

# THE IMPORTANCE OF ORAL COMMUNICATION SKILLS

## *and a Graduate Course to Help Improve These Skills*

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What are likely to be two of the main requirements/prerequisites listed on a job description for which a student is considering interviewing? The answer is almost universally “Excellent Oral and Written Communication Skills.” While this article will not address the latter, it will focus on the former. The author’s objective is to provide some basis for why oral communication is such an important quality for any individual who is moving on from college to a career. A second objective is to address how a one-semester course, particularly aimed at the graduate level, can assist students in helping make this quality a reality or at least assist in moving the student in the right direction.

Before addressing the components of oral communication the author believes will help fortify an individual’s oral communication skills, the author would first like to provide the reason for initiating such a course at Virginia Tech within the Department of Chemical Engineering. In brief, the inspiration stemmed from the fact that after being part of many graduate student committees, the author noted the relatively weak oral presentations of many students, even while their written documents (research plan or thesis) may have been well composed. Restated, the author distinctly recognized that there were numerous cases whereby the student at the front of the room may have written an excellent proposal or thesis/dissertation, yet what was orally presented by that same individual led to very poor support of that document and/or the work done to achieve it. This was most disappointing. In fact, it was easy to see that if that same person were to leave the university with such poor oral communication skills, his or her future might well be very dim in locating a career of choice due to this weakness—even though such graduates may really be excellent scientists/engineers on the basis of technical skills and work ethics. For that reason, a new one-semester elec-

tive course was developed to try to address at least some of the issues that would otherwise restrain students from career success or possibly life success in general. While the author will return near the end of this article to describe some of the organizational aspects of the course, let us first focus on the elements of oral communication. We will begin with three “reminder” statements.

### ORAL COMMUNICATION REMINDERS

One such reminder is that “*we may live in an age of super computers, high-speed fiber-optic networks, and the Internet, yet in the final analysis, the ‘spoken word’ still dominates. We certainly recognize that politicians rise and fall, lawyers win or lose in courts, business, social, and family relationships thrive or fail ... all because of what people say and how they say it.*”<sup>[1]</sup> A second reminder is that *an individual receives hundreds of verbal messages each day (both written and oral); if you are the communicator (the sender) how can you make the listener (the receiver) remember yours?* A third and final reminder and one close to home for students is *an individual may be a very talented academic student grade-wise, yet if*

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people do not perceive that from the way he or she presents or speaks, he or she will lose credibility and the listener's attention. Hence, it is critical to try to develop the appropriate communication skills to support not only one's career goals but essentially almost all parts of life. How can this be done? Presented in this report are some methods that, if practiced, can help promote success.

As was stated above, the person communicating the message can be viewed as the "sender" and the listener is the "receiver." The success of that transmission of information, however, and whether it is truly received and fully imprinted in the memory bank of the receiver, is dependent on a number of items. Typically all can be included under the headings given in Figure 1.

As this figure illustrates, there are two fundamental components associated with oral communication. They are the verbal and the nonverbal—each of which we will address. While oral

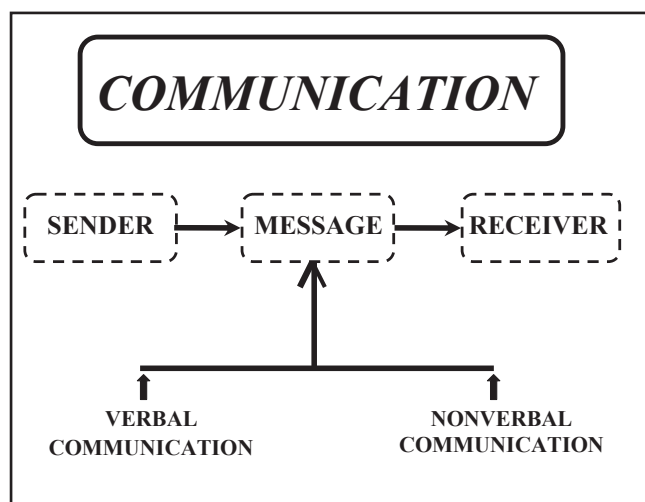


Figure 1. Factors affecting whether communication is truly received and fully imprinted on listener.

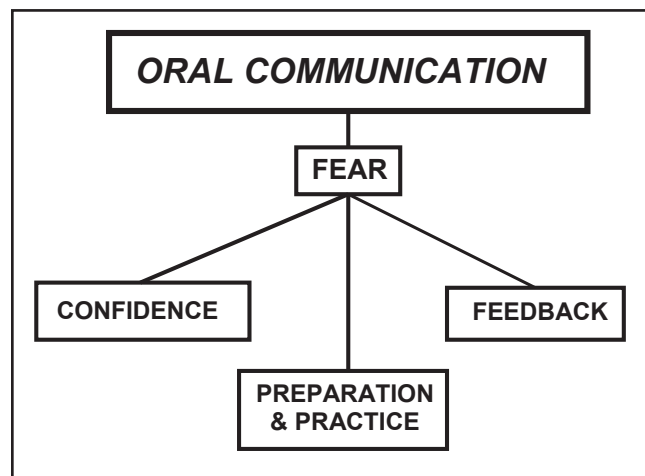


Figure 2. Three aspects can help diminish the fear that comes with speaking in front of a group.

communication occurs in myriad different venues, much of this article will emphasize presentations used in research and related technical "group meetings." It is hoped, however, that the reader will also appreciate the principles covered in this article and that the principles will thus have a much broader application to oral communication as a whole.

## REFLECTIONS ON WEAKNESSES IN ORAL COMMUNICATION AND HOW TO MINIMIZE

For many individuals, one of the main causes of poor oral communications in public speaking is the *fear* that comes with being in this position – *i.e.*, up front! As Figure 2 indicates, three things can help diminish this fear. First is to develop confidence when addressing an audience. To do that often takes considerable practice. One's initial ability to be confident in public speaking often varies depending on personality (*e.g.*, introverted vs. extroverted), which the author has noted many times when teaching the communication course. Confidence, which helps generate persuasiveness and trust, can improve with careful preparation/organization of the material. When preparing, feedback is desirable ahead of the actual presentation. This is why, particularly in the early stages of developing oral communication skills, it is useful to "test out" your presentations ahead of time in front of a peer or two that will be honest with you about what you have said (verbal communication) and how you have said it (nonverbal communication)—both topics we will address. By building on the three items given in Figure 2, fear can generally be diminished. If one does not have a peer or two to listen to a practice session, then setting up a video camera or even a simple voice recording device can also be of great assistance. A video camera is better for reasons that will be made apparent later on.

Besides fear and lack of confidence, some other potential pitfalls may well limit success in the communication of an oral presentation. Some of these will now be briefly addressed. One is recognizing the nature of the audience. In this respect, there are several points to consider ahead of time—some are listed below in Scheme 1.

### Scheme 1. A Few Characteristics About the Audience/Listener the Speaker Should Consider

- Age and Its Distribution
- Occupations/Professions
- Educational Level(s)
- Size
- Mood
- Possible Expectations of the Listener(s)

In brief, when giving a presentation, one should generally not aim the subject matter too high or too low with regard to the audience. This is not always easy to avoid unless one knows some information ahead of time, but it is worth considering.

If the age distribution or the educational levels/backgrounds vary greatly, this challenge can be met if the sender specifically and openly addresses the subject with some added remarks that show the receivers he or she is trying to make sincere accommodations during the presentation. The issue of audience educational backgrounds differing from that of a technical/scientific presenter can be a fairly large barrier with regard to trying to convey some science-based subjects to a lay group. It seems today's non-scientists are quite skeptical about what a scientist/engineer has to say—particularly when addressing such hot topics as global warming or related subjects that impact their daily world. Hence, particular care must be taken to not use detailed, sophisticated science language when addressing such subjects. Instead, employ terminology that is more broadly understandable. For example, terms such as “anthropogenic,” “spatial,” and “temporal” may be better changed to “human-caused,” “space,” and “time.”<sup>[2]</sup> Recognizing the latter point will assist in *marketing or selling* one's presentation with the appropriate choice of language.

There is also the choice of phraseology that can make a major difference to an audience and its desire to listen to what you have to say. For example, one often hears a speaker state at the beginning of a talk, “I am going to tell you about . . . .” In short, most people do not wish to be told! The speaker is usually better off by using phrases like “Today we will explore together . . . ,” or, “We will discuss the topic of . . . .” Such phraseology can promote a closer bonding with the audience right from the beginning, which is clearly desirable in most instances. One point the speaker should remember in preparing a presentation is that the audience can essentially be viewed as the “jury,” in judging the material given and how it is presented. In fact, a silent “verdict” will be reached by each listener even if there is no chance for discussion of this at the end of the presentation.

### OVERUSED WORDS, PHRASES, OR SOUNDS

Some *audience distractors/irritators* used inadvertently by speakers include such sounds as “umh,” “aah,” and overused phrases such as “and a,” “you know,” “like, you know” and even unintentional repetitious sounds. If you do not believe this, inject several of these within a talk and watch the attention of the audience/listener begin to fade. In fact, the author recalls a graduate class he took in the subject of inorganic chemistry where the lecturer would often clear his throat to the extent that members of the class used to place bets on how many times this would happen in a given lecture—sometimes the number exceeded 100! Needless to say, we were counting the throat-clearings, not focusing on the subject matter being presented.

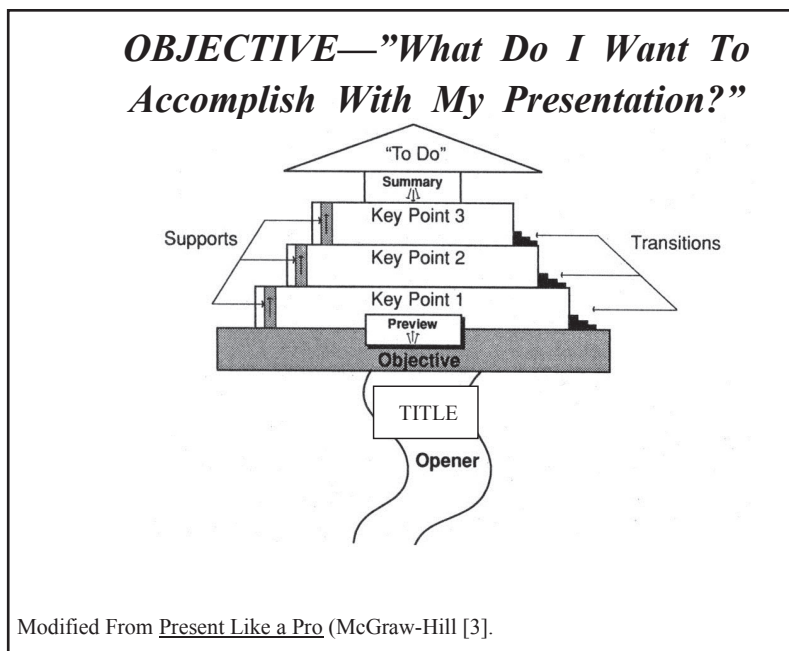


Figure 3. One simple schematic that can assist in organizing a talk.

### ORGANIZING A PRESENTATION

There is the well-known old phrase that states when planning to deliver a presentation, “Tell them what you are going to tell them, tell them, and then tell them what you told them.” Indeed, this simple summation of what to do actually has merit, for the attention span of listeners is often quite short. As studies have shown, attention generally peaks at the beginning of a talk and may also show a second peak near the end where a summary may be given. Thus, if the speaker has the time to do it, restating or repackaging some of the important points in the presentation is useful for *re-enforcement*. The percentage of time a speaker holds the attention of someone in the audience depends on lots of variables, however, some of which the speaker has little control over (such as, is the listener distracted due to an argument he or she had with a significant other earlier that day?) While the speaker cannot easily offset such situations, he or she can improve them by taking earlier note of the backgrounds of the audience, (*e.g.*, potential common interests, etc.) and including suitable remarks that provide coupling of such interests with various aspects of the material presented. Also, the organization of the talk will be a critical factor as well. If the talk can be logically followed, the associated message it brings will have a much better chance of being truly received and grasped by the listener.

One simple schematic that can assist in organizing a talk is shown in Figure 3. This comes from a text the author has found useful in supporting his communications course.<sup>[3]</sup>

While the figure is in many ways self-explanatory, a few

## ***Eye contact in conjunction with vocal tone and pace play major roles in providing the mood the speaker may want at a given point in the presentation.***

comments may be useful. First, the speaker must try to succinctly answer the question of what he or she wants to accomplish with the message/presentation. Also, what are the specific points that are critical to make? To make each one stand alone as it is delivered, it is necessary as a rule to be sure there is a clear *transition* made between each. Thus, a statement such as, “Now let us turn our attention to the next important message I wish to share with you,” can be useful. The very beginning of the presentation is also quite critical. It is here the speaker clearly desires to catch the attention of the listener. Sometimes this can be done nicely by use of a related question that makes the listener come to attention if possible—note the initial sentence of this article! Of course, whatever this opening remark is, as a rule it should be coupled to the general theme of the message to be delivered. This will be quite dependent on the make-up of the audience as well as the subject to be addressed, and thus this author will not try to focus on such issues here. In fact, note in Figure 3 that the “opener” may often appear ahead of the actual title (if, for example, PowerPoint slides are being used).

Another notable element regarding Figure 3 is the term “supports” that appears on the left. This term refers to what this author generally calls *show & tell*—items that may be used to support the content of the message being delivered. Since this author expects readers of this article are likely in the business of science and engineering, using show & tell usually gives us a real chance to couple the listener into our message. One can often show or demonstrate a principle being discussed by use of an actual example or a product that functions based on a given theory, etc. The author is a major believer in using such examples, for if the listeners can see an item (and possibly touch or inspect it as well) there is a stronger tendency for the principle it illustrates to be embedded in their minds. In fact, the author is noted for carrying a large bag of show & tell samples for use in the courses he teaches on the processing/structure/property behavior of polymeric materials. One of the comments from students enrolled in these courses is how important the use of those samples was in driving home key points being made in the lectures. Having said that, however, there is a price to pay at times with use of such show & tell items: It is the time required for the speaker to pick up and comment on each one and, in some cases if the audience is not large, to possibly

allow passage of the item through the audience to allow direct contact with each listener. Passing the show & tell item around also has the potential disadvantage that, while each member of the audience is inspecting the item, he or she may be distracted from listening to what is being discussed at that point in time. Nonetheless, the author is still a big believer that if your listener can see and possibly have direct contact with an example, it will help make the overall discussion of the associated principle stick in his or her mind more than if you had not used it. Clearly, another limitation of a show & tell item is when the audience is very large and a small show & tell item may not be seen well by those in the back of the presentation room. In this case, the best approach may be to show a photo or video clip of the item.

## **THOUGHTS ON USING FIGURES AND TABLES IN PRESENTATIONS**

The old saying that a picture is worth a thousand words is certainly true in many cases (particularly in science). If the picture or figure is one that can clearly meet this criterion, then certainly the presenter should use it if appropriate audio-visual (AV) means are available. Today, however, it is very easy to overload a figure with so much material and color by the use of PowerPoint or other software that the listener can lose focus of the main feature the presenter really wants to highlight. For example, often students like to add the university logo and related material such as the name of a research sponsor on every slide. I find that distracting. Hence, it is urged that one try to avoid such overloading and only show what is intended, using a readable font size and minimal color accents, etc. One can always start or finish the presentation with the research sponsor’s information as well as the university logo or photo. As for the use of tables in a typical presentation, I am biased in that I find tables with lots of entries to be less valuable than a clear figure with the data plotted to display the trend one often wishes to show. The important point, however, is not to overload a table and to be sure the listener in the back of the room can easily see the table entries. A final point is that often in scientific or technical presentations, figures and tables are lifted from the open literature and these have been designed for publications and not necessarily for use in an oral presentation. Hence, remaking or modifying such literature material so that font size, color accentuation, etc., will reach the audience sitting in the back of the room can be of great advantage. Including the reference to that corresponding figure should always be done whenever possible.

## **NONVERBAL COMMUNICATION: ITS ELEMENTS AND THEIR IMPORTANCE**

We have focused on a number of issues related to improving oral communication by what is said and by how a presentation is organized. We have not, however, considered the issue of nonverbal communication (recall Figure 1), which

is an equally important and critical facet of achieving a successful presentation. Another more common phrase that also encompasses the topic of nonverbal communication is body language. In fact it is worth remembering that in the animal kingdom, except for a few growls or roars and mating calls, body language is the only language. Do the visible fangs of a large lion, the wagging tail of a friendly dog, or the flattened ears of a frightened horse not send a distinct message to an observer? Thus, just what are the elements comprising nonverbal communication and why are they important? The author considers there to be six such aspects—four of which should never be overlooked when making a presentation (particularly when its outcome may influence one’s career advancement). The six elements are paralinguistics, kinesics, proxemics, dress/appearance, iconic images, and haptics—the latter two are generally of lesser importance than the first four.

Paralinguistics is, in brief, the way you say something with your voice—examples being the tone, volume, pace or delivery rate, distinct hesitations, use of voice inflections vs. a monotonal delivery, etc. Most readers will quickly relate to these aspects of speaking for we have all heard presentations being given in a monotone—the longer the talk, the more apt the listener will be to fall asleep or become bored and not pay attention. Hence, voice inflections are an extremely effective means of placing emphasis on what points are important—such as inserting a hesitation just prior to delivering the point with emphasis (a short silence followed with enhanced volume stating the point of importance). Certainly, however, there are times when a soft voice is better than a harsh or loud one; the mood of the presentation should make it easy to select which mode is most desirable. For example, just think about a presentation or talk that is of a eulogistical nature vs. that of, say, a political speech—the use of strong accents in the latter will generally win more votes, but would not be appreciated in the opposing example.

In contrast to the use of the voice itself, kinesics has to do with eye usage, facial expression, and body posture. In short, if the message being delivered is to excite the audience, then it is less likely to happen if there is no excitement expressed facially by the speaker at appropriate times. Likewise, if some remark is meant to generate a somber thought, then providing such verbiage with a big smile on the speaker’s face is essentially a contradiction to the verbal communication (the somber message). Eye contact in conjunction with vocal tone and pace play major roles in providing the mood the speaker may want at a given point in the presentation. It is critical that one is always striving to support the verbal components with those of the nonverbal. It should also be mentioned that in addition to striving for good use of eye contact and posture, public speakers should generally avoid using a podium when possible—particularly for longer presentations since a podium serves as sort of a “wall” or “shield” between the speaker and the audience. It also “ties” the speaker to a single position up

front. In short, standing behind a podium typically causes a loss of body dynamics and often promotes less direct connection of the speaker to the audience.

The third element, proxemics, is how one utilizes the space around oneself. To put this into perspective, have you ever sat through a presentation and felt the speaker never seemed to address you or at least the audience? Instead, the speaker was either off in space (maybe just that “space” occupied by the speaker and the screen for the slides!). Or in some other case, the speaker may have only talked to the first few rows of the audience. Good proxemics is when the speaker is well aware of all audience members and during the presentation makes an effort to reach out or project to each one. This can be done by walking now and then from side to side to allow better *voice projection and eye contact* with each person in attendance. In some instances (not generally scientific-based presentations) the speaker may even go out into the audience. This is not usually suggested although it certainly draws the attention of those who may have been dozing off. In summary, the speaker should try to include all of the audience into the talk by eye usage and body dynamics up front, and now and then possibly even ask if those in the back of the lecture room can hear the speaker. In fact, it never hurts to ask that question very early on in a presentation so the speaker finds out if his or her own speaking volume or that supplied by a wireless microphone is suitable enough for all to hear. In fact, if one is planning to give a long presentation or a series of lectures, use of a wireless microphone is highly recommended. This not only helps hold the attention of the audience but it also conserves the speaker’s voice that might otherwise give out later. Finally, in the case where a speaker finds the audience is small relative to the number of available seats in the presentation room, the speaker may well wish to suggest prior to beginning his or her talk that those listeners far from the front take a moment to move to the available seats near the front of the room; this will generally promote a closer “bonding” of the full audience with the presenter.

The element of dress/appearance is clearly an obvious one. The author is not saying that one should always be “dressed to the nines” in order to score well—it will depend on the nature of the presentation and the surroundings. For example, many of the readers of this article have likely attended scientific-based conferences or workshops where a suit and tie are not the desired dress but rather something more casual is expected. On the other hand, when one is going to interview for a job, it is clearly best to err on the professional side. For example, for men a suit and tie or at least a sport coat and tie are a better choice than a pair of blue jeans and a sport shirt. Clearly, today’s world is distinctly less formal than it was 40 years ago when the author was in the market for his first job, but still an interviewee should try to display an image of professionalism.

The last two elements of nonverbal communication are haptics and iconic images. These, however, may not neces-

sarily be directly applicable to all presentations. Haptics is the use of direct physical contact or touch as a means of making a point or trying to gain someone's attention. For example, while speaking highly of an employee, a boss may go over and give that person a handshake or a pat on the back to help make it clear that the individual is being viewed as special for that moment. Another place where you see haptics greatly practiced is in the political arena where giving hugs or handshakes (or even holding a number of babies) will encourage the vote count to grow! The final element of nonverbal communication is simply to use icons (symbols) as a means of silently sending or reinforcing a message when visual material is being presented. Certainly we are all familiar with icons used for an upcoming railroad crossing, or the "golden arches" of a McDonald's restaurant. Applying this to the tone of this article, note Figure 4 which shows a number of intermeshing gears that work together. Such a figure can also be appropriately used when talking about how important it is to fit all parts of a "group talk" together so the group of presentations is the sum of its parts and not a series of separate, shorter, independent presentations.

### **ADDRESSING QUESTIONS DURING OR AFTER AN ORAL PRESENTATION**

Generally, even if the presenter has done his or her job in giving a memorable and moving presentation, there may be questions that arise in listeners' minds that they hope to have addressed by the speaker. It is therefore important to try and provide a portion of time that allows for this—most often at the completion of the talk. Yes, questions may come during a presentation as well but typically trying to address them at the end is a better plan; questions taken during a presentation often limit the flow or continuity of the theme. There are, however, exceptions to this. For example, often in scientific talks there may be a need for clarification along the way in order to maintain the continuity of the theme. While I will not address any example cases of this, speakers should try to judge if opening the floor for questions during a presentation is suitable or not, and consider letting the audience know early on where in their delivery questions will be addressed.

The means of addressing open questions from an audience can also vary depending on the audience and its size. First, if the audience is large and no floor microphone is available, it may be useful for the speaker to repeat the question to the entire audience. There is another real advantage to this practice: It gives the speaker's brain a chance to begin addressing the question before starting a spoken answer. Any answer, of course, should aim to be concise, clear, and delivered with sincerity and appropriate body language such that the questioner knows they have been given their due time and the audience is fully coupled to the response as well. The bottom line is that the speaker does not want to appear to admonish the questioner or play down what may be an irrelevant question;

rather, leave all members of the audience with the belief that the presenter has tried to address their questions in an honest and positive manner.

### **AN ELECTIVE GRADUATE COURSE TO IMPROVE ORAL COMMUNICATION SKILLS**

Having discussed many of the aspects of oral communication and the critical role it plays in one's career and life, we will now turn our attention to a brief discussion of an elective graduate course established and taught for several years at Virginia Tech that was focused on improving students' oral communication skills. What will be briefly provided is how the author designed the course and its contents. It is safe to say, however, there are other modifications that could be used to achieve similar results depending on the specific group to be taught. Furthermore, there are now newer means of electronic equipment that can facilitate and accentuate oral presentations such as video clips, etc.

Concerning the makeup of the class, the author taught the course not just to chemical engineering students but students from other departments in the sciences such as chemistry and materials engineering. In fact, by design the instructor always desired to have the class composed of students from several scientific disciplines in order to make the "audience" somewhat "diversified" in scientific interests, which meant any class presenter would have to take this fact into account when organizing his or her presentations.

Before outlining and discussing the nature of the seven assigned presentations, it is worth pointing out that the author also strived to obtain a suitable classroom. That is, for this type of course it was very desirable to have a very good projection screen as well as a quality blackboard or whiteboard in addition to good light control. Since the class was always restricted to no more than 10 students, one might think a very small room would suffice. When possible, however, the author always preferred a mid-size room in which to spread the class out a bit to more uniformly cover the classroom space. This prevents a speaker from being able to talk directly to only a small group of listeners in the front of the room. Rather, the speaker would have to consider listeners in the back of the room as well in terms of eye contact and good voice projection (recall our earlier discussion of maintaining the attention of a large audience).

Prior to initiating the student presentations, the author would spend two class periods addressing the importance of oral communication and just how and why developing skills in this area is important not only for one's future scientific career but also for one's overall life in "everyday" communications. I would also provide, by short example snippets, the do's and don'ts regarding oral communication. I also promoted a specific text (Reference 3) as a good guide to students as they prepared presentations. No specific lectures

were focused on particular chapters, however, for I believed the class members needed to become immersed in delivering—as well as carefully listening to and grading—the seven required presentations.

With respect to grading the presentations, *each student in the class also served as a grader for each presentation other than his or her own*. Not only does this result in the students becoming more involved with the course but they also further honed their listening skills as well. In fact, the fundamental process of listening is a topic that is as important as that of speaking. I will not go off on a tangent on this topic other than to say that by being graders, the students learned to become more aware of nuances or idiosyncrasies speakers may unintentionally use that can be major distractors. This, in turn, helps each student avoid similar mistakes. A final reason for using each student as a grader was that the author believes that what a single person (listener) picks up from a presentation is not always complete and it may depend on where you are in the room, what your mindset is for that day, etc. Restated, not every listener is sensitive to the same issues when hearing a presentation. Therefore, having each set of eyes and ears in the room pass judgment on a given presentation provides a much better overall appraisal of that event. In fact, is this not one of the reasons that in a court of law, the jury is made of several individuals rather than just one person?

The five specific topic areas graded on a scale of 1-10 were: organization, voice quality, materials (quality of slides, board usage, poster materials, etc.), interest factor, and audience interaction. While one could add more subtopics, these five seemed to capture the needed information. In addition, for each of these categories, the grader could add a “one liner” to try to make clear the basis for their topic grade. Finally, there were places for five lines of writing at the end of the grading form for each presentation such that the grader could add any comments he or she believed useful (and likely aside from the five specific categories). As instructor, I would also fill out the same grading sheet, then combine all the relevant comments and scores onto a “master” grade sheet that would

be given back to the student presenters at the time of the next class so they would have a written record of the scores and the associated comments *for each talk* they gave.


In addition to the feedback that came through the master grading sheets, each presentation was orally reviewed by the class after all the presentations had been made. This was typically done at the end of a given class meeting which, for this course, was usually scheduled for a “double class period” in order to allow all students to give their presentations, or at least half of them—see later discussion below. In this oral review the author generally found a presenter’s peers often did not have as much to say as did their grading sheets—probably since they did not wish to openly constructively criticize their

equals. (This is another reason why multiple feedback mechanisms are needed.) Hence, this instructor was principally the one who provided feedback in the vocal review part of the grading process.

One of the other most important feedback mechanisms for the class members was for all stu-

### Group/Team Presentations: A Few Points to Consider

- A seamless orchestrated presentation
- Each team member should have at least one objective
- Try to match each presenter’s strength with the topic they address
- Each presenter must stay on time
- Each team member must focus on the audience and not other team members
- Consider what question may arise from the audience



**Figure 4.** Use of an icon (the intermeshed gears) to illustrate a message.

dents to bring to class a means of video-recording their presentation (*i.e.*, a flash drive, etc.). These were recorded then returned to the students to take home and review. From the author’s point of view, there is no better way to judge one’s self than to hear and see video of yourself presenting. This provides the student an opportunity to not only hear what he or she said (the verbal) but to also view his or her body language (the nonverbal). This system worked well and the students greatly appreciated this helpful practice as noted in their course evaluations.

As stated above, this instructor typically required each class participant to make seven separate presentations, which means each student had multiple times “up front.” Thus, there was a very good opportunity for each person to really make advances in his or her oral communication skills. Improved presentations over the course of the semester indeed did happen in most all cases no matter how low or high a level the student started from. Restated, the author feels quite strongly about the importance of having a small class for this course since

it allows for multiple presentations by each class member. Oral presentation, while easier for some than others, is a bit like playing any musical instrument—to do it well, one must practice and also have the chance to perform several times since the latter is a necessary means of developing confidence in front of a group.

Regarding the topics assigned for presentations, the first was always a five-minute presentation using *absolutely no audio-visual aids of any kind*. The required topic was about the presenter. That is, each speaker talked in one form or another about him- or herself. The instructor found this topic gave the speakers a chance to not only avoid having to worry about slide preparation, AV setup, etc., but also forced them to boil down their life stories, or some segment thereof, to try helping the audience get to know them and a bit about their interests. Some did this by choosing their childhood or family structure. What came out of this was a chance to really learn about each person in the class and it led to some very interesting and revealing five-minute presentations, to say the least. The fact that AV equipment was not allowed meant the presenters had to rely on body language (the nonverbal component) to support their presentations. This gave the class and instructor the opportunity to see how presenters used their hands, eyes, stance, etc.—revealing just how comfortable each speaker was to start with when up front.

The second and third presentations were first a nontechnical talk followed with a technical talk, both using overheads/transparencies. This course was initially taught in the days when overheads were still the common means of making presentations. Today it would likely be PowerPoint presentations so the reader can make the appropriate adjustment. Each talk was 6-7 minutes in length. These presentations were intended to start the presenter thinking about preparing quality visuals that were well-organized and clear. It also began to give them the opportunity to talk not only about science (the technical) but also make presentations on other subjects to see how they could judge their audience now that they knew a bit about each class member based on the initial presentation. Also, they now had the benefit of being able to use visuals as a means to help guide them through the talk (since clearly that is what those AV supports often do in most cases if used correctly).

Following these three presentations, the same general assignment was given for a nontechnical and then a technical presentation on a blackboard (or whiteboard). In the case of the technical topic, it was also required to use mathematics in the presentation. Again, the time for each presentation was 7 minutes with a time warning at 6 minutes. Now, it is safe to say a blackboard-type presentation is without a doubt the most difficult for most speakers and this is no real surprise. This occurs since not only is the speaker trying to make eye contact with the audience but now they are also required to write on a board (often with their back to the audience) and yet make the presentation flow with the spoken word as well.

In short, this is not so easy to do in a brief time period without practice. It is even more difficult when trying to use a series of mathematical equations to cover some topic and keep it well organized on a blackboard so the audience can clearly read the material. In addition to requiring organization of the material on the board, the presenter must practice all other principles/rules we have discussed as well. Needless to say, it was this specific presentation that sometimes was so poorly done the entire class had to repeat the assignment.

For the sixth talk, a poster presentation was used. The reason was that a good share of scientific meetings today make much use of poster presentations. In fact, it is often where science students first make their debut in the world of scientific presentations. Not only do they have to learn about the visual aspects of the poster itself and how to organize this with color accents, font size, etc., but when giving such a presentation, as likely the reader knows, one is often interrupted by questions. Hence, the presenter must be particularly careful in staying organized but also maintain the flexibility of answering questions along the way. The length of this presentation was on the order of 10 minutes and thus only about five or so poster presentations could be given in a double period due to poster setup, open class evaluations, etc.

The final or seventh talk was a PowerPoint presentation—in the early years of this class it was a 35mm slide presentation. The topic was the student's research area and it was to be 15 minutes in length—the longest of all the presentations so at least two class meetings were needed to cover all the class presentations for that assignment. This gave the students a good opportunity to focus on their own research yet have to present it in a way other students working in other research fields could gain knowledge from the talk. Generally by the time of the seventh talk, the students were doing quite well and it was very satisfying to see the degree of progress made during the semester.

It might be useful to comment on how members of the class were often enlisted into the course. First, some students were urged to take this course by their respective graduate advisor if the student was believed deficient in oral communications. Secondly, after the course was taught a few semesters, the author unfortunately had to be selective since the course had become viewed as very useful for enhancing an individual's ability as an oral presenter. It is again pointed out that a larger class size would not allow for each class member to be able to undertake seven presentations that varied in type and time allotment. Hence, while a small class size was possibly one drawback to the course, there is little doubt in the author's mind that the general format should not be given up in order to raise the class size, for it would have diluted the overall goals of this rather specialized graduate course. In fact, in conversing with other graduate faculty at several other universities, the author is not aware of any similar oral communications course taught elsewhere with a similar



format. Most graduate science or engineering departments do not offer a focused course in oral communications. It is often common for graduate students to just give their graduate seminar in a departmental setting ahead of their final exam/defense, and by that time it is likely too late to promote major changes in their style of oral communication.

## SUMMARY

In reflecting on the subject of oral communication and its importance to not only one's career but also to one's life as a whole, it is hoped the contents of this article, in which the author has tried to outline many of the basic considerations behind providing a quality presentation, will be absorbed by or taught accordingly to others in the future. While this author certainly enjoyed the teaching of core courses in his field of polymeric materials and their structure property behavior, designing and teaching this communications course was one of my real enjoyments as an academician. This was particularly so when several of the students had little or no training in oral communication and I could therefore watch them "grow" in their ability to communicate. It is hoped that some of the academicians

reading this article will, in turn, be prompted to initiate such a course for there is a major need for scientists and engineers to hone their skills in this area. Without such skills, the benefits/value of their scientific/engineering work may well be greatly diminished from low-quality oral presentations made during their careers.

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