Chapter 3

Effective Communication

Introduction

Carol, a Certified Flight Instructor (CFI), has planned the first tailwheel flight with Jacob, her student pilot. She begins the preflight briefing with an explanation of the tendency of tailwheel aircraft to yaw in normal takeoff. This yawing tendency gives the illusion that the tailwheel aircraft is unstable during the takeoff. Since this yawing tendency occurs on every takeoff, it is predictable and the pilot is able to compensate for it. Carol then discusses the precession, which causes the noticeable yaw when the tail is raised from a three point attitude to a level flight attitude. This change of attitude tilts the horizontal axis of the propeller, and the resulting precession produces a forward force on the right side (90° ahead in the direction of rotation), yawing the aircraft's nose to the left. To demonstrate the yawing tendency, she places a model aircraft prop under a desk lamp. *[Figure 3-1]* By moving the prop, the shadow it casts illustrates the pitch change of the propeller when the aircraft is on its tailwheel and when the aircraft is raised to a level flight attitude.

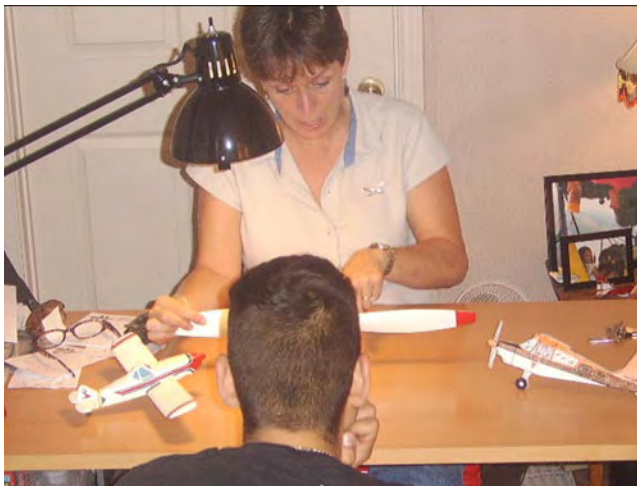

Figure 3-1. *An aviation instructor communicates with her student using model airplanes to ensure the student's understanding of the principles discussed.*

Effective communication is an essential element of instruction. An aviation instructor may possess a high level of technical knowledge, but he or she needs to cultivate the ability to communicate effectively in order to share this knowledge with students. While communication is a complex process, aviation instructors need to develop a comfortable style of communication that meets the goal of passing on desired information to students. The elements of effective communication, the barriers to communication, and the development of communication skills are discussed in this chapter. It is also important to recognize that communication is a two-way process.

Basic Elements of Communication

Communication takes place when one person transmits ideas or feelings to another person or group of people. The effectiveness of the communication is measured by the similarity between the idea transmitted and the idea received. The process of communication is composed of three elements:

- Source (sender, speaker, writer, encoder, transmitter, or instructor)
- Symbols used in composing and transmitting the message (words or signs (model prop/desk lamp in *Figure 3-1*))
- Receiver (listener, reader, decoder, or student)

The three elements are dynamically interrelated since each element is dependent on the others for effective communication to take place. The relationship between the source and the receiver is also dynamic and depends on the two-way flow of symbols between the source and the receiver. The source depends on feedback from the receiver to properly tailor the communication to the situation. The source also provides feedback to the receiver to reinforce the desired receiver responses.

Source

As indicated, the source in communication is the sender, speaker, writer, encoder, transmitter, or instructor. The effectiveness of persons acting in the role of communicators is related to at least three basic factors.

First, their ability to select and use language is essential for transmitting symbols that are meaningful to listeners and readers. It is the responsibility of the speaker or writer, as the source of communication, to realize that the effectiveness of the communication is dependent on the receiver's understanding of the symbols or words being used. For example, if an aviation maintenance instructor were to use aviation acronyms like ADs, TCDS or STCs or a flight instructor were to use aviation acronyms like ILS, TCAS, or TAWS with a new maintenance student or student pilot respectively, effective communication would be difficult if not impossible. Use of aviation acronyms or technical language is necessary, but the student must be taught the language first. Conversely, a speaker or writer may rely on highly technical or professional background with its associated vocabulary while addressing a receiver with a similar background.

Second, communicators consciously or unconsciously reveal attitudes toward themselves as a communicator, toward the ideas being communicated, and toward the receivers. These attitudes must be positive while delivering the message if they are to communicate effectively. Communicators must be confident; they should illustrate that the message is important and that the receiver has a need to know the ideas presented.

Third, communicators are more likely to be successful when they speak or write from accurate, up-to-date, and stimulating material. Communicators must constantly strive to have the most current and interesting information possible. In this way, the receiver's interest can be held. Out-of-date information causes the instructor to lose credibility in the eyes of the receiver. Use of monotonous or uninteresting information runs the risk of losing the receiver's attention.

Symbols

At its basic level, communication is achieved through symbols, which are simple oral and visual codes. The words in the vocabulary constitute a basic code. Common gestures and facial expressions form another, but words and gestures alone do not communicate ideas. Ideas are communicated only when symbols are combined in meaningful wholes, as

in ideas, sentences, paragraphs, speeches, or chapters that mean something to the receiver. When symbols are combined into these units, each portion becomes important to effective communication.

On a higher level, communication through symbols is achieved by their interpretation through different perceptions, sometimes referred to as channels. While many theories have been proposed, one popular theory indicates that the symbols are perceived through one of three sensory channels: either visual, auditory, or kinethestic. As discussed in Chapter 2, visual learners rely on seeing, auditory prefers listening and speaking, while kinesthetic learners process and store information through physical experience such as touching, manipulating, using, or doing.

The instructor will be more successful in gaining and retaining the student's attention by using a variety of channels. As an example, instead of telling a student to adjust the trim, the instructor can move the trim wheel while the student tries to maintain a given aircraft attitude. The student experiences by feel that the trim wheel affects the amount of control stick pressure needed to maintain the attitude. At the same time, the instructor can explain to the student that what is felt is forward or back pressure on the control stick. After that, the student begins to understand the correct meaning of control pressure and trim, and when told to adjust the trim to relieve control pressure, the student responds in the manner desired by the instructor. Most frequently, communicators select the channels of hearing and seeing. For motor skills, the sense of touch, or kinesthetic learning, is added as the student practices the skill.

The feedback an instructor is getting from a student needs to be constantly monitored in order to modify the symbols, as required, to optimize communication. *[Figure 3-2]* In addition to feedback received by the instructor from the students, students need feedback from the instructor on how they are doing. The feedback not only informs the students of their performance, but can also serve as a valuable source of motivation. An instructor's praise builds the student's self-confidence and reinforces favorable behavior. On the other hand, negative feedback must be used carefully. To avoid embarrassing a student, use negative feedback only in private. This information should be delivered as a description of actual performance and given in a nonjudgmental manner. For example, it would be appropriate to tell a maintenance student that a safety wire installation is not satisfactory. To refer to the work as careless would not be good and could do harm to the student's feeling of self-worth.

The parts of the total idea should be analyzed to determine which are most suited to starting or ending the communication, and which are best for the purpose of explaining, clarifying, or emphasizing. All of these functions are required for effective transmission of ideas. The process finally culminates in the determination of the medium best suited for their transmission.

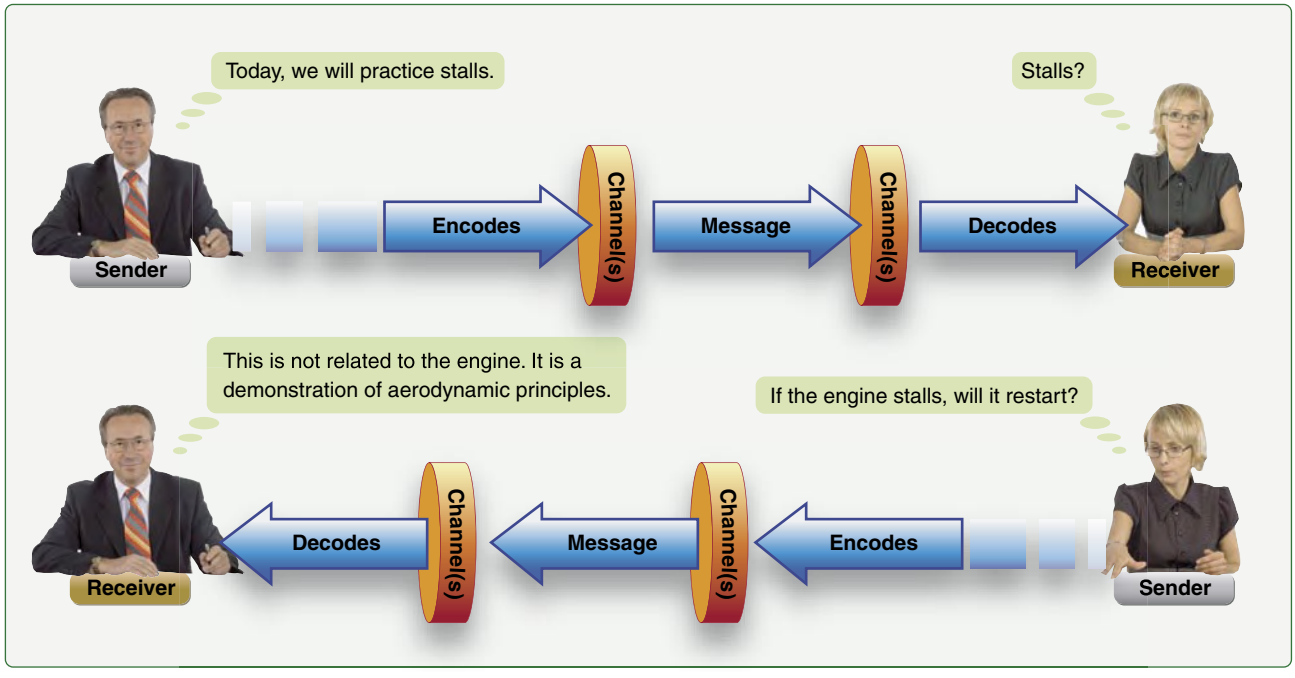

Figure 3-2. *The instructor realizes from the response of the student that "stall" has been interpreted by the student to have something to do with the engine quitting. Recognizing that the student has misunderstood, the instructor is able to clarify the information and help the student to obtain the desired outcome.*

Receiver

The receiver is the listener, reader, decoder, or student—the individual or individuals to whom the message is directed. Effective communicators should always keep in mind that communication succeeds only in relation to the reaction of their receivers. When the receiver reacts with understanding and changes his or her behavior according to the intent of the source, effective communication has taken place.

In order to understand the process of communication, three characteristics of receivers must be understood: abilities, attitudes, and experiences.

First, an instructor needs to determine the abilities of the student in order to properly communicate. One factor that can have an effect on student ability is his or her background. For example, consider how familiar the student may be with aviation. Their familiarity may range from having grown up around aviation to absolutely no familiarity at all. Some students may have highly developed motor skills, and others have not had opportunities to develop these skills. These factors must be taken into consideration when presenting information to a student.

Instructors in aviation enjoy a unique advantage over other teachers, in that the aviation student, as an adult learner, usually exhibits a much more developed sense of motivation and self-concept. The aviation student generally wants to be in the learning environment, as opposed to a typical school student, and is willing to expend his or her own time and money to learn. Additionally, they usually come into the learning environment with a significant amount of prior knowledge, many life experiences, and have already developed a number of decision-making skills.

The instructor also must understand that the viewpoint and background of people may vary significantly because of cultural differences. However, this consciousness of the differences between people should not be overdone. The instructor should be aware of possible differences, but not overreact or assume certain values because of these differences. For example, just because a student is a college graduate does not guarantee rapid advancement in aviation training. Student education certainly affects the instructor's style of presentation, but that style should be based on the evaluation of the student's knowledge of the aviation subject being taught.

Second, the attitudes students exhibit may indicate resistance, willingness, or passive neutrality. To gain and hold student attention, attitudes should be molded into forms that promote reception of information. A varied communicative approach works best in reaching most students since they have different attitudes.

Third, student experience, background, and educational level determine the approach an instructor takes. What the student knows, along with student abilities and attitudes, guides the instructor in communicating. It is essential to understand the dynamics of communication, but the instructor also needs to be aware of several barriers to communication that can inhibit learning.

Barriers to Effective Communication

The nature of language and the way it is used often lead to misunderstandings. These misunderstandings can be identified by four barriers to effective communication: lack of common experience, confusion between the symbol and the symbolized object, overuse of abstractions, and interference. *[Figure 3-3]*

Lack of Common Experience

Lack of common experience between the communicator (instructor) and the receiver (student) is probably the greatest single barrier to effective communication. Communication can be effective only to the extent that the experiences (physical, mental, and emotional) of the people concerned are similar.

Many people seem to believe that words transport meanings from speaker to listener in the same way that a truck carries bricks from one location to another. Words, however, rarely carry precisely the same meaning from the mind of the instructor to the mind of the student. In fact, words, in themselves, do not transfer meanings at all. Whether spoken or written, words are merely stimuli used to arouse a response in the student.

The student's past experience with the words and things to which they refer determines how the student responds to what the instructor says. A communicator's words cannot communicate the desired meaning to another person unless the listener or reader has had some experience with the objects or concepts to which these words refer. Since it is the students' experience that forms vocabulary, it is also essential that instructors speak the same language as the students. If the instructor's terminology is necessary to convey the idea, some time needs to be spent making certain the students understand that terminology.

For example, a maintenance instructor tells a student to time the magnetos. A student new to the maintenance field might think a stopwatch or clock would be necessary to do the requested task. Instruction would be necessary for the student to understand that the procedure has nothing to do with the usual concept of time.

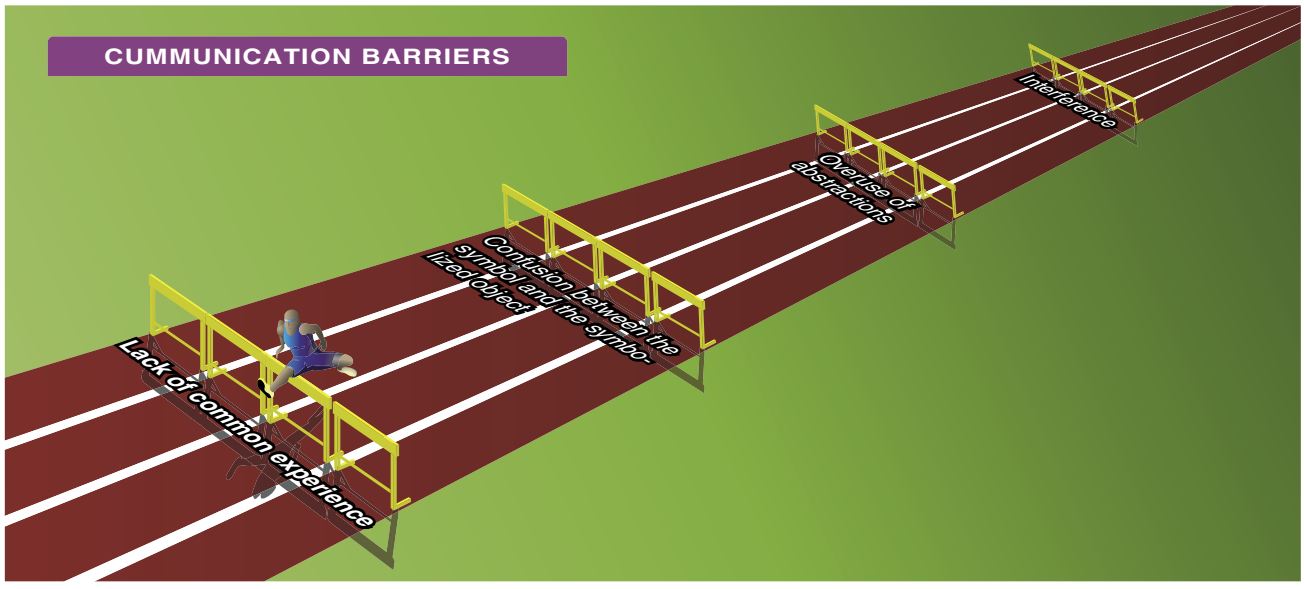

Figure 3-3. *Misunderstandings stem primarily from four barriers to effective communication.*

The English language abounds in words that mean different things to different people. To a farmer, the word "tractor" means the machine that pulls the implements to cultivate the soil; to a trucker, it is the vehicle used to pull a semi trailer; in aviation, a tractor propeller is the opposite of a pusher propeller. Each technical field has its own vocabulary. Technical words might mean something entirely different to a person outside that field, or perhaps mean nothing at all. In order for communication to be effective, the students' understanding of the meaning of the words needs to be the same as the instructor's understanding.

Confusion Between the Symbol and the Symbolized Object

Confusion between the symbol and the symbolized object results when a word is confused with what it is meant to represent. Although it is obvious that words and the connotations they carry can be different, people sometimes fail to make the distinction. An aviation maintenance technician (AMT) might be introduced as a mechanic. To many people, the term mechanic conjures up images of a person laboring over an automobile. Being referred to as an aircraft mechanic might be an improvement in some people's minds, but neither really portrays the training and skill of the AMT. Words and symbols do not always represent the same thing to every person. To communicate effectively, speakers and writers should be aware of these differences. Words and symbols can then be chosen to represent what the speaker or writer intends.

Overuse of Abstractions

Abstractions are words that are general rather than specific. Concrete words or terms refer to objects people can relate directly to their own experiences. These words or terms specify an idea that can be perceived or a thing that can be visualized. Abstract words, on the other hand, stand for ideas that cannot be directly experienced, things that do not call forth mental images in the minds of the students. The word aircraft is an abstract word. It does not call to mind a specific aircraft in the imaginations of various students. One student may visualize an airplane, another student might visualize a helicopter, and still another student might visualize an airship. *[Figure 3-4]* Although the word airplane is more specific, various students might envision anything from a Boeing 777 to a Piper Cub.

Aircraft engines represent another example of abstractions. When an instructor refers to aircraft engines in general, some students might think of jet engines, while others would think of reciprocating engines. Even reciprocating engine is too abstract since it could be a radial engine, an inline engine, a V-type engine, or an opposed type engine. Use of the technical language of engines, as in Lycoming IO-360, would narrow the engine type, but would only be understood by students who have learned the terminology particular to aircraft engines.

Abstractions should be avoided in most cases, but there are times when abstractions are necessary and useful. Aerodynamics is applicable to all aircraft and is an example of an abstraction that can lead to understanding aircraft flight characteristics. The danger of abstractions is that they do not evoke the same specific items of experience in the minds of the students that the instructor intends. When such terms are used, they should be linked with specific experiences through examples and illustrations.