

THE COMMUNICATION CONNECTION®

Jim Watson, PE

Although our profession is based on the application of technology, we must also apply effective non-technical skills to be successful. One of the most important non-technical skills is communication. This includes reading, writing, listening, one-on-one conversations, group and team discussions, presentations to peers, and formal project presentations to senior management, clients, and others.

WRITTEN COMMUNICATION

Preplanning

Preplanning is primarily identifying your readers and determining why they will read your material. By focusing on the reader, you gain a better idea of what to include and how much detail is appropriate. Then, you can use the proper tone and structure the content to be most effective for the reader.

To see the big picture in a writing project, start by answering the following questions:

- Who will read what I write?
- Why would they be interested in my information?
- How will they use this information?
- How much information do they need?
- What writing style is best for them?
- What is the deadline to complete this writing project?

Planning

After answering preplanning questions, the next step is to make an outline. A good approach is to use word processing software and identify major sections. Select information to fit the objective, as determined in the preplanning step. Most readers are busy, so they need to know enough facts to comprehend your message, but not so much that it becomes “information overload.”

As you consider what is important to readers, you can expand the content and increase your credibility by researching various sources of information relating to your topic. When you reference information from others, you demonstrate that you have researched a variety of sources and included more than your own thoughts.

If you collect information, record the source so this can be added to your reference list as you develop your report. Reference information includes the author, title or content description, and publication. A correct format for references is shown in the following examples:

Smith, J. M., and Van Ness, Hendrick, *Introduction to Chemical Engineering Thermodynamics*, 7th ed. New York: McGraw-Hill, 2005.

Alexander, Charles K., and Sadiku, Matthew N. O., *Fundamentals of Electric Circuits*, 4th ed. New York: McGraw-Hill, 2009.

Reference information is placed at the end of written reports in a Bibliography Section just before the Index.

© Copyright - Watson Associates

Organizing

The third step, organizing, is one of the most important. Engineers typically use logical thinking to solve problems, and a logical approach makes it easy to organize written material. In addition, the use of computers adds a very efficient way to prepare and organize an outline.

Using outline identification symbols will help you place information in the correct area of a well-organized document. Outlines save time, because the structure is established before details are added.

Modeling

An important step in building a physical product is to make a model, determine if it needs to be changed or refined, and make appropriate corrections before completing the final product. A similar approach can be used in developing your written document.

The outline is a model and provides a roadmap by defining where to place information. Add details in each section of the outline. Consider how much and what information is appropriate, based on the preplanning results. When you have completed all sections, you have a working model to review and revise.

Spelling and Grammar

While content is important, you also need to consider how your written work is packaged. You can establish a professional image by using correct writing principles and an interesting writing style. These will eliminate barriers that could distract readers. Correct English grammar, such as subject/verb agreement and proper punctuation, is the foundation for good writing.

Start by running spelling and grammar-checking software to identify misspelled words, errors in punctuation, subject/verb agreement, and other grammatical errors. Make corrections and then read your work on the computer screen. Test your model by reviewing the structure, and if necessary, rearrange information for better continuity. Think about how your readers will use information and make it easy for them to follow.

To complete your writing project, print a draft and review the overall structure by reading it aloud. Are topics and subtopics appropriate? Are various topic areas related, and do they fit into the overall story? Is the content written concisely without extra, unneeded words?

The final step is to make corrections from the last review, use your spell-checker one more time, and print the final product. If you have worked hard and followed each step of the draft process, you will have a very professional and effective written document.

Resources:

The Elements of Style, William Strunk, Jr. and E.B. White

<https://www.amazon.com/Elements-Style-Fourth-William-Strunk/dp/0881030686>

Engineering Skills for Career Success, Charles Alexander and James Watson

<https://www.amazon.com/Engineering-Skills-Success-Charles-Alexander/dp/0073385921>

PROFESSIONAL ON-SITE AND WEBINAR PRESENTATIONS

This discussion outlines how you can use proven skills and tools to plan and deliver effective and professional presentations. It was designed by an engineer specifically for members of the technical field. Recommendations are based on more than 2,200 presentations that I have personally given as a practicing engineer.

There are three major steps in the development of effective presentations:

- Planning and Preparation
- Practice
- Professional Presentation

The purpose of making a presentation is to clearly communicate your information to the audience so they can understand and use it. You should chart your course early, analyze your audience, prepare visuals, and rehearse your presentation several times.

A common mistake is to clutter visuals with too much information. Bullets should contain a few, key words and sketches and diagrams should be large and easy to read. Graphics and pictures enhance visual presentations. Properly formatted graphs are much easier to understand and remember than busy tables of numbers.

Reading a report or paper is one method of presentation that should be avoided. When you hide behind a lectern and read your paper word for word, the result will be boring and ineffective.

Even with good planning, audience analysis, and preparation of visuals, mechanical or technical problems may surface during the presentation. To minimize problems, check out systems before the presentation. This is especially important when giving webinars.

It is important to monitor audience response during on-site presentations. When signals indicate they are restless or bored, make changes in your delivery. If the number of participants watching your webinar starts to decline, you need to make some changes.

Proper use of visuals is a good method to keep audience attention. Demonstrate enthusiasm by changing voice levels and speed. Humor can be very effective but it also has risks. Keep all humorous stories short and relate them to the presentation. Never use humor that could offend anyone. When in doubt, leave humor out.

There is no substitute for actual experience. In addition to career speaking opportunities, Toastmasters International (www.toastmasters.org/) offers excellent training and speaking exercises. By taking advantage of opportunities to speak to a variety of audiences, you can gain experience and build speaking skills and confidence. This is also one of the best methods to enhance your professional career.

If you use the suggestions on page 4, you will reduce stress, minimize time investment, deliver an effective and professional presentation, and enhance skills that will build self-confidence for future presentations.

KEYS TO SUCCESS

Planning and Preparation Guidelines:

- Plan to invest 25 to 30 times the amount of time involved in delivering the presentation to develop, rehearse, and be familiar with information and visuals.
- Know your audience. In your academic career, your audiences are typically classmates, instructors, and visitors. In your working career, you may give presentations to peers, senior management, clients, and the general public.
- Start by using a word processor and preparing an outline of major points of your presentation. Use organizational skills to develop an effective structure to the presentation by arrange ideas in your outline to create a logical flow of information.
- Use PowerPoint or other presentation software and prepare visuals that are appropriate for the audience.
- Use major points of your outline as the foundation of visuals.
- Prepare visuals that are easy to read and understand. (review sample on page 5)
- Use dark backgrounds and minimal designs for word visuals. (suggest Arial font)
- Select 36 point, white, bold, all capital fonts for titles on one or two lines.
- Select 40 point, yellow, bold fonts for the first level of bullets. If you capitalize the first letter of each word, this increases clarity.
- Select 36 point, white, bold fonts for the second level of bullets and capitalize the first letter of each word.
- Do not use more than two levels of bullets.
- Limit each word visual to a maximum of six to eight lines.
- Prepare graphs and other pictorial visuals in simple, easy to understand formats.
- Add a reasonable amount of animation to emphasize important points.
Remember, developing animation takes a considerable amount of time.

Practice Guidelines:

- Rehearse by talking aloud and discussing information outlined by each visual.
- Understand GENERAL IDEAS and do not memorize specific words.
- Make sure the presentation will fit the allocated time.
- Practice with equipment and with visual transitions.

Presentation Guidelines when speaking on-site:

- Relax by taking a few deep breaths in the back of the room before starting.
- Start with an introduction of how your presentation relates to the audience.
- Maintain good eye contact and voice projection for the entire audience.
- Deliver the presentation by standing near the audience and not behind a barrier.
- Do not memorize your presentation – just talk to the audience about your project.
- Do not use written notes - use visuals to guide your discussion.
- Look at a monitor and do not turn your back to the audience to see the screen.
- Finish with a summary of the most important points covered in your presentation.
- When answering questions, talk to the entire audience and maintain eye contact.

Webinar Guidelines:

- Design presentation for 30-40 minutes to retain audience interest.
- Do not read presentation – use visuals for your notes and talk about visual content.
- Vary your voice level and speed to create an interesting presentation.
- Keep microphone close so your voice is easy to hear and understand.

Jim Watson, President

j.watson@ieee.org

(Sample PowerPoint Bullet Visual Format)

ALL CAPS, 36 POINT, BOLD FONTS (LIMIT TO 2 LINES)

- ◆ **Use 40 Point Bold Fonts**
- ◆ **Capitalize 1st Letter - Each Word**
 - **Use 36 Point Bold Fonts**
 - **Capitalize 1st Letter - Each Word**
- ◆ **Limit To Maximum Of 6-8 Lines**
- ◆ **Select Common Words**

Font: Arial, Bold (as in this example)

Colors: On-Site PowerPoint Visuals: Background: dark colors with little or no design (eliminate barriers)

Bullet Letters: title – white; first level bullet – yellow; second level bullet – white

Recommended Webinar presentation: Same as on-site PowerPoint Visuals

Webinar Option: Background white with no design; Letters: black (as shown in this example)