PUBLIC SPEAKING FOR ENGINEERS
SAY IT LOUD AND PROUD
By Harry T. Roman
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INTRODUCTION

I f I had to name the skills that highlighted my almost 50-year engineering career, it would be my ability to speak and write well, especially my speaking. Surprised? Were you expecting me to laud my technical expertise, my mathematical prowess, or some special analytical techniques?

I have seen more engineers have their careers cut short because they could not make a cogent presentation, or speak well in public, than fail due to technical incompetency. Speaking is a leadership skill, a rallying point for employees to align themselves with corporate goals and mission statements. Those who speak well are respected, listened to, and often emulated. Senior management wants good communicators, who can facilitate the efficient transfer of information, ideas, new concepts and change, throughout the organizational structure.

Even in retirement, I speak in public forums all the time—as a docent at a nearby national park, as a board director at my engineering alma mater, as an advisor at a foundation, and as a visiting teacher at local middle schools. I have trouble envisioning my life without the public speaking aspect. It almost defines me.

In this volume, I want to pass along advice from my many years of experience, about using public speaking skills on the job, and how to master the basics of public speaking. Like anything else worthwhile, it takes an investment in time, and a commitment to continuous improvement.
WHERE PUBLIC SPEAKING HELPED ME

Before we dive into some nitty-gritty aspects of public speaking, or “get down in the weeds,” as they say, here is a recitation of the big payoffs public speaking has given me. I hope you see how integral public speaking is to your professional life. Here is where it paid off for me:

- Requesting funding from my senior management for new R&D projects
- Leading corporate project teams
- Soliciting interest in radical new directions I thought the company ought to investigate
- Delivering progress reports on large and complex research projects
- Lecturing before the company’s board of directors on my work
- Giving VIP tours of company facilities
- Interesting federal agencies in funding a company proposal
- Developing and planning a special presentation for my boss to give
- Representing my company on national professional committees and in working groups
- Representing my company to the public when controversial issues arose
- Providing legal testimony on my company’s behalf
- Representing my company in academic forums and meetings
- Conducting “tear down” sessions after a hardware/system failure
- Giving depositions on intellectual property/patent conflicts
- Coaching, counseling, teaching and mentoring younger employees in their career development
• Presenting a technical paper at an engineering conference; or leading a technical session of presenters

• Teaching as an adjunct evening graduate faculty member

• Visiting local schools to talk about the engineering profession; or conducting a special project with young children

• Serving as an appointed municipal official

• Giving a presentation at an IEEE-sponsored event or section meeting

In the department where I first started out, we had a long-standing tradition of getting the young and new engineers in front of senior management to present their annual budget needs. Our saying back then was: “If you are proud of your work, sign-off on it; and be prepared to defend it against senior management’s questions.” Even our managers got into the act. We practiced in front of them—while they lobbed in questions to get us used to the rough and tumble, give and take, of a budget review meeting. What a great mentoring and support system we had. Looking back now, many of those insightful men and women who led our group went on to become IEEE Fellows.
THE POWER OF PUBLIC SPEAKING

It is worth the time and effort to learn to speak well in public. It’s the key to all other leadership skills, indispensable to those who aspire to the senior management positions in their companies. As speaking skills improve, so will writing—another highly prized attribute of leadership. Good public speakers are remembered, respected, and often emulated. They are the bedrock of corporate mentorship.

Often in the busy corporate world, senior management has very little time to interact directly with employees at lower levels. The few times you will have such access, it will be measured in perhaps as little as five to 10 minutes. The senior leaders of your company will form a strong opinion of you by how well you articulate a problem or position, or champion a new idea. You need to make that interaction count. Good public speaking skills are a must.

Watch the magic the next time you attend a presentation. Don’t watch the speaker—look at the audience. As the speaker moves to the podium, and says in a loud, clear voice: “Good morning/afternoon, my name is...,” observe the respect and dignity afforded that person, as the crowd immediately silences all noise. That, is the “power of the podium.” It’s an awesome power, and it literally transcends all other ranks seated in the audience. The speaker is in complete control of the room. Use this position of power with great effectiveness.

It’s not unlike the ancient tribal council custom of the “talking stick.” Whoever the previous speaker gave it to, was allowed to talk, and provided the courtesies and attention of those in attendance. As a civilization, we may have progressed far from those fireside tribal councils, but our oral traditions are deeply ingrained. The podium has become our talking stick, where even a poor person can have the ear of kings.

I have been speaking in public for well over 40 years, on and off the job, and I still get butterflies when I stand up and begin. That’s a perfectly normal, healthy reaction. Your body is stoking itself up for action—an adrenaline rush, if you will. The key is not to become paralyzed by that queasy feeling. That’s where planning and organization comes in. The sparkling and bubbly raconteur who taught me the basics of public speaking had three simple rules to follow:

1) Tell the audience what you are going to speak about.
2) Tell them the things you came to say.

3) Summarize, by telling them what you just told them.

This no-nonsense formula works; but to do it well, keep three other things in mind—preparation, organization and presentation (POP, for short). The next three chapters will address these three things.
PREPARATION

Do your homework, and prepare for success. Make sure you completely understand what you are going to speak about. Get the latest details and facts influencing your subject. If it is something you are already familiar with (and in most cases, that is exactly why you are being asked to speak), bring all your wonderful experience to bear. Get prepared to show the audience what you know. You are the expert, and that’s why they want you to speak. Be positive and eager to teach the audience.

If the subject matter is related to what you know, but is not directly in your wheel-house; get the information you need, brush up on the subject, and talk to folks in the know. Do your homework and become an informed person; and do it fast.

Just as important as the subject matter is the audience. Find out who will be listening to your words of wisdom. Will there be noteworthy people in the audience? Do they know the subject as well as you? Such questions determine your approach and level of sophistication. After all, you wouldn’t speak the same way to the audience of a civil organization, as you would to a room full of doctors, lawyers, or politicians. Also, know the audience’s age range, and what life experiences they have had, if possible.

Target your words to the audience. Show them you took the time to present your information in a way they could understand. Remember, you are there to clearly and concisely communicate important information—not show off and use big words. Don’t waste the audience’s time. Make your time together memorable and pleasant. Prepare the talk for them. To the extent you can, draw parallels to their interests, professions, or experiences.
ORGANIZATION

Start by thinking about how you want the talk to end. What conclusions do you want to leave with the audience? Once you know, work backwards to build your talk. It’s just like writing a story or an essay, except it is spoken. You figure out where you want to be in the future, and work back to the present.

Speakers may use overhead slides, or a computer-based style of presentation, like PowerPoint®. Whichever mode you choose, or are more comfortable with; once again, keep the audience in mind. Slides must flow seamlessly from one to the next, building your case into a logical framework. Each slide should contain a complete thought or concept that meshes with the previous, as well as the next, slide. If a slide doesn’t enhance or build upon your framework, then maybe you don’t need it.

Always prune and polish your talk. Allow plenty of time before the actual talk to review your slides. Editing is very important. A general rule worth following—have one to two slides for every minute you intend to talk.
PRESENTATION

Now we have come to the practice, practice, practice part. There is no other way to learn it. You stand up there and do it. Find an audience of colleagues, family, or friends. Listen carefully to what your make-shift audience has to say, making changes where necessary. Then, do it all over—again and again—until you become comfortable. Some folks like to practice in front of a mirror. Some practice in a quiet room. Always practice before you give any talk. Speak clearly, with a strong voice, enunciating all words. Don’t race through your talk to finish it; and do not, I repeat, do not read it!

Look your audience square in the eye, like the professional and expert you are. Tell them the facts with confidence. You command the podium. Use it to your advantage. Your slides, properly designed, should act as a cue for the words you need to say. Don’t look at the slides and talk—look at the audience. You can glance at the slides to pick up your cues, but always face the audience. Audience contact is why practice is important. With a PowerPoint presentation, you will probably have a laptop in front of you on the dais, to cue up the slides; so, it will be convenient to look down quickly, and take measure of what you wish to say.

Above all else, your talk should be enjoyable. You are conversing with the audience, your new friends. Believe me, they want you to be successful. No audience wants to see a speaker do poorly, because they will have wasted their time. So practice and make yourself ready to give them information; and yes, some entertainment.

At the end of the talk, summarize the main points of your presentation concisely. Help the audience remember.

Here is a tip to keep in mind. When I taught evening graduate school, my rule of thumb was to spend three hours of prep time for every hour in class—for the first time through the course. Since I lectured without notes most of the time, this time factor seemed reasonable to me. As I got more familiar with the materials, it dropped to less than an hour for every hour of class time. Practice makes perfect.
HELPFUL TIPS

A good way to practice is to get on the lecture circuit and give frequent presentations. Start with the easy audiences, and work up to the more difficult ones. Students are very challenging audiences. Talk to your local school, and offer to give talks on subjects you know very well. I started this way, back in 1971, in my company’s speakers’ bureau.

Another way to get regular practice in public speaking is to teach an evening course at your local college or adult school. Or perhaps, join an amateur theater club.

Many of the colleagues I grew up with on the job were involved in Boy Scouts/Girl Scouts, held positions in city government, belonged to various professional groups [many were IEEE members]; and were active in church and civic groups like Rotary, Kiwanis, Lion and Elk clubs. They were always speaking in front of people. Many of these folks were great mentors to me, as I learned the ropes of public speaking. Seek these folks out in your organization. Learn from them.

Why not join a debating club, or Toastmasters International? I put some extra time in on the job as the departmental toastmaster, writing humorous anecdotes and stories for folks celebrating special anniversaries with the company. I had a terrific time, often dressing up in unusual costumes for the occasions. People still talk about those episodes.

Videotape public speaking practice sessions on camera, watching for annoying habits and poor eye contact with the audience. Start a group in your company, so you can discuss, practice and hone your skills. If your company has a speakers’ bureau, join it. If not, consider starting one with other colleagues.

Encourage questions after you give a talk. Try to answer them as best you can. If you do not know the answer, simply say so. Then, try to get the answer for the person who asked the question. If you do practice in front of your colleagues and friends, have them pepper you with some tough questions, to get you accustomed to what the audience might ask.

I do many talks where the audience is very mixed in age and technological literacy, and probably 20-30 people in size. For these kinds of talks, which usually involve invention and inventors, I always bring along some props I can hand out to members of the audience. This tactic works very well, as folks can associate with the items, and get a physical feel for what I am talking about.
Such maneuvers should work well in a corporate environment, too, where the audience is likely to be technologically astute. It’s all like the old “show and tell” episodes from our elementary school days. If you are talking at a school, definitely bring props with you. Kids love to touch and feel technology. It also greatly helps teachers appreciate what professional engineers do.

Encourage your children to get involved in school plays, and to give classroom presentations. The sooner they get over their fear of public speaking, the better. Employers love to see young people who can think on their feet and handle questions. This skill is invaluable. Talk to your school administrators, and see if they can work such oral presentations into the curriculum. It’s a big benefit of the STEM/STEAM paradigm. The kids work in teams, and have to present their work. I remember being in many school plays in elementary school, and learning to thrive in the limelight.

If you are using hard copy overheads, number them, to preserve the presentation order. If I am using a PowerPoint presentation, I always carry a spare copy on a jump drive...just in case.

If you are speaking at a public place; get there early, and practice your talk in the same room. Get familiar with the surroundings, walk around the room, and listen to the acoustics. It is always better to know the room before you start speaking. I cannot emphasize how relaxing it is, as you “bond” with the room and get comfortable. And as long as you are getting there early, introduce yourself to the audience members as they come in. Become part of the audience, and they will identify with you. Tune in to their interests and concerns. As I start my talk, I like to mention from the podium some names of people I have met that evening; and if possible, work their ideas into my talk.

And last but not least, the best tip of all. Imagine the room filled with people. Close your eyes. Picture yourself being introduced, walking to the podium, giving the talk, and thanking the audience for their vigorous applause. Keep a positive self-image!

Whichever method you use to learn how to speak confidently in public is up to you, but do take the time to learn this valuable skill. It is a stepping stone to your career, and the perfect way to develop your leadership (and writing) skills.

Some of my best and lasting business friendships came from talks I gave at conferences and panel discussions. Speak well, and you will be invited to many interesting forums to talk about your area of expertise. It can only mean good things for your career.
As you do more public speaking, you might have what one of my friends calls “an out-of-body experience.” You get so comfortable, your mind operates at two levels—one level is giving the presentation; and at the same time, your mind is subconsciously scanning the audience—looking for signals, and picking up audience feedback through facial expressions, hand motions, and other body language. It is all quite interesting.

Remember:

1) Tell your audience what you are going to tell them.

2) Tell your audience what you came to talk about.

3) Tell your audience what you told them.

Now, go practice—and have fun. You will meet many interesting people, make loads of new friends, and establish valuable personal contacts.

Speak your way to success. Say it loud and proud!
ABOUT THE AUTHOR

Harry T. Roman holds 12 U.S. Patents, has received numerous engineering, invention and teaching awards, and has published more than 550 scientific papers, articles, monographs and books. In 1999, the New Jersey Technology Education and Engineering Association named Roman a Distinguished Technology Educator. In 2005, the New Jersey Inventors Hall of Fame honored him with an Inventor of the Year award, for his application of mobile robots in hazardous work environments. In 1996, IEEE honored Roman with a Meritorious Achievement Award, for developing continuing education products for IEEE members. Again in 2006, IEEE honored him with an Outstanding Engineer award. Roman also received IEEE’s 2015 Region 1 Excellence in Teaching award. Every month, more than 250,000 educators read his feature articles appearing in various national publications.

In PSE&G’s R&D group, where Roman worked for 36 years, he directed and consulted on more than $100 million worth of projects/programs, and taught graduate-level R&D project management courses at the New Jersey Institute of Technology [NJIT]. Throughout his engineering career, Roman worked with schools around the state, bringing the excitement of real-world problem-solving into the classroom. Retired since 2006, he has published more than 70 resource books, math card games and science kits for teachers—products valued for their “head and hands” approach to teaching creativity, invention, STEM, engineering, and alternate energy topics, in the classroom.

Roman now spends many hours in the classroom, working with teachers and students in West Orange, Montclair and Livingston, conducting special student project team challenges. He is an advisor/author to the Edison Innovation Foundation, and docent/special lecturer at the Thomas Edison National Historical Park, in West Orange. Roman also admits to writing and publishing poetry and short stories. For the past three years, he has been teaching graduate school at Montclair State University, in their teaching college, where he co-teaches a unique course about applying STEM techniques in the classroom.