

A Communication Development Process for Science Classrooms

Off the Cuff

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This speech communication exercise centers on developing a few, simple strategies for extemporaneous speaking. The goal of this process is to empower students to become clear communicators and scientifically literate citizens. "Off the Cuff" shares additional learning opportunities with classroom teachers who want to integrate science and communication activities.

In the age of electronic mail and fast food, it is no wonder that the off-the-cuff (meaning "of the moment"—synonymous with extemporaneous and impromptu), speech has taken a stronghold in today's workplace and learning environments. A growing number of companies are adding an impromptu presentation to their interview regimen. Whether it is termed a briefing, an overview, a rundown, or a summary, the extemporaneous speech is today's answer to yesterday's formal oratory. Students, who today are offered opportunities to develop preparatory speaking strategies and strive to overcome the panic of speaking off the cuff, become the articulate citizens and leaders in science and industry of tomorrow.

National Standards

The [National Science Education Standards](#) mandate that "teachers of science guide and facilitate learning." It is important that they "orchestrate discourse among students about scientific ideas," and that they "promote many different forms of communication." This off-the-cuff communication exercise allows the science teacher to "structure and facilitate ongoing formal and informal discussion," as put forth in the National Standards. When students engage in science communication activities, their abilities to think, understand, explain, argue, and conclude become greatly enhanced.

Rationale

In an attempt to advance students' critical thinking skills, a growing number of science teachers are designing their curricula to include opportunities for students to practice real-life decision-making strategies. "Off the Cuff" offers a venue for this exercise. With clear communication strategies, teachers are offered four idea formats to incorporate extemporaneous communication exercises based upon science into their classrooms. First, however, it is important to understand the reasons for beginning with an impromptu speaking exercise.

The simple thought of speaking before an audience can send students into a tailspin. "I'm not prepared!" . . . "What'll I say?" . . . "What if no one listens?" are common responses to the public speaking challenge. The extemporaneous speech, presented as an informal, off-the-cuff exercise in which the students speak on an idea that they know and care about, is a viable starting point for introducing communication skills into the science classroom. It is the foundation upon which to build additional communication learning opportunities. The key is to convince the students that, with a clear idea, language is instinctive.

Language is Instinctive

Think about it. Almost all of our speech is instinctive and impromptu. We seldom have the time to plan for exactly what we want to say. Yet, when asked to speak to a small audience on the spur of the moment, our minds deliver mechanical, rapid-fire zingers like, "What will I say first?" . . . "What if I don't remember everything?" . . . "Can I interest my audience and keep their attention?" and on and on and on. This type of thinking is non-productive and needs redirection. Instead of focusing on the exact words to use, try focusing on an idea.

Generally, when people react to a given situation or want to cause someone to act in a certain way, they do it without notes or an outline. They simply deliver words that were generated by an idea or a need. Here is a scenario:

You are standing in line in the school cafeteria. After paying for lunch, you stop at the condiment table to grab napkins and utensils. You turn to ask the food service worker for ketchup. When you turn back, a student has grabbed your tray and is walking away with it. Do you stand there and have a debate with yourself about what to say? No. The fact is, you react immediately. Your goal is to secure your lunch. At this point, you are verbally empowered and you know exactly what it is that you want to say to the person who has your food. Your language is instinctive.

An off-the-cuff speech works in much the same way. The secret is to have an idea with a clear goal. Instead of focusing on the exact words, focus on the concept that you are addressing. When this happens, the exact words are not a concern because they will come.

Four Idea Formats for Building Off-the-Cuff Speeches

The next step is to choose an idea and apply it to the presentation. Here are some suggestions:

1. State a Problem and Give a Solution

Present and define a societal problem. Show your audience that you care. Appeal to their emotions, telling them why they should care too. Propose steps to reaching a realistic solution to this problem.

Sample topic:

- The mission of Genesis is to study the composition of the Sun in order to better understand why the Earth is such a unique planet. Understanding clues in the chemical composition of the Sun and how it differs from the Earth and other planets is important, especially for understanding why life occurs on Earth. A direct implication is our relationship to liquid water, which is basic to our existence. Water conservation efforts should be a high priority for every American citizen. According to John Hayes of the Woods Hole Oceanographic Institute, "If you put the right kinds of elements together, you get a planet. If you have a planet in the right place, you get a climate. And if you have the right kind of climate, life develops." How might our lack of attention to the liquid water on Earth affect us?

2. Base your Speech on a Quotation

Identify a quotation that speaks to you. Open with the cited quotation and then offer your commentary. Why does it speak to you, and what does it say?

Sample quotations:

- According to Dr. Don Burnett, Principal Investigator and Lead Scientist for the Genesis mission, " Science is basically infinite. Once you get into research, it always expands; it never converges. When you answer one question, it raises six more."
- Dr. Chet Sasaki, Genesis Project Manager, suggested that, " Twenty years from now we will have freer, broader access to space. There will be more launches. We will have been to all the planets and will have landed on several, not just the Moon and Mars. We will understand the solar system better by then."
- The video on the Genesis Web site notes that, "The Hubble space telescope expands the horizon by billions of light years and puts deep space into focus. And yet, the further away we send our spacecraft, the further away we get from our solar system origin. It's time to look inward, to look back in time and discover what the solar nebula was made of."

3. Agree to Disagree

Offer the pros and cons on a topic that you can see is clearly controversial. Maintain objectivity, and list all of the reasons why something is and is not a good idea. Let your audience decide for themselves whether or not this is a good idea. You may ask them to draw an opinion based upon your off-the-cuff speech. If time allows, at the conclusion of your presentation, you may want to open the floor for their feedback.

Sample topics:

- The NASA Discovery Program operates under a "faster, better, cheaper" mode of work.
- Space science exploration is largely focused on robotics.
- It is important to know why the Sun and the Planets are different from one another.

4. Begin with an Interesting Fact

Think of a little-known fact or a recent, topical news event that has captured your interest. Use this interesting point to catch your audience's attention. Develop your point to illustrate how we often take commonplace things at face value or make assumptions without question.

Sample topics:

- Solar wind particles can't easily be captured by Earth-orbiting satellites because Earth's magnetic field deflects most of the solar wind.
- Research from NASA missions impacts our present-day technology. Case in point: the same laser gold coating that will be used on the diamond collector on the Genesis spacecraft is used in modern-day thermometers.
- Long-range telescopes can analyze the atmosphere of a planet to look for chemical signatures that might mean the presence of life.



Putting the Presentation Together

An off-the-cuff speech is not long or involved. "How long?" is often the first question from the class. Three minutes is a good goal. Also, this type of presentation generally means using no notes. However, the phrase "off-the-cuff" originated with British parliamentary speakers who were said to deliver their orations from notes scrawled hastily on their starched cuffs. Therefore, if jotting down a few key words to help the speaker stay on course will greatly increase his or her comfort level, go with it. This is especially helpful when the student is opening with a quotation or is including a set of statistics. Eventually, the speaker will be able to dispense with the notes. It's important to remember that the goal is for the student to think on his or her feet, not off of a card.

"In Conclusion, . . . "

At this point, the student has identified the idea, chosen a format, perhaps jotted down a few notes, and is ready to go. Contrary to a common perception, the greatest obstacle in the off-the-cuff speech is not figuring out how to get started; it is knowing how to stop. The conclusion need not be elaborate. What it needs to be is direct and to the point. The alternative often ends with the speaker having come to the end of the idea, voice trailing off, with a shrug to the audience. Instead, encourage the student to develop one or two stock closers, like, "That concludes what I have to say about cleanroom technology. Thank you for your attention." Or, "In ending my remarks, let me leave you with one thought that I hope will be with you well beyond this morning . . ." or, "That wraps up my talk for now. I will be happy to speak with any of you personally at the end of this session. Thank you for listening." None of these closing statements is unique. At this point, the audience isn't looking for depth. They are looking for a sign that the speech has reached closure.

A Final Word

Here are some important points to remind students:

- The audience is on their side and wants them to succeed.
- The off-the-cuff speech brings with it an air of informality. The audience doesn't expect a formal address.
- The off-the-cuff speech offers the opportunity to speak in a conversational style.
- The off-the-cuff speech offers a greater degree of freedom than a prepared speech.
- The audience expects a speaker, some words, an idea or two, and maybe an interesting insight.

Once students have made a few extemporaneous speeches, they will experience a number of things:

- 1) High school students will become more comfortable in a public speaking arena.
- 2) Speaking publicly can be a fun and satisfying exercise.
- 3) Critical-thinking abilities and decision-making skills can be refined.
- 4) The field of science offers opportunities to students that extend beyond research.

It is important to critique impromptu speeches for purposes of skill development. For the first speaking exercise, you will want to limit your critique to a few words of encouragement. With subsequent speeches, as the students' confidence builds, you may engage in a more direct line of approach. The foremost rule is to find something good to say about each student's presentation. Remember to focus on the presentation and not the presenter. In offering constructive criticism, focus on the future. Talk about the student's next presentation and what techniques and ideas upon which he or she will want to build.

Teacher Resources

The following Web sites and publications offer additional opportunities for professional development and research in communication activities:

<http://sorrel.humboldt.edu/~speech/speeches.html>

These WWW sites link to online speeches and sites of interest to teachers and students who are researching topics and preparing speeches.

<http://www.geocities.com/~spanoudi/quote.html>

This collection contains thousands of quotations that are suitable for speaking topics.

Ailes, R. (1995). You are the Message. New York: Doubleday.

This book centers on the tools to persuade and influence people by focusing on words, voice, movement, facial expression, and attitude.

Lucas, S. E. (1998). The Art of Public Speaking. New York: McGraw Hill.

A resource book that is widely used in higher education classrooms across the U.S. and offers basic instruction in communication strategies and techniques.