eyes of others who usually will know if the asker is "challenged" in how to ask questions politely.

If you suspect the person may actually be antagonistic (there are a few), ignore it and treat it more like the first two. Clarifying is a way to "neutralize" the aggressive question (e.g. "Are you asking to learn more about … *topic being discussed*" or "Are you wondering what my experiences is with … *this topic* …? If so … *describe your experience, expertise, etc.*"). We live in a civilized society so others will see you are able to remain graceful under fire. However, if you find these suspiciously antagonistic questions from many during an interview, you may want to decide whether you want to be in a community where that will comprise normal interactions.

It's a Conversation, Not a Quiz

Don't get test anxiety. Unlike a test, if you don't understand what's being asked, you *can* clarify the question. That's not cheating; it's being a good conversationalist.

Don't Go Off Track

Answer the question that is being asked. If you must go off track to give background, details, or special considerations to answer the question accurately, always acknowledge that before you start (e.g. "Before

The *Expected But Not Taught* Series

So ends this "primer" for Technical Presentations. Presenting is one of the skills that is expected of you as a professional but not explicitly taught. Now that you know how to improve your presentation skills, the next thing to do is to practice. It is okay to feel a little anxious before giving a presentation. Use this pang of insecurity to motivate your preparation and rehearsal. It's best not to get too cocky no matter how many you have presented successfully.

I made students do four presentations in one 14-week term in my engineering and computer science courses. All the students said that presenting was no longer a problem for them by the end. In fact, some really enjoyed it.

If you identify skills required for your computing or engineering professional success are not taught in school (e.g. project and team skills), don't give up. As they say in *GI Joe*, knowing is half the battle. The other half is figuring out how to fill that gap.

First, look for good professor or TA who can develop and mentor you. Look in your internship company for a mentor. Or maybe you have a relative who can help.

In case you don't have any of those, this *Expected But Not Taught* series will hopefully point you in the right direction.