

=====

APPALACHIAN SEARCH AND RESCUE CONFERENCE, INC.

=====

Allegheny Mountain Rescue Group

MEMBER INFORMATION PACKET

HANDOUT ON TEACHING  
by Keith Conover, M.D.

Version 1.0 November 1985

Copyright (C) 1985 by AMRG

=====

ASRC Basic Members are expected to do a variety of things to help the ASRC in addition to keeping up their certification and participating in missions: voting in elections, for instance. Since the ASRC advertises that it provides outdoor safety, survival, and technical rescue instruction, Basic Members are occasionally asked to teach an evening or weekend seminar.

Teaching is a skill just like land navigation or technical rescue. As with these other skills, teaching is best learned by observing others critically and through practice; and, as with rappelling, there are a variety of ways to lecture that work equally well, but there are also few techniques are just plain wrong. The attached readings, plus a few notes I've listed below, may help you to avoid glaring mistakes while you develop your own style.

Some rules for slide presentations:

1. If you turn out the lights for slides, half of the class will fall asleep. If it's right after lunch, ALL of the class will fall asleep.
2. Use color in your slide presentations (stick in some nice mountain scenes just to keep everyone interested and awake).
3. Use your slides to illustrate your talk; don't insult your audience by reading the slides to them.
4. Don't talk to your slides, talk to your audience. Keep good eye contact.

Some rules for any presentation:

1. Don't EVER rush your presentation. If you don't have enough time to complete your planned talk, cover just as much as you can do well in the time allotted.
2. Don't apologize.
3. Don't say "um." Say nothing and look thoughtful. A few seconds of silence will be unnoticed by the audience, however painful it may be to the lecturer. (*"It's better to keep one's mouth shut and be thought a fool, than to open one's mouth and remove all doubt."*)
4. If you're presenting something conceptually complex, break it down into portions, ones that are easy to assimilate. Present each portion in at least two ways; part of your class will understand one presentation, and another part will understand the second way of presenting it. If you're lucky, only a few won't understand either of the ways it's explained.

5. Don't present lists with more than three or four items; longer lists are worthless, because few people will be able to appreciate or remember more than two or three items on the list. If you have several related items to present, group them into no more than three or four related categories, and present your list of categories first. Continue to break things down this way until you have no lists longer than three or four items.

Signs and symptoms of mild hypothermia--

- 1) mental dysfunction
  - 2) physical dysfunction
  - 3) protective efforts
- 
- 1) mental dysfunction:  
impaired short-term memory  
difficulty concentrating  
slurred speech
  - 2) physical dysfunction:  
difficulty walking  
numb fingers  
inability to use fine coordination, as in tying boots
  - 3) protective efforts:  
uncontrollable shivering

Use analogy, metaphor, and simile whenever you can, because they make it easier for your audience to relate to what you're saying, and easier to remember. If the analogies are only fair, use them anyway, but briefly explain their limitations (e.g. a hypothermic person acts drunk; but unlike a drunk, will often have uncontrollable shivering).

6. Use lots of examples.
7. Get close to your audience, and if possible, keep moving; this makes it harder for the audience to ignore you and fall asleep. If there's a lectern, DON'T stand behind it, except perhaps if you've got a very large audience or if they're throwing things at you.

## ATTACHMENTS

1. *Manuscript: Speech Techniques*. Richmond Virginia Chapter, American National Red Cross, Safety Programs Division. 10 pages including cover sheet.
2. *General Rules of Courtesy*. From the Scientific Monthly, LXVI.1, Jan 1948. 3 pages.
3. *How to Say a Few Words*. From Nation's Business, July 1966. 4 pages.
4. *Instructor Evaluation Form*. Virginia Division of Emergency Medical Services. 1 page.

*We are more likely to reach the truth  
through error than through confusion.*  
Francis Bacon (1561-1626)

MANUSCRIPT

SPEECH TECHNIQUES

RICHMOND VIRGINIA CHAPTER  
AMERICAN NATIONAL RED CROSS

SAFETY PROGRAMS

R. G. LAWRENCE  
DIRECTOR

## A Instructor - Student Contact.

### 1. Class attention can be gained by speaking or physical manifestation.

Get the attention of the class first. Do not start the class until you have the attention of the students. In some cases, walking toward the center of the platform will cause men to quiet down and listen; more often, it will be necessary to ask for their attention. A simple "Your attention, please!" will produce desired result.

### 2. Look at and talk to your students. Observe people in earnest

conversation and you will notice that the speaker does not look out the window or at the floor or ceiling. He looks his listeners in the eye. He probably is not conscious that he is doing so; the earnestness of his purpose naturally finds its expression in this personal contact. Address your students and not the training aids or the distant landscape. Give every student the feeling that you are looking at and talking directly to him. Keep eye contact.

### 3. Speak in a conversational tone. Do not let your voice reflect an impersonal, indifferent attitude. Do not orate or declaim. Make frequent use of the pronoun "you"; identify yourself with the students by "you and I" or "we". Leave the impression that you and they have something in common.

### 4. Be alert and look alert. Know what is going on in your class. Pay close attention to students' responses. Listen carefully and evaluate their comments and answers to your questions. Be quick to spot an inattentive student. Look directly at him. Take a step toward him--or ask him a question. Continually ask yourself, "Do my students understand?" Check frequently to make sure they are following you.

## Controlling Nervousness.

1. Be thoroughly prepared. The first step the instructor can take to overcome excessive nervousness is thorough mastery of the subject and the plan for teaching it. Then he must realize that the students are there to learn and that they are more interested in the subject than in the instructor. Think of the subject and of the learning that should result from the instruction, and nervousness will take care of itself.
2. Assume the proper mental attitude. The most reliable weapon the instructor has for overcoming nervousness is a proper frame of mind toward himself, his students, and the entire instructional setup. To assume a proper frame of mind, he must make an intelligent, rational analysis of the situation. He must realize that the basis for the very unpleasant mental and physical reaction he experiences when before a class is fear--not of bodily injury, but of what the students will think of him and his instruction. Students expect their instructor to have full knowledge of the subject and to be able to teach it effectively. Although students focus their attention upon instructors, they do not immediately place them on trial. If the instructor has mastered his subject and has made thorough preparation, he has eliminated the real reason for fearing the reaction of the students; he has every right to a feeling of self-confidence, which will go far toward making his presentation a success.

3. Have initial remarks well in mind. The first few moments are the most difficult; get past these and things will go well. It is advisable to have the lesson introduction so well in mind that no notes are needed.
4. Review Previous instruction. By starting with a reference to a phase of training previously completed, the instructor immediately causes the students to focus their attention on something with which they are familiar. The instructor thus meets the students on common ground.
5. Tell a story. Nothing releases tension so quickly as a bit of humor injected early in the introduction. Remember that the story should make a point that can be related to the subject. When setting out to get a laugh, try to get one, but don't burst their sides; the next class may respond more vigorously. No great harm is done if a story falls flat once in a while.
6. Be deliberate. When a person is nervous, body activities tend to speed up. Instructors should remember this when they are faced with nervousness. They should be deliberate in movement and careful not to talk too fast. After a few moments of deliberate control, the stage fright will pass and the instructor's normal poise and bearing will take over.

#### C. Maintaining Bearing.

1. Good posture. Take a position from which the entire class can see you and from which you can see all of the class. Stand erect with weight evenly balanced on your feet. Look physically and mentally alert, but do not stand rigidly at attention. Relax. Let the hands and arms

hang freely at your sides. The hands do not appear as large and awkward to students as they might seem to you. If you simply cannot let them rest at your side until ready to use them, clasp them in back of you or let one hand rest on the speaker's stand temporarily. Do not wring and twist them nervously. The basic rule to remember is moderation. Don't remain glued to one spot and don't keep on the move all of the time. When you do move, move briskly and with purpose. As your skill and experience increase, you will find movement becoming less obvious and more meaningful.

2. Use gestures. A gesture is the movement of any part of the body to convey a thought or emotion, or to reinforce oral expression. Your arms, hands, and body are your principal tools of gesture. When instructing, let your gestures be natural; never rehearse specific gestures for use at definite points in your presentation. They should arise spontaneously from enthusiasm, conviction, and emotion. Do not try to emphasize every statement with a gesture; to do so will defeat the purpose of gestures.

#### D. Being Enthusiastic.

1. A physically vital instructor holds class attention.
2. Enthusiasm is contagious. It is evident in one form or another whenever a person is doing something he sincerely likes. If an instructor is sold on his subject and conveys this feeling to the class, he will keep his students interested and eager to learn. Further, an enthusiastic instructor will help his students to develop a favorable attitude and appreciations for training programs. The basis for an instructor's enthusiasm is a thorough knowledge of the material being taught and its usefulness to his students.

## Using the Voice.

### 1. Voice power and resonance.

- a. Training of the voice emphasizes correct articulation and enunciation which develops power and resonance.

### 2. Voice quality. Voice quality is the characteristic that distinguishes one voice from another. Some voices have a pleasant quality; others are unpleasant. However, the average instructor has a voice quality that can be made pleasant to his listeners, and further developed by overcoming any tendencies he may have toward nasality, hollowness, hardness, throatiness and monotone. A monotone has a deadening effect on students. Inflection will assist in overcoming monotone, in providing proper emphasis, in making the presentation more intelligible, and in providing a pleasing variation that will hold students' attention. Expressive speech may be obtained by change in the pitch, volume (loudness), rate of speech, or by a combination of all three.

- a. Pitch. Pitch of the voice should be the natural pitch that is used in conversation. The instructor should determine the pitch level at which he can speak with greatest ease and clarity and then vary this pitch to produce emphasis where needed. Variation of pitch breaks monotony and adds interest to the delivery.

- b. Volume of voice. The instructor must speak loud enough for all students to hear without difficulty. On the other hand, too loud a voice is deadening and the hearing or hearing attention of the student soon dulls in self-defense. Loudness requires volume-- that is, the space-filling character of the voice. A thin voice can be loud, but mere loudness is not sufficient. If the instructor's voice has the proper volume, the students feel comfortable while listening. The instructor should vary the volume



3. Being sure you are understood.

- a. Choice of words. Since language is the most important single tool of the instructor, he must develop a healthy regard for words. His words must be carefully chosen and his sentences must be developed clearly and logically. The right word in the right place is the keynote of effective speech as well as effective writing. Verbal communication depends on using those words that have the exact shade of meaning to make the thought clear. Consider the educational level of the group you are teaching. Use terms that are common to the vocabularies of your students. Do not try to impress students by using words with which they are not familiar. An instructor's purpose is to clarify, not to confuse. If certain complex terms are essential, use them, but define each new term the first time it is used. Use strong, meaningful, descriptive verbs that will leave vivid impressions. Add interest and color to your presentation by using a variety of descriptive terms. Use a variety of connective words; "and" is not the only connective in our language.
- b. Formation of sentences. Careful selection of words implies that they must be grouped properly in order to express ideas clearly and accurately. Use short sentences. Signal the end of your sentences by voice inflection. Eliminate unnecessary words and phrases. Do not pad sentences and clutter delivery with trite expressions.
- c. Pauses. Pauses provide the punctuation of speech. The proper use of pauses accomplishes four things: students are able to absorb ideas more easily; you get an opportunity to concentrate on your next point; you give emphasis, meaning, and interpretation to your ideas; and you get a chance to breathe. They should be clear and

with the size of the class the the conditions under which the instruction is given. He can change volume to accent the proper syllables of words. Accent in pronunciation is described as a greater force or stress on a particular syllable. This means change in volume. Too great a volume of voice makes it difficult to change volume for accent and variation, and more difficult for the student to catch these changes in volume. Proper volume is especially important when teaching outdoors or in a building with poor acoustics. By watching student reaction, an instructor can tell if they are having difficulty in hearing. If there is any possibility that the volume of your voice is not satisfactory, have an assistant in the rear signal you so that you can adjust your voice to the class.

- c. Rate of speed. Rate of speech should be governed by the thought, idea, or emotion that is being communicated to the students. Complex material should be presented slowly. The instructor should also consider the learning ability of the class in determining his speed of delivery. Change in the rate of speaking will create pleasing variations and produce emphasis. Expression and variety can be obtained by a change in pace. Advance your speed once in a while, but also slow down or pause occasionally to lend variety and emphasis. Beginning instructors should tape record a presentation to check the rate of speech. Between 120 and 150 words per minute, is a normal speaking rate. If you speak over 160 words per minute, students may have difficulty keeping up with you; if you speak under 90 words per minute, you normally will cause students to lose interest. Over-rapid delivery tends to confuse students; over-deliberate delivery tends to irritate them.

decisive; the "er-r-r", "ah", or "uh-h" in the pause is a mental crutch that instructors cannot afford to use. The deliberate pause should not be confused with the uncertain hesitation. Pauses are a definite part of the art of speaking.

- d. Enunciation and pronunciation. Instructors must speak clearly and distinctively. Strive for clarity of expression. It makes no difference what part of the country you are from; enunciate clearly, and students from all parts of the country will be able to understand you. It's not necessary to change your whole pattern of speech. Pronounce or accent each syllable distinctly and clearly. It may be necessary to enunciate more forcefully and deliberately when instructing a large group than when carrying on a conversation. Be particularly careful to enunciate each syllable of new terms that may not be common to the vocabulary of your students. Avoid slurring, swallowing, or mumbling words.
- e. Thinking while speaking. Speaking is not a purely mechanical procedure. Instructors' words must not only be spoken clearly and distinctly, they must also be chosen and grouped to express clear and definite ideas. An idea to be expressed clearly, must first be thought out. Ideas are formulated with words. The faulty choice of words that makes for weak expression is indicative of faulty, weak thinking. Learn to think while standing before the class; think on your feet. During the pause that follows a statement, formulate the next sentence. As you speak, think about what you are saying. If you have difficulty finding words to express yourself when standing before your class, try writing the key points of the lesson, in short, complete sentences. You can clarify your thinking and improve your

presentation by writing the complete text of what you intend to say; however, an outline, rather than the written lesson, should be used when actually presenting the material. As a last resort, memorize key statements.

F. Develop Effective Speech Habits.

1. A critical understanding. First, develop a critical understanding of why the speech of others is either good or needs improvement. While listening to a television or radio speaker, try to analyze the speech techniques employed. In other words, become alert to how others speak.

## GENERAL RULES OF COURTESY

Be late in arriving for the session and make enough commotion to attract notice when you enter. Be sure to shake hands with friends on the aisle while your predecessor is talking.

If a public-address system is available, avoid it. If one is not available, complain that you cannot speak decently without one; then proceed in a slow monotone. If you speak before a microphone and to a radio audience, let the audience before you go hang. Your outside audience is greater and, naturally, far more important.

As for tempo, or speaking rate, try to cultivate extremes of either 75 or 200 words a minute. Avoid 125 words per minute - it's a dull rate, and, if you should enunciate distinctly, you gamble on having your hearers understand individual words.

If you have a specific purpose, conceal it. When you use charts or diagrams, make them small and the lettering faint. Talk to the chart rather than to the audience. If you use slides or film strips, make certain that the projector does not function. This will allow you to make small sketches on the blackboard with your back to the audience while you talk in a low, confidential voice.

Writers of textbooks on speaking always harp on "conversational quality". It's a flat failure in poor speaking. To succeed, either talk to yourself or make an oration. Conversing directly with the audience is just another one of those impractical modern theories.

A sure-fire stratagem is to ensure somehow that your hearers are physically uncomfortable. If it is a warm day, see that the windows are kept closed, for poor ventilation lulls people into thinking (but not about what you are saying). Don't forget to arrange for strong lights in the audience's eyes. This is the same device used so successfully in -the third degree. Again, have the folding chairs wedged so closely together that there is no room between persons. Don't ask those in the rear of the room to come forward - it's vital to keep the audience scattered.

Insult your listeners. Either explain theories with which they are already familiar or tell them they wouldn't understand if you did explain. After all, they can always read your book if they want real enlightenment.

Do not exert your lung power. If you wish to succeed, speak so that the man in the back row wishes he were in the front row, the man in the front row wishes he were on the platform, and the man in the middle of the room wishes he were back home. This is complete coverage.

If you know you have only five minutes left, triple your rate and get in every word. Don't lose a single sentence.

When the speech is over, forget it. Don't recall audience reaction during the speech. It is nobody's concern, except possibly your own, whether you made yourself clear or whether you persuaded anyone.

### THE SPEECH

Use long and involved sentences throughout. Join clauses with and, but, and however frequently. If your sentences run about fourteen words in length, you risk becoming downright perspicuous. Shape them into rounded periods like those of Edmund Burke and William Pitt. A sentence is scarcely worth uttering if it is less than 150 words long.

Stretch out the speech. Repeat your points. Present the same idea in any number of different ways. Then backtrack and start all over. Never organize your speech - it's too confining.

Avoid humor like the plague. If you tell stories or anecdotes or capitalize on amusing incidents of the meeting, you will be marked as an unlearned and unscientific person. Try to stupefy. Look dull and act the part. (It may take less effort than you think)

Whenever possible use anticlimatic order. For making a reputation, there is nothing like letting down your listeners. Aristotle says that a speech should have a beginning, a middle, and an end. He was right about the first two parts, but the best poor speeches have no end. Those who unload them just go on and on. The past masters cultivate the false, or pseudo, conclusion. You, too, can temporarily arouse your audience with such phrases as "in conclusion," "To summarize," "To conclude briefly," "Let me now restate," "I want to again recapitulate."

Don't leave any time for questions or discussion at the end of the talk, but if you are caught unawares, give one or two curt, flip-pant replies and sit down. With you the weapons to use are sarcasm, disregard of the main point, argument ad hominum, and some ill-natured questions of your own in return.

The best-known speakers have become personalities. Audiences seldom remember what they said. The moral for speakers on scientific subjects is: Let your audience remember you, the speaker, and not your speech.

The rules for poor speaking are simple. The inherent good character of the speaker or his education and experience have little connection with them. The classical concept of the good orator being the good man skilled in speaking needs to be re-examined. A 1948 version is better: The poor speaker is the inadequate man with nothing to say who nevertheless can painfully consume 30-60 minutes of an audience's time without profit and without the slightest qualm of conscience.

Don't begin now or later to look at any books on speech organization or delivery. You will regret it if you seek advice on how to improve your speaking. If anyone suggests that you have a recording made of your voice, shun the idea. You will be disillusioned and may even become so upset as to want to do something about improving your voice - always a dangerous symptom of incipient good speaking.

Made in United States of America  
Reprinted from the Scientific Monthly  
Vol. LXVI, No. 1, January 1948

# HOW TO SAY A FEW WORDS

Your audience appreciates nothing so much as brevity. So stand up, speak up, shut up

In a big city hotel, a group of busy businessmen had gathered for a three-day conference. On the third day a speaker addressed them after lunch. Everyone was overinformed, overfed and tired of sitting.

The speaker, however, seemed totally unaware of their condition.

After 45 minutes—during which he missed three excellent opportunities to stop—he said: “I’ve talked too long and covered only half my speech.”

From that point on, his words were wasted. For his trapped audience had but one panic thought: How to escape.

Yet had he only considered his audience first, he would have been able to:

- Say a few words.
- Make a few points clearly.
- Inform, rather than antagonize, his busy, influential listeners.

In this fast-moving age, the speaker who can state facts or inspire listeners to action in a brief speech possesses an invaluable skill.

Brevity is difficult to achieve. The secret is preparation. It takes much longer to prepare a five-minute speech than an hour-long oration. But the effort spent on preparation is a good investment, because it helps you make the best use of your time while making the speech.

Speeches, like manufactured products, should not be created in front of the consumer. To sell him, you must present him with a finished product. In the same way, a speech should be delivered in its polished form, not manufactured before the audience.

Clergymen are often the brunt of jokes about the lack of brevity. A lad, having attended church

for the first time, was asked how he liked it. “The program was good,” he replied, “but the commercial was too long.”

However, I have heard plenty of boring speeches from businessmen. Some businessmen seem to feel a sacred attachment to every word which crosses their mind when they prepare the speech. They are incapable of cutting the speech to make it brief and alive.

Others talk “off the cuff,” resulting in a jumble of ideas too assorted to classify. Some use the tactics of the old-time orator and keep the audience awake only by the loudness of their voice.

Any attention these speakers get is due to the fact their audience is in their employ or in their debt.

Neither how loud it is, nor how long, is any test of the excellence of a speech. In an age with so many demands on our time, the man who gets ahead is the one who—in a private conversation or a public address—can say what he wants to say in concise, crisp sentences, remembering the adage: The mind can absorb no more than the seat can endure.

## How to write a short speech

A short speech is like the budget when business is bad—everything in it must count for something or be cut. There is no easy way to prepare a brief, meaningful speech. You must work, work, work to plan what you want to say in the clearest terms—and stick to that plan at the time of delivery.

You will achieve brevity primarily by editing. First write down your thoughts as they come to you without any concern for style or polish. Next go over these ideas, arranging them in logical order so they will be easy to remember. Then cut every sentence to the fewest possible words—and use simple words.

When the famous clergyman, Norman Vincent

EDWARD S. ZELLEY, the author, is an accomplished writer, public speaker and a former pastor in New Jersey, Delaware and Illinois. He is now Midwest representative of The Methodist Publishing House.



### **How to organize your talk**

One of the best formulas for organizing a speech is given by a public speaking expert, Richard C. Borden. He says the four parts of a speech could be classified as:

- Ho hum.
- Why bring that up?
- For instance. . . .
- So what?

The "Ho hum" suggests you are facing a bored, suspicious audience who must be awakened to an interest in what you have to say. Mr. Borden says:

"Don't open your speech on safety first by saying, 'The subject which has been assigned to me is the reduction of traffic accidents.'

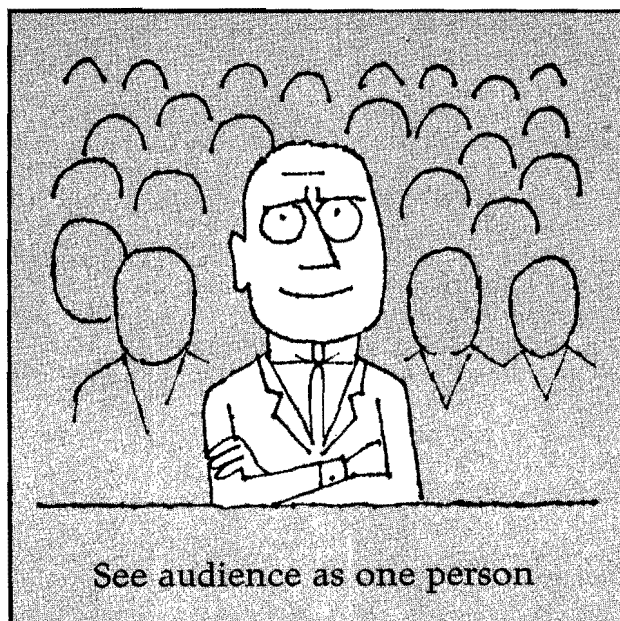
"Say instead: 'Four hundred and 50 shiny new coffins were delivered to this city last Thursday.'"

If your speech is on civic improvement don't start, "I have been asked to tell you about the problems of our community." Rather say, "Eleven stab-bings in 12 months at the Little Corner Inn have made some citizens aware of the civic problems we must face together."

### **Bring subject close to home**

"Why bring that up?" indicates that after you have gotten its attention you must tell your audience why it should listen to what you have to say. In the safety talk you might point out that one of those coffins may be for you or one of your friends, unless the warnings are heeded and the proposed suggestions acted on.

"For instance," of course, means you should use plenty of lively illustrations and examples to clarify the points you are trying to make. On the subject of safety you could use actual cases depicting the hazards persons face daily which might lead to injury or death.



Illustrative material may be found in your boy-hood days, incidents from the lives of your friends or of famous people from newspapers, periodicals or books on science, art, sports and the like. Each example should be: Illustrative—it should have a point; clear—meaning well expressed; specific—definite; animated—with life in it; colorful—not gray; timed—for climax.

"Why bring that up?" and "For instance" are the meat of the sandwich. They fit between the opening, which grabs attention, and the closing, which restates the theme and asks for some kind of action.

Referring to "So what?" Borden says: "The end of your speech, like the end of your pencil, should have a point." Tell your audience clearly what you expect them to do about what you have been telling them.

### **Tips on preparation and delivery**

Beside preparation of the speech, there should be some preparation of the person who delivers it, namely yourself.

Keep in mind the need to speak loudly enough and clearly.

If you tend to mumble, work on the physical matters of speech. If you want full effectiveness, get a good book and give some attention to voice control, breathing and use of the body to convey meaning.

Giving a brief talk involves the whole being—body, mind and spirit.

Use your body—a clear voice, proper breathing to emphasise your words and gestures to help convey your thoughts.

Use your mind in the proper preparation of your text and outline, in editing, rewriting and remembering.

Use your spirit in both preparation and the delivery—in being yourself and in being sincere.

Do not be discouraged if at first you do not come up with a masterpiece.

Remember, in making his record of 714 home runs, Babe Ruth struck out 1330 times, and pitcher Cy Young, known for the 511 games he won, also lost almost as many.

In one African village a long-winded speaker is silenced by cries of "Imetosha" which means "Enough." Another allows a man to talk only so long as he can stand on one foot.

As someone has recommended: "Stand up, speak up and shut up."

It is easy to talk, but hard to be brief. But if you believe in yourself, have something to say, say it sincerely and in a few words, men—in these busy days—will fall at your feet in gratitude. **END**

INSTRUCTOR EVALUATION FORM

NAME OF INSTRUCTOR \_\_\_\_\_

1. Knowledge of Subject
2. Preparation and Planning
3. Questioning Technique
4. Student Participation
5. Selection and Use of Teaching Aids
6. Lesson Introduction
7. Lesson Development
8. Lesson Summary
9. Management
10. Control and Discipline
11. Achievement of Objectives

NAME OF EVALUATOR (Optional) \_\_\_\_\_



# speaking of fire

FALL 1987

## Constructing Tests That Work



By Craig Anderson, Ph.D.  
Oklahoma State University

Testing has been around since 2200 B.C. when the Civil Service system of China began conducting competitive tests. The emperor examined his officials every three years to determine their fitness for continuing in office. After three examinations, officials were either promoted or dismissed. Sounds familiar doesn't it!

### Qualities of a Good Test

In order for a test to measure what you want it to measure, it must have certain qualities. These are

1. A test must be objective.  
A test must be constructed so as not to influence the student in any way.
2. A test must be valid.  
Test items must cover only the material presented in class or assigned.
3. A test must be reliable.  
A reliable test will yield the same results time after time. But remember, a test item could be reliable and not be valid for that course.

### What To Test

Persons who make up tests should identify the main course content areas. They should identify what makes up the larger categories of subject material. These items should then be classified or listed in terms of simple to complex. Identify what are the important items: (1) terms or concepts to be defined or illustrated; (2) facts or specific types of information to be gotten across, such as dates, events, outcomes; (3) rules and principles which interrelate the above specifics (terms and facts); and (4) processes and procedures which are involved in applying rules and principles. These important items that have been identified will then become your test items, because hopefully, these have been the items that you have been teaching in class.

### Types of Test Instruments and Measures

There are hundreds of types of tests and measuring devices but they can be grouped very easily into the following:

1. Oral questions. Used generally as a

spot check in class or field training as a means of understanding a student's grasp of the concept as it is being taught.

2. Written tests. Generally based on information and understanding of facts, principles, and procedures. Usually based on knowing, and attitudinal content (or cognitive and affective, if your prefer).
3. Performance tests. The student is required to perform or demonstrate all or part of a procedure. Performance tests are based on the doing of performance elements of the instruction the student has received.
4. Observation of students at work. Rating scales can be prepared that list the skills necessary to perform the task.

### Common Types of Written Tests

#### True-False

True-false is one of the most common type of tests. It is generally useful for testing large amounts of information in a short period of time. True-false testing is less reliable than other types of testing instruments because there is more chance for the student to guess the correct answer, and it tends to measure memory rather than understanding of application. A good true-false test should contain at least 50 items. The theory is that the more items in the instrument the less chance the student has of guessing a high percentage of the answers correctly or incorrectly.

A good true-false question contains only one statement which is either all true or all false. Good example: Combustion is an act or instance of burning. Poor example: Combustion is always spontaneous.

Here are some suggestions for writing true-false test items:

1. Make sure that you do not fall into the trap of having one-half of the statement true and the other half false.
2. Make about half of all the questions all true and the other half all false and then mix them up at random so that no pattern of response clues exists.
3. Avoid double negatives.
4. Try to keep the language simple.
5. Make the statements as short as possible, as long statements tend to lapse into sometimes true and sometimes false.
6. Avoid game playing and trick questions.
7. Avoid words like: always, sometimes, usually, may, all, never. This type of word will help the student guess the correct answer. Often this type of true-false question is ambiguous enough to be either true or false.
8. Do not make true statements longer or shorter than false statements.
9. Avoid copying sentences from the text because many students remember the exact wording but have no idea of the meaning or usage of the items studied.

### Multiple Choice

This is no doubt the most popular type of testing found today. Technically speaking, it contains a stimulus statement that is referred to as a "stem." This stem is in the form of either an incomplete sentence or a direct question followed by a listing of alternative answers. These alternatives are referred to as "foils" or "distractors." There is no set number of distractors that are to be used; however, four seems to be the generally accepted number. Here are some hints to help you make up a good multiple choice test.

1. Keep the stem question or statement simple and short.
2. Make the distractors consistent with the language used in the stem.
3. Keep the distractors short.
4. If at all possible, keep the stem wording positive.
5. If you use negative wording, underline the negative word. Example: "Which of the following is not true?"
6. Two of the distractors should be completely false statements. One of the distractors should be close but completely wrong. And the fourth should be the only correct answer.

7. Avoid placing the correct answer always in the same spot. Many instructors making up their own test items tend to place the correct answer in the third spot or distractor "C." The reason for this is that the test writer finds a good question for a test item, thinks of two good distractors and then places the correct answer in position and then is faced with the necessity of coming up with something completely off the subject to make up the fourth distractor.

Many students are "test wise" when it comes to taking a test that was made up by an instructor. They know, for example, that many times the longest answer is the correct answer. This is because the inexperienced test constructor frequently makes the correct answer overgeneralized, overqualified and quite wordy.

### Matching

Matching is a modification of the multiple choice test. It contains multiple stems as well as multiple alternatives. Matching has an advantage over multiple choice questions in that it requires less space and is sometimes easier to respond to by the student.

continued on page 3

Nonprofit Org.  
U.S. POSTAGE  
PAID  
Permit 191  
Stillwater, Oklahoma

CENTENNIAL  
DECADE  
1980-1990

C - 03003514  
OK. KEITH CONOVER  
36 ROBIN HOOD RD.  
PITTSBURGH PA 15220-

Oklahoma State University  
Fire Protection Publications  
Fire Building  
Stillwater, OK 74078-0118

8410-1-3-26170-6010

## Constructing Tests

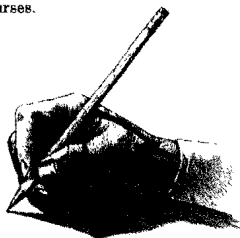
continued from page 1

The stems are generally placed in the column to the left. They may be given item numbers. A place for writing the correct alternative's designator is provided. Alternatives, which are in a column to the right (or below if necessary), should be given an alphabetical designator.

Alternatives should be placed in random order; no pattern should exist. Instructions should be specific and complete. Ideally, each stem should have one correct alternative. To make alternatives correct for more than one stem, or more than one alternative correct per stem complicates an otherwise straightforward testing device. If students find this confusing, the reliability of the test is decreased.

### Essay

While subjective, the essay type question has its place in the testing process. This type of question gives the test taker a chance to express his or her own feelings about a subject in their own words. Also, an essay answer gives a person a chance to express higher thoughts or include items that were learned in other courses.



However, essay testing should be used lightly. Lengthy type essay questions should be avoided. Responses should be short and concise.

An essay test takes proportionately more time for the student to take, and more time for the instructor to grade. The subjectiveness makes essay answers difficult to score. If the essay answer is read by two or more persons, they may disagree with the answers given and grade differently. Many times the instructor rates the handwriting or grammar rather than the response.

### Identification

This type of test is perhaps the most visual of all forms. It has features that appeal to many instructors. An actual picture or drawing from a textbook may be used and the student asked to identify the object or its components. In this type of test item, the instructor should be sure of the response that will be accepted as correct, or be prepared to accept alternative answers. If only one answer is correct, then the instructor must make sure that it was taught and learned in that form and no other.

### Completion

This form is merely the presentation of an incomplete statement and the student is asked to fill in the missing key word or phrase. It is important here to make the statement as unambiguous as possible. This type of test item is one that requires rote memory. It must be learned exactly as the instructor intends the student to answer.

### What to Keep in Mind for Teacher Developed Tests

Test questions should be based on the more important facts, theories, and procedures in the subject area. It is important to keep the course objectives in mind at all times.

Make sure that the test questions are not so general in nature that the intelligent student can figure out the answer even though he knows little about the specific subject. Intelligence testing should be left to an intelligence test de-

signed for that purpose. Do not use trick questions.

The language in all test items should be the same that was used in the teaching of the lesson. The reading difficulty of the test items should be consistent with the reading ability of the students. If the student knows the answer but fails to respond because of inability to read and understand the question, the reliability of the test is weakened. Test items that use illustrations and pictures may be more valid for certain technical content, depending on the subject and the reading level of the student.

Make sure that the test does not overemphasize a student's ability to memorize facts. This is a common problem in many tests. The ability to use and apply facts and principles gives a more valid measure of achievement.

When writing a test, it is a good idea to include recognition and calculation items. In order to evaluate the depth to which a student has learned, some items may be included which ask the student to make a judgment. A good example of this would be to choose the "best answer" from among a group of correct answers.

### Administering the Test

Students like to know where they are going and how they are going to get there as well as when. An instructor might like to prepare the student's mind by announcing a regular testing schedule. All tests should have written instructions at the top. Students like to ask questions before a test. A wise instructor will allow time to answer any last minute questions. Some of the things that you may want to consider as possible student questions are: 1. Do we work from front to back? 2. How much is each question worth? 3. What do we do when we are finished? 4. Is there a penalty for guessing?

After the test is handed out, the instructor or test administrator should stand quietly at the front or rear of the room and observe the reaction of the students to various parts of the test. There should be some type of pre-announced activity to occupy those who complete the test before the allotted time is over. Make sure that names are on all papers or scribble sheets. This sounds like a simple matter but it is the most common problem in testing — no names on the examination papers.

### Pretesting

If you want to know how much your students already know or how to introduce your subject matter before teaching it, you may consider the pretest. This is a very practical technique when teaching other instructors or other individuals who are somewhat knowledgeable in the subject. The pretest can be especially helpful when an instructor is facing decisions regarding eliminating or modifying course items. When using a pretest as an instructional tool, you should use questions of a general nature. That is, the items should be key points from the lesson, not obscure facts. In pretesting, the actual questions from tests will be given the students; do not make up special pretest questions in an effort to save your "real" ones. The pretest can be a valuable tool in determining what points to highlight and what points to only touch upon lightly.

### Conclusion

Testing and test making does not have to be a painful experience. Because so much is resting on the students and their performance and knowledge in the field, testing is important. Students need to know where they stand in the rank and file of their peers. As a result of the testing procedure, each student will be able

to move forward in areas of strength and will be aware of areas of weakness. Testing and test making may be the keys to better teaching.

### About the Author

Craig Anderson is an Assistant Professor of Trade and Industrial Teacher Education in the School of Occupational and Adult Education, College of Education, Oklahoma State University, Stillwater, OK.

Dr. Anderson is responsible for certifying vocational teachers in the state, teaching classes in safety, management of learning facilities, evaluation, special needs, and supervision of vocational programs.

In addition to these duties, Anderson has conducted seminars for Fire Service instructors, automotive fire suppression for the Sports Car Club of America, and facilitates CPR training each summer for vocational and industrial arts/technology instructors.

## Computer Connection

### APPLE IIc

#0092  
Chief Timothy R. Szymanski  
Winder Fire Department  
1030 North Broad Street  
Winder, Georgia 30680

We are looking for personnel files, pre-plans, and training files. Our department is a combination full-time/volunteer department.

#0093  
Patricia L. Brooks, PE  
Quantum Software Solutions, Inc.  
P.O. Box 640  
Ann Arbor, Michigan 48107  
(313) 791-2176

Quantum Software Solutions was formed to address the needs of small companies now covered by newly enacted OSHA and EPA regulations. A tutorial accompanies the software explaining the reasoning behind the enactment of the regulations and how to establish the proper record keeping, training, and reporting systems to keep the companies in compliance.

### IBM PCXT/512K

#0094  
Mike Smith  
Operations Technician  
Denver Fire Department  
745 West Colfax Avenue  
Denver, Colorado 80204

I have various fire department oriented programs written around Lotus 123 and dBase III software. Happy to share if floppies are sent.

If you have something to share, a request, or whatever, send it to Teresa Tackett, Fire Protection Publications, Oklahoma State University, Stillwater, Oklahoma 74078-0118.

### IBM PC or Compatibles

#0095  
Data Management Sciences, Inc.  
8420 Sheers Ct.  
Laurel, Maryland 20707  
(301) 775-6485

Computer software for the fire and rescue services. Designed by firefighters for firefighters. Incident reporting, accounting, personnel, company statistics, etc.

### Macintosh, IBM PC or Compatibles

#0096  
Karen Murphy  
Fire Protection Publications  
Fire Building, Oklahoma State University  
Stillwater, Oklahoma 74078-0118  
(405) 624-5723

Looking for any software that will convert US to metric. Please send all information to the above address.



## Fire Service Practices for Volunteer and Small Community Fire Departments

A general introduction to a variety of fire service topics.

### Includes:

- The Firefighter and the Department
- Chemistry and Behavior of Fire
- Personal Safety and Protective Breathing Apparatus
- Ropes, Knots, and Hitches
- Portable Extinguishers
- Hose
- Fire Streams and Water Supply
- Ladders
- Fire Apparatus
- Rescue
- Forcible Entry
- Ventilation
- Salvage and Overhaul
- Public Fire Education

6th Edition (1984) \$16.00