

ARTICLE

Engaging the Audience: Developing Presentation Skills in Science Students

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This article describes a graduate class in presentation skills ("PClass") as a model for how a class with similar objectives, expectations and culture might be mounted for undergraduates. The required class is given for students in neuroscience and physiology programs at the University of North Carolina at Chapel Hill; I describe the class in the years I led it, from 2003-2012. The class structure centered on peer rehearsal, critiquing of PowerPoint, and chalk talks by the students; video-recording of student talks for later review by the student with the instructor; and presentation of polished talks in a formal setting. A different faculty visitor to the class each week gave the students a variety of perspectives. The students also gained insight into their own evolving skills by discussing

the strengths and weaknesses of seminars given by visitors to the campus. A unique feature of the class was collaboration with a professional actor from the University's Department of Dramatic Arts, who helped the students develop techniques for keeping the attention of an audience, for speaking with confidence, and for controlling nervousness. The undergraduate campus would be expected to lend itself to this sort of interdisciplinary faculty cooperation. In addition, students worked on becoming adept at designing and presenting posters, introducing speakers graciously and taking charge of the speaker's question session, and speaking to a lay audience.

Key words: presentation; PowerPoint; chalk talks; audience engagement; rehearsing; poster presentation

INTRODUCTION

In any university such as The University of North Carolina, in any given week, there are perhaps a dozen or more seminars on scientific topics. The seminar is an important part of the scientific research enterprise: the speaker typically delivers a broad, up-to-date overview of a topic, followed by new, unpublished, hot-off-the-press data. Researchers keep up with one another and students glimpse possible mentors for their future as postdocs.

Unfortunately, for too many of these seminars the audience will have lost the thread early on. Indeed, an amusing but pathetically accurate graph of audience attention versus time in a scientific talk shows audience attention falling over the first 20 minutes of the seminar, never to recover until the summary at the seminar's end (see Kenney, 1982). For any seminar in which the audience's interest has clearly been lost, a quick assessment of the number of faculty, postdocs and students present, who are politely waiting for the end, gives a sense of the lost productivity.

Numerous books and articles proffer advice on how to communicate scientific results in a way that will keep, rather than lose, audience attention (e.g., Kenney, 1982; Noonan, 1999; Alley, 2003; Anholt, 2005). Yet books do not seem to have solved the problem and it persists. An excellent iBio seminar by Susan McConnell, a Stanford neuroscientist (<http://www.ibioseminars.org/lectures/bio-techniques/susan-mcconnell.html>) attempts to educate speakers through a presentation – on presentations. She points out that many of the issues are actually well known: PowerPoint slides have driven speakers to speak much too quickly for the audience to follow; speakers want to show that their lab is productive and exciting so they cram all of the lab's projects into their hour (which used to be 50 minutes), leaving the audience bored or exhausted; speakers do not take the time to design truly effective

slides. Many speakers would seem to have no clue as to their effectiveness.

And no wonder: the training in audience engagement is not part of the typical education of a scientist. The rare speakers who can truly hold an audience in the palm of their hand have usually learned their skills through having been mentored at some point and then by rehearsing their talks, often with colleagues. They have taken the time to fashion an elegant set of slides rather than simply throwing together a talk from a series of figures imported from their own manuscripts or from the literature.

The irony is that so many scientific seminars (and indeed so many science classes) are so boring when the subjects are so inherently exciting! The scientists giving the talks find their work so compelling that they are willing to work for lower salaries than in other professions, and often to stay in the lab until the wee hours getting the data! Why the boring talks? The answer must lie in part in human nature – in the discrepancy between the world of the non-threatening lab, where thinking, observing and discussing predominate, and that of the stage, where the command of an audience is essentially a performing art. But being able to communicate what one is discovering in the lab inescapably means becoming as skilled in that art as in the technique of thinking through a problem.

Why don't we make it a priority to give our science students skills in speaking, in exciting an audience, from the earliest point in their trajectory – as undergraduates? The rest of this article describes the efforts of myself and my colleagues to change this culture with a serious, intense class in presentation skills to graduate students, the "Presentation Class" (fondly called "PClass" by the students). We were convinced that our future scientists must be empowered to bring science alive for any audience they might have to address – for the specialists they would encounter at a meeting where they would be

judged as they entered the profession, for the broad audience at their job talk when their future would be on the line, and especially for the lay audience, where the understanding of science by the electorate is of great importance. We wanted them to be able to communicate the excitement of research, and what it entails, to the stranger sitting beside them in a chance encounter, or to a life-long learning class at an institution, or to a TV or radio audience they might be selected to address. While this class was for graduate students, we argue that its fundamental approaches could and should be adapted to the undergraduate experience.

THE ORIGIN OF THE PCLASS IDEA: THE HARVARD NEUROBIOLOGY DEPARTMENT OF THE 1960s

The PClass had its roots in the culture of the Neurobiology Department at Harvard Medical School, the first department of its kind. Founded in 1966 by Steve Kuffler (McMahan, 1990), an exceptional and perspicacious neurophysiologist, the department brought together those anatomists, biochemists and electrophysiologists whose interests focused on the nervous system – an early and highly successful multidisciplinary experiment.

Three members of the faculty in particular – Ed Furshpan, David Potter, and Ed Kravitz – initiated a culture of high expectations for departmental talks through their own example. Furshpan and Potter, and then Kravitz when he joined the department, had retreated to the Marine Biological Laboratory (MBL) in Woods Hole to prepare their lectures for medical students on the new and exciting field of neurobiology. They rehearsed one another until the lectures were outstanding, learning each lecture so that it could be delivered without notes. Their efforts initiated a culture. If you were a member of the Neurobiology Department – faculty, postdoc or student – you were expected to plan your slides and blackboard drawings carefully, rehearse your lecture or seminar talk, and speak from memory. Many of the offspring of the department soon developed reputations as terrific speakers. They knew how to do it through rehearsals, collegial critiquing, and simply investing time.

Many of us who were privileged to be immersed in this culture attempted to take it with us when we left. It was not an easy job. In academic settings other than that of Harvard Neurobiology, rehearsing was often viewed as a waste of time of the speaker and the listener. I myself tried a number of different approaches when I joined the faculty of the Department of Physiology (now Cell Biology and Physiology) at the University of North Carolina at Chapel Hill (UNCCH). When a new Chair (James Anderson) arrived in 2002, and was clearly interested in supporting faculty experiments, I had formulated an audacious plan – and he supported it.

THE STRUCTURE OF THE CLASS

The evolution of the UNC PClass

Often faculty do not think it is important for students to take time away from the bench to work on developing their abilities to give talks. Sometimes this is with good reason, as working on PowerPoint animations in a presentation can

be a seductive time sink. But just as often it is because the faculty member has not spent that time developing his or her own abilities so they do not understand what is involved in turning a student into a first-rate speaker.

Our wise Chair did understand this. He made it a priority to have the department's students become outstanding speakers and agreed to my proposal that they be required to attend PClass every week of their first three graduate years to practice both oral and written communication and explore other professional skills. While this amount of time might have seemed outrageous, it was astonishingly successful in ways unimagined at its beginning, particularly in building collegiality amongst the students. Many students in this group became such confident speakers that they began winning awards. Through the peer mentoring in the class, they absorbed an instinctive collegiality that made it possible for them to give criticism with diplomacy and accept it without defensiveness.

The class began with the Physiology students, later adding students from the Neurobiology Curriculum. The size of the class in any year ranged from 12 to 24 students. With time, the three-year requirement was reduced to adapt to an umbrella-based admission system since the students did not join programs until their second year. The essential, successful elements of the class did not change, however, and the class continues at this writing in the hands of another faculty member. I describe the class during the decade that I was the “coach.”

Two rules and high expectations centered the class

Rule #1: Respect for the audience should guide every detail of preparation and delivery of the talk. We insisted that the students know if the audience was specialized in their area or more diverse. We insisted that they design slides carefully, reducing text and bullets to a minimum, making sure every line of text (including axes) could be seen from the back of the auditorium, and choosing contrasting colors, especially those that color-blind people can see. We told them how important it was to time their talks, and that speaking overtime conveys the worst disrespect for the audience. It says that the speaker's fabulous talk is more important than the time of the captive audience.

Rule #2: Talks should be carefully prepared, practiced, critiqued and refined. For most speakers, engaging the interest of an audience for an hour is a learned skill. Conveying enthusiasm for the subject to the audience is essential; it requires overcoming nervousness and building the confidence derived from thoughtfully-prepared slides and choice of words, composed transitions and practice. The class was structured around rehearsals and feedback from peers, faculty visitors to the class, and myself. A student could earn a low grade only by not taking seriously the rehearsal of their own talk or the pre-class rehearsals of the talks of their peers.

Diplomatic peer critiquing was a key element

The class was (and continues to be) structured around peer, self, and faculty critiquing. Peer critiquing began even

before class. I divided the class into “rehearsal pods” of three to four students. When a member of the pod was “on the spot” to give a talk in class that week, the other pod students rehearsed him or her beforehand. After the talk in class, there was a brief period for feedback from the students and visiting faculty member, followed by a moment when all of the students wrote more extensive comments for the student to review later. With time the students learned that “Good job” was a useless comment compared to “You went much too quickly through slide 3 for me to follow – perhaps you could make two slides at this point to slow yourself down,” or “Please always tell us the axes of each graph before you describe the results.”

At the undergraduate level, students often are assigned to present talks of various lengths to a class or in a lab. Why not begin even at this level with serious professional expectations of the talks, perhaps by assigning a buddy to rehearse the student beforehand and pointing out guidelines such as those found on the website of the Burroughs-Welcome Fund?

(<http://www.scribd.com/doc/34887738/Communicating-Science-Giving-Talks-Second-Edition>)

The PClass united faculty and students

So that my viewpoints (and, admittedly, prejudices) would not dominate the PClass, each week I invited a second faculty member to sit in, watch and question the presenters, and contribute their experience and advice to the group. The faculty generally were happy to make this very small time commitment of one session per semester. The students gained a more personal view of faculty members whom they might not have encountered in a class, and the faculty acquired more knowledge of, and respect for, the students in this different setting.

It was important for the students to feel that the questions from the visiting faculty were intended to help them prepare for what they might be asked in a talk setting, not those they might encounter in a qualifying exam! I warned each faculty member about this before class.

Beyond talk mechanics, discussions in the class were revealing of the students’ struggles as they tried to think about the research process at a more sophisticated level than they ever had before. I was happy to have a faculty colleague enter the fray. I sensed perplexity over a number of issues – for example, what constituted a hypothesis versus what was simply a plan. The visiting faculty member and I often found we were participating in a discussion of fundamental matters of research.

Food can help bonding and add an air of importance to an endeavor. At the end of the semester I hosted a reasonably fancy lunch (not pizza!) for the students and the twelve faculty visitors from that semester. Our continually-supportive Chair realized the benefits of this social time and funded the lunch.

Movies of the presentation provided vital feedback

An essential part of the class was having the students watch themselves in action. I recorded each presentation, then reviewed the movie with the student afterwards in detail (slide by slide, sometimes sentence by sentence).

Chairman Anderson gave the class a budget that allowed me to purchase a video camera, chosen for its ability to record in low light, and a low-end MacBook. It was easy to lead the camera directly into the computer and use Apple’s iMovie software to record.

I then made a DVD for the student. Watching the movie together gave the student and me a chance to discuss his or her research in more detail as well as talk improvement. Robert Rosenberg at Earlham College is currently using the video-recording approach with his undergraduates (see below) and YouTube rather than DVDs.

Speaking skills take time to develop

It is rare that students perform at a high level when “thrown into the deep end” – that is, when required to fill 50 minutes or even 30 minutes with their first talk. So, in PClass, first-year students were tasked with giving a timed 5-minute (yes, 5-minute) talk on their first rotation with a maximum of five slides. They had to define four things: the big question, their more focused question, the approach and technique to be used, and plausible results. I encouraged them to present imagined observations or graphs as a way of thinking through the possibilities. For undergraduates beginning an independent project, a five-minute presentation, rehearsed and carefully prepared, would force them to plan their project before they began the work.

As the first-year students in PClass began to obtain experimental results, we increased the length of their talks to the standard 10 minutes of a meeting talk. At the end of the semester all of the students gave their now-polished, 10-minute talks to the members of the department in an auditorium. I rejected more informal rooms so that they could become familiar with the nerve-wracking elements of a formal setting: being on a stage with a huge screen; using the sometimes-testy technology of the lectern; controlling the lighting, microphones and sound levels; and knowing how to deal with the possible lurking disasters such as movies not playing. The students became quite confident and able to deal with trouble. In one instance the “help phone” on the side of the lectern rang in the middle of the student’s presentation and (impressing the audience) she answered it, dealt with the issue, then resumed her talk without missing a beat!

Then there was the dreaded question period to be mastered. In class, the time devoted to questions – from the other students, myself, and the visiting faculty member – was equal to the time for the presentation itself, since dealing with questions is often the most unnerving part of giving a talk. As well, the questions could help the presenters think more carefully about their projects.

Learning ALWAYS to repeat the question

We required the students to repeat the question, even though the room was small, and to give a brief, formal answer. Indeed we would stop them from answering until they had repeated or rephrased the question. So many speakers do not train themselves to repeat the question, which is all too often not heard by many in the audience. Thus the question period, supposedly a time for intellectual discourse, is lost on much of the audience as speaker and

questioner have their private chat. Rephrasing the question also gives the speaker a moment to think and, most importantly, to make sure they actually understand what has been asked.

This small, important speaking skill would be so easy to implement for any talk at the undergraduate level. Thinking of it as rephrasing the question is perhaps the key so that the repetition leads somewhere. But this skill requires vigilance by the faculty member to stop the student from launching into the answer: I would wave my hands vigorously in the back of the room. In retaliation I received a present from the class (Fig.1)!



Figure. 1. The PClass mantra, immortalized on a shirt presented to the "coach." Also immortalized is the coach's admonition not to use red text on a blue background, as the text will not project well; further, color-blind persons will not be able to read it.

Learning the skills of the introducer

Students in the PClass also learned to be skilled introducers. At the formal talks they were to give a gracious, interesting, notes-free introduction of their fellow student, manage the microphone and audio level, preside over the questions, keep the talk and question period precisely on time, help solve any technical problems arising, and thank the audience at the end of the session. I instituted the "Student Introducer" plan when one faculty visitor to the class, a prominent faculty member who had won teaching awards, admitted that she was more nervous having to introduce a speaker than when giving a talk! Certainly being introducers (even in class in rehearsals) raised the students' awareness of the duties of this important position. It also made them appreciate, and learn from, those faculty who carried out these responsibilities adroitly for visiting seminar speakers.

Critiquing the seminars of visiting speakers

As an important part of the class, the students criticized the department seminar of the week. When the class comprised only the physiology students, all students had attended (or should have attended) the same seminar. They were expected to form opinions on the slides and on the style of presentation as well as to follow the science. When we added neurobiology students, who had attended a different seminar that week, each group had to brief the

other on the main point of their seminar. (This class requirement for discussion of the seminars had the additional benefit of increasing seminar attendance.)

With their awareness heightened by the expectations of the class, students began to notice the things that doom an audience to boredom: the speaker staring at the screen or computer the whole time instead of engaging the audience, fonts too small to be seen except from the front of the room, a blistering pace topped by introduction of new material in the last 10 minutes, imported graphs from the literature with unreadable axes, the speaker never repeating the question. This exercise also was comforting to new students who realized that getting lost in a seminar could be a shared experience and that it was not their fault but the fault of the speaker!

One week the class was paid a compliment by the speaker, a prominent faculty member from another department (someone who was well known to be an excellent speaker): "I know that the PClass is here so I am sort of nervous and have taken special care with this talk!"

Mastering the chalk talk

While students must be facile with PowerPoint nowadays, there are many settings that require equal skill at the white board. Often a job interview demands a "chalk talk" in which the candidate outlines plans for future research. Even if prepared slides are allowed, the questioning can bring up matters best explained on the board. And students choosing a teaching path certainly need board skills. Consequently, students of PClass worked on PowerPoint talks in the fall semester and chalk talks in the spring.

The challenges of speaking at the white board are many: learning how to write legibly, straight, and at a size appropriate for the room; how not to turn one's back to the audience while writing; how to organize the talk on the board; how to use the colored markers cleverly so that one color is always associated with one idea or entity. Indeed even how to manage a set of markers of different colors in the hand takes practice. Any undergraduate having to explain something at a white board could certainly be encouraged to master these skills early on rather than simply allowed to write illegibly and without a plan.

Students wondered how to represent data in a chalk talk. My advice was: draw it. A graph? A current or voltage recording *versus* time? Learn to label the axes and draw the data accurately. It might give you even more insight to what you have observed.

Learning how to design, present, and even visit posters

Both the Physiology Department and Neurobiology Curriculum had an annual "Research Day" where the students in that program were supposed to prepare posters. While lab groups tend to focus on the design of posters, the actual presentation and visiting of posters tends to be a neglected skill. Typically the making of posters is such a last-minute, intense activity that there is no time to rehearse how to "go through" the poster with a visitor. Even in the design, students still seemed puzzled

about how much text to display and in what font, whom to acknowledge, how much space to devote to the methods, etc. Several sessions of PClass were devoted to poster skills for the Research Days, where posters were judged.

Students prepared 2-minute and 8-minute run-throughs so they were ready for either, as requested by visitors or the judges. Students who did not have a poster were assigned to visit the posters of students who did. As usual, they were expected to complete a feedback sheet on how the poster and its delivery could be improved. An amusing article in the *Journal of Cell Biology* by “Dear Labby” was comforting and useful in this exercise. Labby responds to a student terrified by the ordeal of presenting a poster at a meeting for the first time, giving tips on how to deal with the different ways in which people visit posters (<http://www.ascb.org/files/0611dearlabby.pdf>).

At the undergraduate level, practicing the skills of poster design and presentation may depend on the resources available for poster printing. The Biology Department at Swarthmore College has a poster printer and makes good use of it for training students. In preparation for an Honors Thesis Poster Session, for example, students put up poster drafts for their peers and faculty to critique by leaving post-it feedback notes on the posters. The poster is then revised and printed again.

Engaging a lay audience

One goal of the class was to have the students be able to summarize their work for a lay person, jargon-free and without slides. We called this “The NPR speech,” imagining that Diane Rehm had called them from her radio show and asked about their research. We aimed for a brief, lively and understandable explanation of their research and its importance for the pretend radio audience.

The jargon-free assignment is not so easy! I called on students by surprise (because who knows when they will be asked to do this?) and video-recorded their effort for later review. The rest of the class was to be alert for any jargon in the brief speech. Understandably, these sessions often led to discussions about what was jargon and what was not.

A marvelous opportunity arose outside of the PClass structure for students who wished more experience in speaking to a lay audience. Two students were invited to prepare hour-long talks for a class in the Osher Lifelong Learning Institute associated with Duke University. The audience for these talks is typically older, intelligent and educated, hungry to learn new things, and extremely diverse. The students who took on this challenge were amazed at the amount of time they had to spend preparing, even after they had been through the PClass. An hour-long talk about a scientific topic, jargon-free or at least jargon-explained, is truly new territory for a student. Both students received rave reviews from the audience and were thrilled that they had taken the challenge and triumphed.

CAPTURING AN AUDIENCE IS A DRAMATIC ART

An experiment with an actor at UNC

Although scientists hate to admit it, giving a good talk

requires skills akin to acting. Students in drama programs are taught techniques for overcoming nervousness, for speaking loudly, slowly and confidently, and for generally engaging the attention of an audience. Why not make our students aware of these techniques?

I approached UNC’s Department of Dramatic Art where Jeffrey Meanza, the Associate Artistic Director of the Playmaker’s Repertory Company and a professional actor, became intrigued with the idea of coaching students who were giving scientific talks. We formed a collaboration with two parts: an acting class in one of the large rooms of the theater building, and a “Master Class,” where Meanza visited our classroom and critiqued student talks. Our efforts led to an article in a campus newspaper (Shoaf, 2010) that inspired inquiries from other science departments about this unique collaboration.

In time I realized that the acting class was a great way to start the fall semester. Meanza involved the students in body exercises of all sorts, particularly those involving the voice and breathing; they were fun as well as useful, so that by the end of the class inhibitions had broken down. The students entered the acting class strangers and emerged sudden friends, united by their reaction to these non-scientific, playful exercises.

As the master of the Master Class, Meanza stopped a student’s talk after a slide or two to comment or give advice, similar to the tradition in a music Master Class. He helped them envision a better way to engage his interest and then had them try again. Acting tricks such as learning when to breathe or how to announce more clearly the long and difficult words of scientific jargon (try saying it several times with your tongue out!) instantly improved that portion of the presentation.

When the idea of the acting class was initially broached to the skeptical students, one student said, “We are scientists, not actors.” The faculty member visiting class that day took exception. “You are wrong,” she said. “You must be both if you want people to pay attention to your work.”

A PClass theater experiment at the University of Wisconsin

While versions of PClass undoubtedly exist at other universities, I know of only one other involving the drama department. At the University of Wisconsin, Donata Oertel (Department of Neuroscience) has collaborated with Patricia Boyette, a Professor of Acting at the institution, to work with the neuroscience graduate students on their talks. Exercises included having the students bring to class 6-8 lines of text, something the student thought was interesting and important, that they would then practice speaking. Oertel reported that the choices, in one case a poem written for the occasion, were amazingly varied. The chosen text enabled the students to quickly know one another better while it trained their speaking voice.

Oertel and I entered into these collaborations as an adventure, hoping to help the students learn strategies that would enable them to relax at the podium, overcome nervousness, project confidence, and better command audience attention. We were not sure what to expect. To

our delight, as an unexpected benefit in both cases, the drama exercises made the students more comfortable with one another. We felt that the increased *esprit de corps* might have made it easier for them to give and accept criticism, a central goal of the PClass that we hope will persist in their scientific lives.

MEASURES OF PCLASS SUCCESS

The success of a presentation class is difficult to measure except anecdotally. Prize-winning is certainly one indication, although it is usually difficult to know whether the research itself or the presentation has factored more in the prize. To my knowledge there is currently no competition where each student prepares a talk on the same results so that only the presentation differs amongst the students. Perhaps there should be! Competition is an effective driving force for encouraging perfection and creativity.

Nevertheless, I was deeply pleased when PClass students started winning awards after the class had been in place for several years. One student was the only graduate student to win an award in a local presentation contest open to both postdocs and students. Five more students won awards for their posters and talks over the next four years. An alumna won two presentation awards as a postdoc at a different university. This past summer an alumna of the class, Sarah Street, was selected by the UNC medical students to give the 2012 Whitehead Lecture, an honor highly coveted by the medical faculty. And then there is Jennifer Morgan, who joined an earlier form of the class as an undergraduate in my lab and then, when she became faculty at the University of Texas Austin, mounted her own PClass based on the UNC model. This past summer Morgan received a University of Texas Regent's Outstanding Teaching Award, earning a hefty monetary prize.

CAN THE PCLASS WORK FOR UNDERGRADUATES?

My prejudiced answer to this question is that it is important to teach presentation skills to undergraduates who are seriously interested in pursuing a scientific career. A full course such as the UNC PClass would clearly need the support of the department chair and other faculty. But the skills of PClass could be incorporated into regular classes as well. The essential factor is for both students and faculty to approach learning these skills seriously. The grading of a student would be expected to reflect their seriousness: how thoroughly they prepared their talk, their participation in rehearsing their peers as well as asking questions of the speaker and providing feedback in class, and their willingness to evaluate their own performance.

For example, at Earlham College Robert Rosenberg (who is familiar with UNC PClass methods from his time on the UNC faculty) has instituted rehearsed presentations, video-recording, and mandatory student self-evaluations in a class that he teaches in neuroscience. The class aims to build a neuroscience community at Earlham by targeting neuroscience majors from sophomores through seniors as well as students with other majors who have an interest in neuroscience. His students view their recorded talks on

YouTube where he uploads the video files with an unlisted setting and gives the URL to the student.

At the Mount Desert Island Biological Laboratory (MDIBL) in Maine in the past three summers, a lucky cadre of about 20 undergraduates and high school graduates heading to college have been able to take a PClass from Susan Fellner, a faculty member in physiology at UNC and MDIBL adjunct professor. As one of the faculty visitors to the UNC PClass, Fellner became determined to provide a PClass opportunity to the MDIBL students.

Fellner's class was the only formal instruction at the MDIBL, where students are assigned to research labs for the summer. The class met each week and was modeled on the UNC PClass in several fundamental ways: the students were expected to critique the seminars of visitors to the MDIBL (and as a result, Fellner says, they paid much more attention to the seminars); the student talks were short, at 8 minutes, were timed, and were followed by a question period where the students had to repeat the question; Fellner made herself available for rehearsing; and the students were expected to critique one another in a respectful but helpful manner after each talk. Fellner reports that the pride the students took in their talks was obvious as they dressed up to present their talks at the Lab's end-of-summer Student Research Day.

For her efforts Fellner received an award from the director and scientists at the Lab, who were struck by the obvious, enormous improvement in the talks and posters presented by students compared to those in years prior to her class. Fellner says that a common comment from faculty after Research Day was, "These kids are better than I am!"

When Jennifer Morgan (now an Assistant Scientist at the MBL) crafted her own PClass at the UT Austin, she and I shared effective techniques as our classes evolved at the separate institutions. While her class, like mine, was for graduate students, she reported, first of all that her students wished they had been able to take this class much earlier in their careers and, second, that after they had moved on to postdocs, they felt that the PClass was one of the most (or THE most) valuable classes they had in graduate school. I had heard the same comments from the UNC PClass alums.

SUMMARY

In the neurobiology/physiology Presentation Class at UNC Chapel Hill we have endeavored to empower the students with the self confidence that would enable them to enjoy, rather than fear, the moment of standing before their colleagues to show their results and defend their ideas. We have aspired to foster collegiality by encouraging these nascent scientists to develop thoughtfulness and diplomacy when discussing ideas with peers or giving them feedback. In the process, we faculty have derived great pleasure from seeing the students evolve and flourish. Anecdotal evidence and the spread of the PClass concept to other institutions argue that this type of formal instruction is successful and should be a part of the training of future scientists. Indeed it is imperative if we want science to be more understood by the general public.

Serious students mature in their speaking skills through thoughtful observation of other presentations – those of peers or visiting seminar speakers – as well as through taking the time to prepare and rehearse their own talks. The growth in confidence and mastery that eventually results in a first-rate speaker is unlikely to come from simply reading books and articles, or even attending a one-day “how to” session on public speaking. Making a bench scientist into someone who can grab and hold the attention of an audience is a slow process. Why not begin this process at the undergraduate level?

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