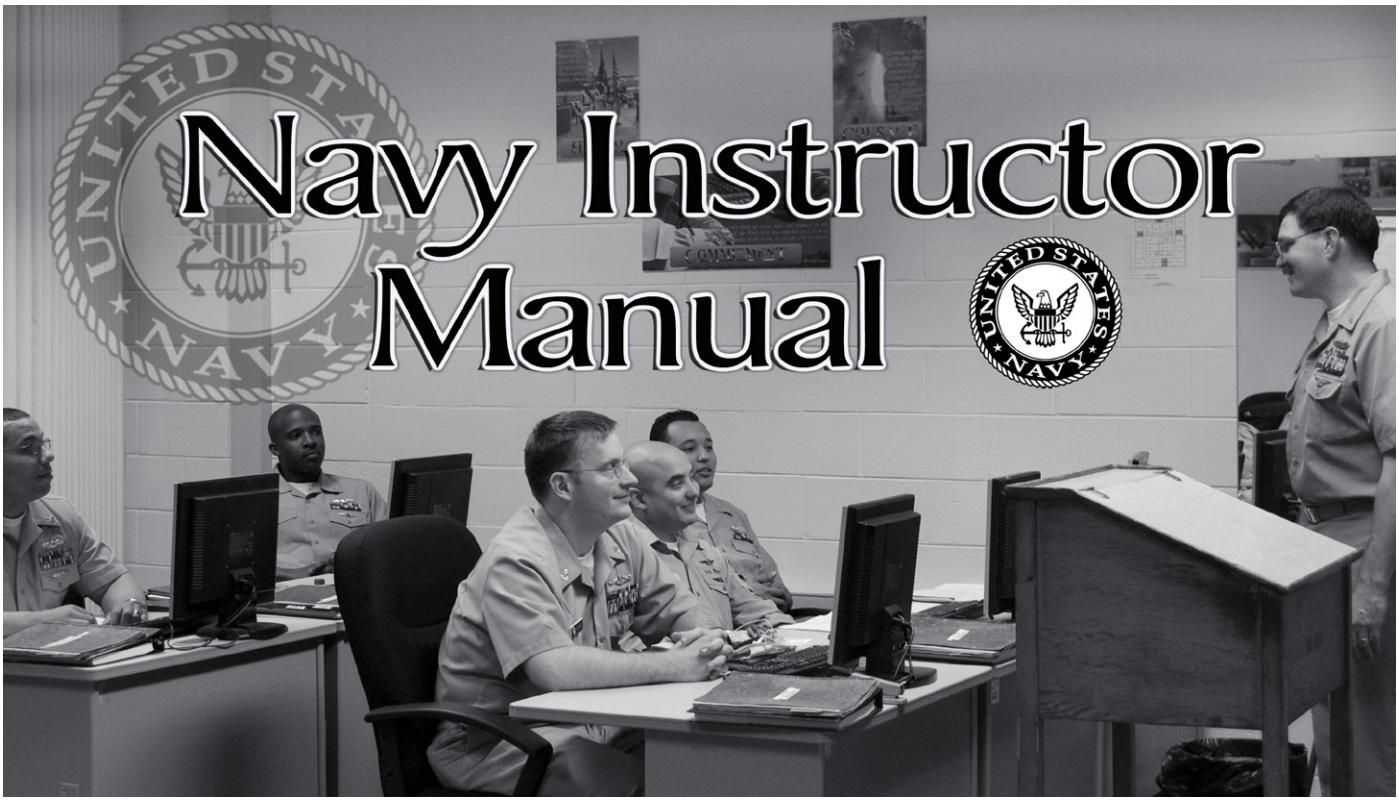
NAVEDTRA 134A
August 2009

Naval Education
and Training Command

Training Manual
(TRAMAN)



DEPARTMENT OF THE NAVY
COMMANDER, NAVAL EDUCATION AND TRAINING COMMAND
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LETTER OF PROMULGATION FOR NAVEDTRA 134A

1. This guidance manual has been extensively revised. Most of the revisions are in response to user comments and reflect a continuing effort to increase the manual's utility to the training field. NAVEDTRA 134A supersedes and replaces NAVEDTRA 134, dated August 1992.

2. This publication provides a basis for the delivery of instruction in Navy classrooms and laboratories. The procedures and guidance presented in this manual form a foundation for the practical application of instructional methods and techniques which will be developed through formal instructor training.

3. This manual will be used:

a. As a supplementary text for formal instructor training course A-012-0077, Journeyman Instructor Training (JIT).

b. As a reference guide for instructors in their pursuit of a Master Training Specialist (MTS) Designation.

c. As a basic source guide for instructor in-service training programs within Naval Education and Training Command schools.

d. As a general reference for personnel assigned to Navy instructor duty.

4. This publication is available electronically at Navy Knowledge Online (NKO) - NETC N74 Learning Standards Homepage; and Navy Marine Corps Intranet's (NMCI) Total Records and Information Management (TRIM).

5. Corrections and comments to this manual are invited and should be addressed to Naval Education and Training Command, attention: N7.

6. Reviewed and approved.

G. R. JONES

CHANGE RECORD

Number and description of change	Entered by	Date

Recommended changes to this manual will be forwarded to NETC (N74) via the chain of command. Approved changes will be recorded on the Change Record of this manual.

FOREWORD

The NAVEDTRA series manuals:

- NAVEDTRA 130, Task Based Curriculum Development Manual
- NAVEDTRA 131, Personnel Performance Profile Based Curriculum Development Manual
- NAVEDTRA 134, Navy Instructor Manual
- NAVEDTRA 135, Navy School Management Manual

The NAVEDTRA 130 series of manuals provides fundamental guidance within the Naval Education and Training Command for the development of curricula, the delivery of instruction, and the management and evaluation of training programs.

These manuals do not supersede the directive policy established by Naval Education and Training Command Instructions (NETCINSTs) in these subject areas. Rather, they supplement the NETCINSTs in two important ways. First, they reflect the philosophical principles underlying NETC policy for curriculum, instruction, and evaluation; and second, they provide procedures for carrying out that policy.

Each of the 130 series manuals is designed as a stand-alone document to serve a specific user group such as curriculum developers, instructors, training managers, or evaluators of training. The manuals are, however, interrelated and appropriately cross-referenced to one another.

The purpose of NAVEDTRA 134, Navy Instructor Manual, is to present knowledge factors and background information on the theory and techniques of Navy classroom instruction. It is designed to follow the outline of the Navy's formal Instructor Training Course and is to be used as a supplementary text for this course. It may also be used as a general reference by those having responsibility for conducting shipboard or on-the-job training programs.

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CHAPTER 1

NAVY TRAINING

INTRODUCTION

The primary purpose of the United States Navy's training establishment is to provide operational forces with trained personnel who can maintain a high degree of Fleet readiness. Several offices coordinate with each other to plan for training and to determine the purposes of training within various commands. These offices are: Chief of Naval Operations (CNO); Commander, U.S. Fleet Forces Command (CUSFF); System Commands (SYSCOMS); Navy Enterprises (Type Commander; Marine Corps Combat Development Command (MCCDC); Naval Education and Training Command (NETC); and Commander, Navy Reserve Forces Command (COMNAVRESFOR).

About one-third of all people in the Navy are involved in some kind of training at any one time. New technical developments as well as losses of trained personnel through promotion, retirement, discharge, or transfer create a constant need for training. To perform such a large and complex training task with an ever-changing population, and to ensure needed standardization while carrying out required changes, the Navy uses a systems approach to training. One of the purposes of this manual is to acquaint you with the details of the Navy's formal training system and the educational concepts upon which it is based.

REVOLUTION IN TRAINING (RIT)

In October of 2000, the Navy embarked on what has become known as the Revolution in Training (RIT). The RIT began with an Executive Review of Navy Training (ERNT), which was a CNO-directed working group tasked to recommend ways to improve training, education, and learning throughout the Navy.

These recommendations included substantial revisions in traditional manpower, training, and education strategies (e.g., changes in the mix of classroom instruction vs. remote learning) and in the content and delivery of learning. A major thrust of the RIT was to link decisions in manpower, training, and education to warfighting enterprise performance through Human Systems Integration and Human Performance Systems Model (HPSM) solutions.

INTEGRATED LEARNING ENVIRONMENT (ILE)

In December of 2002, as a result of the ERNT, NETC created the ILE to transform legacy systems and business processes and to enable necessary changes to accomplish RIT goals.

The ILE encompasses all forms of training methods, including instructor-led, computer-/web-based, and blended instruction. The ILE supports readiness by exploiting current technologies and best practices to enhance institutional and individual learning and to enhance performance support for the Navy's total force.

ILE Electronic Applications

These applications are key technical components of the ILE:

- Navy Knowledge Online (NKO) Portal:
  - Serves as the single point of entry to all Navy E-Learning courses.
  - Provides knowledge management features and specialized communities of practice.
  - Located at https://wwwa.nko.navy.mil.
- Learning Management System (LMS):
  - Contains the ILE master catalog for accessing informal education and training content.
  - Manages learner lesson plans and training day-to-day progress.
  - Allows management of learning events.
  - Provides access to thousands of self-paced training courseware offerings.
- Learning Content Management System (LCMS):
  - Provides for creation, storage, reuse, and management of learning content.
  - Provides a template-driven environment for fast, efficient, and consistent authoring of knowledge-based content.
  - Provides the ability to dynamically deliver content customized to display unique themes and to match user profiles.
  - Can receive content developed in the Authoring Instructional Materials (AIM), automated tool.

- Corporate enterprise Training Activity Resource System (CeTARS):

  - o Manages the collection of raw training data.
  - o Compiles the data.
  - o Performs statistical calculations.
  - o Provides the results to all levels of the military training organization.

THE NAVY TRAINING SYSTEM

The purpose of any systems approach is to provide a method by which the Navy Training Organization can analyze and apply all the elements that make up the Navy Training System (Fig. 1-1). The purpose of the Navy Training System is to ensure a systematic approach for determining what to train and how best to accomplish that training. To understand the Navy's approach to training, visualize Navy training as a system with three distinct but interrelated elements: preparation of training, delivery of training, and evaluation of training.

Figure 1-1: Navy Training System

PREPARATION OF TRAINING

Before the Navy can provide training, it must determine training requirements; develop training; and train instructors, curriculum developers, and training managers. Therefore, it uses a planning process through which it determines the formal courses it will offer and the number of students it will train in each course. It then sets standards for course and curriculum development and prescribes the appropriate training paths for instructors, curriculum developers, and training managers.

Determining Training Requirements

The Navy determines training requirements from the Fleet's need for people with particular job skills. Before providing formal courses, it checks to see if its workforce has enough people with those particular skills. If it lacks trained personnel, the Navy then provides formal courses in each skill area unless on-the-job training is more cost-effective.

Job, Duty, Task Analysis (JDTA) is the process that NETC is maturing to list the jobs performed by an occupational field, who performs them, and the frequency of performance. A survey of jobs performed within a rating may indicate a need to revise training.

The Navy provides most initial skills training and almost all training that awards a Navy Enlisted Classification (NEC) through formal, residential courses. It provides non-NEC skills training courses in both formal and informal settings. Identification of training requirements is an ongoing process. As skill requirements become obsolete, the Navy changes, revises, or deletes courses. As new skill requirements are identified, it also introduces new courses.

Per OPNAVINST 1500.76 (series), the Navy Training System Plan (NTSP) is the primary document identifying manpower, personnel, training requirements, and resources for new systems development and modernization of existing legacy systems. This instruction addresses NTSP requirements, acquisition/modernization, management actions required to optimize manpower and maximize Human Performance (HP).

Developing Training

After a training requirement is validated, program managers must determine if the required training is already available. If it is not available, they must determine if a change or revision to existing training can meet the training requirement or if new curriculum development is required.

If new course development is necessary, the program manager must decide the type of training needed and direct the design and development of course materials. The program manager then must ensure that designated personnel receive the required training to develop, conduct, or evaluate the course. During the development of training, the designated functional commander and training activity work together to design the course of instruction and develop the course materials.

To establish a course, the functional commander and the training activity must take the following actions:

- Identify the manpower, facilities, support, and equipment needed to meet the training requirement.
- Submit a course description via the functional commander for insertion into CeTARS to reflect in the Catalog of Navy Training Courses (CANTRAC).
- Assign a Course Identification Number (CIN).
- Submit paperwork to assign the NEC (if course is NEC-awarding).

Training managers will be able to track students and training information related to a specific course because of the course's unique CIN and Course Data Processing (CDP). The CIN must be included in the CeTARS. CeTARS is the corporate database for formal training information. It ensures timely collection and dissemination of information to meet the demands of various echelon activities. Personnel management, student training management, classroom support management, class event resource scheduling, publication and equipment management, system utilities, student testing and evaluation, and related administrative support are all tracked by the CIN and/or CDP in CeTARS.

The development of technical course materials also follows a systematic procedure. The goal of the systems approach is to establish uniform training. The systems approach has the following advantages:

- Prevents or minimizes overtraining and under-training through the proper identification of training requirements.
- Ensures uniform training for all personnel at all facilities through the use of standard guidelines for material design and development.
- Provides up-to-date training through the analysis of training materials and procedures.
- Assesses overall effectiveness and identifies deficiencies through the continued feedback from a training evaluation program.

Training Staff

All officer and enlisted personnel occupying instructor, training manager, or curriculum developer billets/positions within NETC must complete the appropriate training path for their duty assignments. Only through intensive, recurring training of instructors, training managers, and curriculum developers can the Navy achieve uniform training.

DELIVERY OF TRAINING

All of the analysis, course development, and staff training conducted as part of training preparation culminates in the delivery of training. The responsibility of the instructors and managers of Navy training courses is to help the student to learn. No matter what the course is, their efforts are aimed at training the student to perform a specific job or acquire a specific competency and to apply the principles learned. An important part of this training is giving the students clear and precise direction and explaining the best way to perform tasks associated with their jobs.

Training Management

Management and administration are two important elements of instruction. Establishing instructional management and administrative guidelines helps to prevent difficulties and solve problems that may develop in a learning situation. Management involves several areas of concern. The primary concern is the safety of the students and staff. Another concern is the effective and economical use of instructional material and equipment. Management is also concerned with the full use of all educational and training facilities. Management involves the filling of billets, resolving resource needs, addressing quality-of-life issues, and overseeing after-hour routines.

As in every other component of the Naval Training System, course management is multi-faceted. It consists of both classroom management and course management.

Classroom management is the instructor's responsibility. An instructor must establish receptive, cooperative working relationships with students, other instructors, and course managers. The instructor should make whatever arrangements necessary to provide favorable learning conditions for all students. The students should be able to hear and see the instructor without being distracted by other activities around them. The instructor must have a safety-conscious attitude and instill in each student safe work habits and an awareness of the hazards of equipment and machinery. The principles and procedures the instructor adopts in classroom management greatly contribute to the success of the instruction.

All instructional operations and procedures are the instructor's administrative responsibility. To make instruction effective, instructors should fully use the time specified for lesson topics. They should report equipment in need of repair and request supplies needed to help them provide effective instruction. They should also make sure the classroom or laboratory is ready for the next class of students or for the instructor's use the following day. That includes preparing all equipment and training materials.

Course management involves management of the instructional material, the staff, the students, and the physical plant (i.e., building, equipment, furniture). NETC establishes instructions, manuals, and directives that spell out the duties of school supervisors, directors, and support personnel in each of these areas; these are amplified by the functional commanders and the local training activity. Instructors should be familiar with the organizational and management responsibilities of their training activity.

EVALUATION OF TRAINING

Evaluation management measures the effectiveness of the Navy's training programs. Every member of the command, from the commanding officer to the instructor, shares responsibility for the evaluation of training (Fig. 1-2).

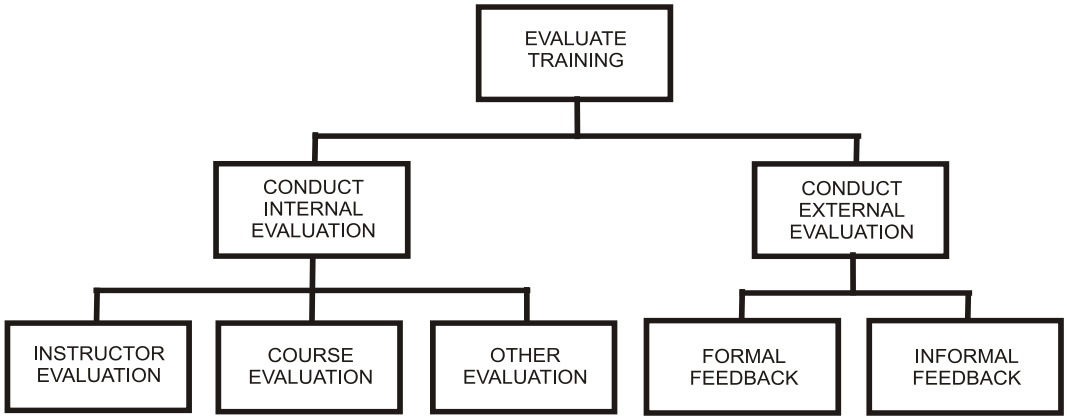


Figure 1-2: Evaluation of Training

Evaluation is a joint effort and a tool used to improve training. Evaluation is normally divided into internal evaluation and external evaluation.

Internal evaluation involves feedback on the course of instruction on a regularly scheduled basis. This information is used to make improvements to training. Examples include the following:

- Reviews of safety, the course, and attrition or setback percentages.
- Testing programs, including test-item analysis.
- Formal evaluation of instructors in classroom, laboratory, and electronic classroom settings.
- Student critique of both the course and the instructors.

External evaluation involves the gathering of feedback by individuals or groups outside the course. Although this information is normally not gathered as frequently as the internal feedback data, it is also used to make improvements to the training.

SUMMARY

The Navy Training System is extremely complex. It includes the preparation of training, delivery of training, and evaluation of training. Although it requires coordination at all levels of the Navy Training Organization, the most essential, single link in the training chain is the instructor. The instructor is the one who must simplify the learning process for students of varied backgrounds and experiences. The instructor is the one who must present the knowledge and skills required to transform students into proficient and productive members of the operating forces.

The Navy is engaged in an enterprise-wide transformation of how it operates in an effort to improve and align its organizations, incorporate new technologies into Navy training, exploit opportunities available from the private sector, and develop a continuum of lifelong learning and personal and professional development for Sailors. A key enabler at the foundation of this transformation is the Navy's Integrated Learning Environment (ILE). In the next chapter, we will discuss the vital role that the Navy instructor plays in Navy Training.

CHAPTER 2

THE NAVY INSTRUCTOR

INTRODUCTION

Teaching has been described as both an art and a science. The science of teaching helps to explain what must be done. It is concerned with the why and how of instruction. The science of teaching helps the new instructor understand the techniques and acquire the knowledge required to do the job. That is why Navy instructor training includes subjects on the principles of learning, motivation, communication, instructional methods, objectives, testing, and the ways people learn, among other topics. That is also why instructor training includes a lot of practice teaching and teaching-performance examinations. These specific parts of the training are designed to help the beginning instructor grasp the basic techniques or the science of instruction.

After beginning instructors learn to use these techniques, they can start to learn the art of instruction. As with any art, some artists (instructors) will be more effective than others. Efficient instructors know and follow all the rules and techniques of teaching. However, effective instructors are often those who seize every opportunity to enhance the learning experience by being more creative in their use of the rules and techniques. Before you can do that, though, you must know the rules and when to appropriately exploit the rules to their advantage.

The art of instruction really cannot be taught. You develop it through experience and learning what works. The science of instruction can be taught. Therefore, the more you know and understand about the science of teaching, the better equipped you will be to develop the art. Although almost anyone can become a competent instructor, some people will develop into truly superior instructors. The starting place, however, is the same for all of us—with the basics.

In his text, *Instructional Technique* (1981), Ivor K. Davies discusses the concepts of efficiency and effectiveness. According to Davies, efficiency is concerned with doing things right, while effectiveness is doing the right things.

Most of us easily recognize efficient instructors. They do things right. They plan their lesson, prepare the learning environment, conduct proper lesson introductions, ask questions, and use instructional media material. That, however, does not ensure they are effective. Effectiveness in instruction is much more than just doing things right; it is doing the right things to enable students to learn. It is measured when students demonstrate they have met the objectives of the course as result of your instruction.

Ideally, your instruction will be both efficient and effective. Through study and experience, you can learn to do things right. This chapter presents information on the characteristics or traits instructors should have, as well as information on the duties, responsibilities, and concerns unique to Navy instructors.

PROFESSIONAL PRECEPTS

If you were to observe efficient and effective instructors, you would see that they all have certain qualities in common. These qualities provide a list of ideal traits toward which you should work as an instructor. These traits also provide you with a basis for self-evaluation and self-help.

Each of these traits belongs in one of three broad categories: knowledge, ability, or personality. Together, these three categories contain the professional qualities of an effective and efficient instructor. We refer to these as professional precepts (Fig. 2-1).

Figure 2-1: Professional Precepts

KNOWLEDGE

You must have many types of knowledge to be both efficient and effective as an instructor. First, you must be thoroughly familiar with the subject you will be teaching. Generally, your assignment to instructor duty indicates that you are a subject matter expert (SME) in your area of assignment. The formal training you have received in your rating coupled with your actual work experience and on-the-job training will provide invaluable knowledge to you in your instructor assignment. You may discover, however, that knowing the subject well enough to do the job yourself is quite different from knowing how to teach others to do it. Imparting your knowledge to others will bring you both your greatest challenges and rewards as an instructor.

You will know and will need to know far more about your subject area than you will actually teach your students. Only through practicing, studying, researching, and keeping up with new developments can you attain the wealth of knowledge required in your role as an instructor. Avail yourself of every opportunity to observe other instructors. Not only will that benefit you in learning more about your subject matter, it will also expand your knowledge of instructional techniques.

You need to understand that you will be conducting training to meet the needs of the Navy, not individual members. As discussed in Chapter 1, the primary purpose of the Navy training establishment is to provide the operational forces with trained personnel who can maintain a high degree of Fleet readiness.

Training and education have much in common, but they differ in some important ways. Education does not necessarily have a practical or defined goal; acquiring knowledge for its own sake is a legitimate goal of education, but not of training. Training should accomplish at least three things. It should:

- Develop knowledge, skills, and attitudes.
- Produce changes in behavior.
- Meet specific objectives.

The focus of training is to prepare individuals to perform the duties of the job to which they will be assigned. Your challenge is to help students learn—to lead them in gaining the knowledge, skills, and attitudes that will make them successful.

In order to help students learn, you need to know something about their previous education and experience. Student records will provide some of the information you need. Previous instructors of students can also provide you with valuable information about your students and courses. However, your interaction with the student in the training environment is your greatest source of information.

Finally, you need to know some basic instructional strategies and techniques. That brings us back once again to discussing the science and art of instruction. Formal instructor training and this text will provide you with information on the science of teaching. You will gain experience in the art of instruction through your interaction with students, other instructors, and training administrators. You should continuously strive to expand your knowledge in both the science and art of instruction.

ABILITY

As a Navy trainer you should have two basic types of ability: leadership and instructional. Some individuals are said to possess "natural ability" that is, they are "born instructors" or "born leaders." While certain traits may set those people apart from others, they have probably also worked very hard at being "born instructors and leaders."

Instructional ability, along with leadership ability, is essential to your efficiency and effectiveness as an instructor. You must not only know the principles, methods, and techniques of instruction, you must also be able to apply them effectively. Your ability as an instructor should grow with experience. However, your ability will grow only if you make a conscious effort to improve.

Research, upon which the Navy's leadership training is based, has defined a number of leadership skills, knowledge, and behaviors that distinguish superior Navy leaders from average performers.

Efficient and effective instructors display leadership skills such as planning and organizing, optimizing their use of resources, delegating authority, monitoring progress and results, disciplining, and rewarding. Their skillful use of influence helps them to persuade others, build teamwork, develop subordinates, and maintain self-control. In advising and counseling, they understand students' needs as well as create positive and realistic expectations. In applying concepts to job situations, their knowledge and experience help them to identify problems, sort through facts, and decide on appropriate courses of action.

As a Navy instructor, you will find that leadership by example takes on a particularly important significance. Everything you do is under scrutiny. Not only must you instruct in an efficient and effective manner, you must also serve as a role model in your military conduct, attitude, appearance, and bearing. You should exemplify the Navy's Core Values of Honor, Courage, and Commitment.

As stated earlier in this chapter, almost anyone can become a competent instructor. You are mistaken, however, if you assume that job experience and formal training alone will prepare you to instruct others. You must have a great amount of knowledge—but knowledge is not enough. You must have excellent leadership ability—but leadership ability is not enough. You must care about the students you instruct—but caring is not enough. You must be dedicated to the Navy and to helping others succeed—but dedication is not enough. Your ability to be efficient as well as effective requires you to have all of these qualities and to work at continually improving them.

PERSONALITY

For the purpose of this discussion, personality is defined as the pattern of collective character, behavioral, temperamental, emotional, and mental traits of an individual.

To be successful as an instructor, you must gain the respect of your students by displaying a professional attitude toward others. Always show a sincere interest in all of your students, regardless of their race, gender, geographical heritage, religious affiliation, marital status, or level of intellect. Remain constantly aware that students will be influenced by your behavior and the example you set both in and out of the training environment.

As with most professions, instructors must adhere to certain rules of conduct in the performance of their duties. The following are some of the rules of conduct you should follow:

- **If you do not know an answer, admit it.** Do not bluff. At times, questions will arise that you will not be able to answer. Find the correct answer at the earliest opportunity, then provide the information to the class as soon as practical.
- **Keep your remarks professional and appropriate in the classroom.** Do not use profanity or obscenities. Use of profane or obscene language is one of the fastest ways to lose the respect of your students. Do not use inappropriate humor or make disparaging remarks, even in a joking manner.
- **Be patient.** Be aware that not all people learn in the same way or at the same rate. While you may easily become frustrated with a person who is having difficulty with seemingly simple material, never allow your frustration to show. If all else fails, take a break to cool off or consult with other instructors to find another approach to resolve the difficulty. In the majority of situations, students are sincerely trying to understand what is being taught. Your job is to find a way to help them. You may need to adapt your instruction to different learning styles for different students.
- **Do not use sarcasm in the classroom.** The use of sarcasm is another way to lose the respect of your students. Sarcasm, whether it is directed at one individual or the entire group, is never appropriate.

- **Maintain rapport with students.** While it is appropriate to be friendly and courteous to your students, it is not appropriate to be too familiar with them. Establish good rapport by connecting with your students using common ground. One such way is expressing to them that you've been where they are and explaining to them what they can expect. Students are always eager to listen and get a perspective of what they can expect once they reach the Fleet.
- **Treat students with respect.** All of the individuals you train should feel you have a sincere interest in their efforts to learn. Although your students will not have your knowledge or experience, you should think of them as being physically, mentally, and emotionally mature and treat them accordingly.

INSTRUCTOR RESPONSIBILITIES

While you are assigned as an instructor, you must abide by the directives and instructions within your chain of command. You also must exhibit and enforce proper military conduct and discipline at all times. Always maintain a professional relationship with your students both in and out of the classroom.

Whatever your task, approach your job with honesty, enthusiasm, and genuine dedication. As a Navy instructor, you fill one of the most critical positions in the training program. Your responsibilities include making the best of your own time and the students' time to develop those skills, knowledge, and attitudes essential to effective performance.

RESPONSIBILITY TO STUDENTS

Although your instructional and leadership role influences students in the formal training environment, be aware that many other influences also affect their performance. Students have many military duties and responsibilities that affect their lives. In addition, personal involvements with family members, friends, peers, and others may be influences on student performance (Fig. 2-2).

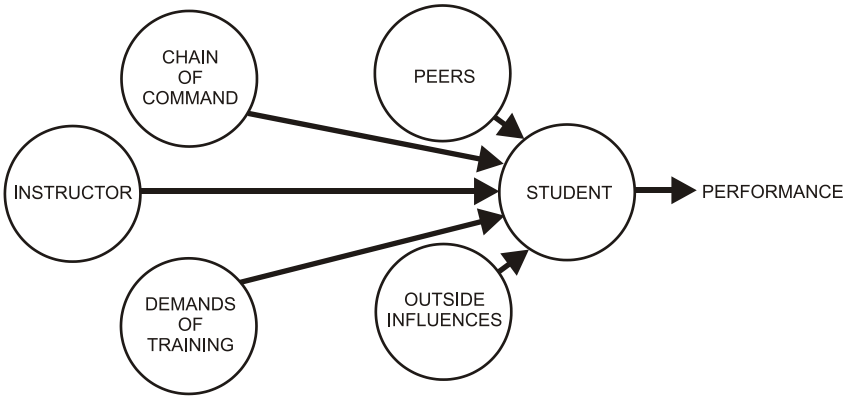


Figure 2-2: Influences on Student Performance.

Fraternization

As an instructor, you must be aware of the Navy's policy on fraternization, OPANVINST 5370.2 (series) and individual command policy, particularly as it applies between you and your students. Be especially careful in your personal associations, particularly with regard to interactions with students. Not only are personal relationships between officers and enlisted members that are unduly familiar and do not respect differences in rank and grade prohibited, but personal relationships which are unduly familiar between staff/instructors and students within Navy training commands are also prohibited. Both violate the long-standing custom and tradition of the Naval service, are prejudicial to good order and discipline, and may be of a nature to bring discredit on the Naval service. Make sure your actions and the actions of your students support the Navy's policy on fraternization and reflect the Navy's Core Values.

Sexual Harassment

As a Navy instructor, make sure you maintain high standards of honesty, integrity, impartiality, and conduct in dealing with all personnel, regardless of gender. Sexual harassment is unacceptable conduct that undermines the integrity of the instructor-student relationship. The Navy has a policy of zero tolerance of sexual harassment, per the SECNAVINST 5300.26 (series) and individual command policy.

Sexual harassment is a form of discrimination involving unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature when the following occurs:

- Submission to or rejection of such conduct is made either explicitly or implicitly a term or condition of a person's job, pay, or career.
- Submission to or rejection of such conduct by a person is used as a basis for career or employment decisions affecting this person.
- Such conduct interferes with an individual's performance or creates an intimidating, hostile, or offensive environment.

Prevention of sexual harassment is the responsibility of all personnel. As an instructor, however, you are in a particularly important position to prevent sexual harassment. Take an active role in educating your students on the seriousness of such behavior and immediately confront any conduct that may be construed as inappropriate. When confronted about inappropriate behavior,

individuals often say they were "only joking" or they "didn't mean anything by it." Sexual harassment, real or perceived, is not a joke.

Creating a positive command/classroom climate, where behavior is professional and appropriate and where everyone up and down the chain treats his or her subordinates and peers with courtesy and respect, will do more than any other action you may take as an instructor to eliminate sexual harassment.

Diversity

Every member of the Navy is responsible for promoting a culture that embraces diversity. According to the Department of the Navy Diversity Statement, dated August 27, 2007: "The term diversity encompasses not only the traditional categories of race, religion, age, gender, and national origin, but also all the different characteristics and attributes of individuals that enhance the mission readiness of the Department of the Navy and strengthen the capabilities of our Navy Total Force."

Your role in diversity is to create a culture of empowerment where all are welcome to contribute. As an instructor, you must make a personal and professional commitment to improve your understanding of diversity as well as support diversity throughout the Navy. Our Core Values of Honor, Courage, and Commitment endorse our efforts to treat each individual with respect and leverage the strength of our nation's diversity.

To the greatest extent possible, try to help students resolve conflicts resulting from these various influences. Your role as an instructor places you in a unique position to identify persons experiencing conflict. Since you interact with students on a frequent basis, notice changes in students' performance or behavior, then take steps to help them.

Your responsibility to your students is to teach effectively, set a good example for them to follow, and help them resolve conflicts that may hinder their proper training.

RESPONSIBILITY FOR TRAINING SAFETY

Safety is an integral part of all elements of the Naval Education and Training Command (NETC) mission. NETC Instruction 5100.1 is the policy document governing training safety. The Naval Safety Center (NSC) has issued policies and procedures to eliminate or reduce

the chances of mishaps or mishap-related injuries to students and instructors during training. This policy states that safety and supervisory procedures shall be maintained at a level that ensures safe training, while providing the realism needed to fulfill Fleet operational requirements within practical limits. These procedures are essential to an aggressive training program that prepares personnel to perform professionally during normal as well as high-risk activities.

Never forget that as an instructor you are a role model for your students. This is true in all aspects of training, especially training safety. You must demonstrate proper safety procedures in addition to teaching them. Be aware that your behavior often has greater impact on students than your words. You have no greater responsibility as an instructor than that related to the safety of the personnel you train. The safety habits they learn from you will go forward with them beyond the classroom.

RESPONSIBILITY FOR SECURITY

Many Navy courses contain materials that include classified information for security purposes. When teaching classified information, you must be aware of several requirements:

- **Never** discuss any classified material that is not in the approved curriculum. Remember to disclose classified information only to properly cleared personnel with a need to know the information.
- **Never** present or discuss information that carries a higher security classification than that of the approved curriculum.
- **Do not** incorporate into your course materials any information that carries a higher security classification than that of the approved curriculum. That includes information incorporated into your lesson plan through personalization, student handouts, training materials, and test items.
- **Always** make sure you can account for classified training materials or references used in the training environment at all times.
- **Immediately** report any situation you suspect may constitute a security violation.

Protection of classified materials demands constant attention by everyone involved. As with safety, your behavior as an instructor has a great impact upon your students. Never say or do anything that will downplay the importance of the security of classified materials. In every situation as an instructor, you are a role model to your students. The security habits they learn from you will go forward with them beyond the classroom.

RESPONSIBILITY FOR CURRICULUM

A relatively small number of instructors have curriculum development duties. However, you may become involved in curriculum revision and will almost certainly be involved with curriculum maintenance. Therefore, you need to understand the following terms and definitions associated with the maintenance of curriculum. The source of this information is the Navy School Management Manual, NAVEDTRA 135 (series):

- **Curriculum.** All training conducted within a school, outlined into specific topics, along with detailed training objectives.
- **Surveillance.** A process that provides ongoing evaluation of training or training materials to ensure continued effectiveness and currency of content to meet the training requirements.
- **Interim Change.** A minor change to correct editorial and typographical errors, teachability, safety, or urgent type commander-issued subjects.
- **Change.** A modification to training materials that DOES NOT affect course mission, its objectives, change course length by one or more days, or require additional resources.
- **Technical Change.** Any change to tactical (i.e., shipboard) or training-unique equipment or documentation originating in the Training Support Agency's (normally a SYSCOM) parent material agency that affects curriculum. A technical change may or may not affect individual lesson objectives, but DOES NOT affect course objectives, course length, or resources.
- **Revision.** A change to any course mission, course length by one or more days, or training materials that require additional resources. A revision will incorporate previous changes and supersedes preceding editions of the training materials.

Curriculum maintenance is an ongoing effort to ensure the course curriculum is both current and accurate. Any deficiency noted as a result of surveillance requires a change or revision to the curriculum or training.

SUMMARY

The Navy Training System involves many elements. While all are important, the instructor is the keystone of the entire program. The success of the Navy depends to a great extent on the effectiveness of the instruction that individuals receive during training. As a Navy instructor, you play a critical role in providing our operating forces with personnel trained to maintain a high degree of Fleet readiness. Your success in that role will depend upon your commitment to developing the professional qualities of an instructor, fulfilling your responsibilities for both the content and quality of the curriculum you deliver, and modeling appropriate Core Values and standards of conduct, particularly with respect to fraternization and sexual harassment. In so doing, you will have a firm foundation upon which to develop specific teaching skills and actively involve your students in the learning process.

CHAPTER 3

MOTIVATION

INTRODUCTION

Motivating students to learn is possibly one of the most pondered and discussed areas among people involved in the education and training of others. How to get students interested and involved in the learning process has long been one of the greatest challenges for instructors. Motivation involves the activation, direction, and persistence of a specified behavior. While students are responsible for their own learning, you can greatly enhance their desire to learn by creatively using motivational techniques. In the educational sense, motivation is the process of prompting a person to learn. The majority of your students will respond to general methods of motivation. Some, however, may need you to provide appropriate incentives for them to learn. Therefore, you must learn to recognize their needs and drives.

Generally, all behavior is motivated. The goal of instruction is to motivate students to achieve course objectives. Instructors sometimes mistakenly believe that a student who is not participating in classroom activities or finishing homework assignments is not motivated. Strictly speaking, the student is not motivated to behave in the manner desired by the instructor. A great deal of study has gone into finding what motivates learners. In spite of varying levels of personal motivation, most people will respond to certain conditions with increased motivation to learn. As an instructor, you should do everything within your power to establish the most desirable conditions possible to impact a positive learning environment. This chapter provides background information on the principles of motivation and offers some practical techniques for instructors to use in the motivation of their students.

MOTIVATION THEORY AND PRINCIPLES

Psychologists use the concept of motivation to account for changes in the frequency and the vigor of a person's activities. We are always doing something, but some of our activities occur more often than others and continue longer. Additionally, some activities are pursued more vigorously than others. Outcomes that usually give rise to pleasant feelings will be pursued; those that usually give rise to unpleasant feelings will be avoided. While a motive cannot be observed directly, when activated by a situation, we can see its effect on behavior. We say persons are motivated, or we speak of their motivation. Many theories of motivation provide insight into how instructors can use strategies to motivate learners to meet instructional goals. Two of those theories are Abraham H. Maslow's Hierarchy of Needs Theory and John Keller's Attention Relevance Confidence and Satisfaction (ARCS) Model.

MASLOW'S HIERARCHY OF NEEDS THEORY

Simply stated, Abraham H. Maslow's theory proposes that individuals will seek to gratify higher order (growth) needs only when all lower order (deficiency) needs have been relatively well-satisfied. Based on Maslow's theory, people are driven to satisfy unfulfilled needs in a specific order. Maslow's hierarchy contains a lower level of needs, known as deficiency needs, and a higher level, known as growth needs. Deficiency needs include physiological, safety, belongingness, love, and esteem needs. Growth needs include self-actualization, desire for knowledge and understanding, and aesthetic needs (Fig. 3-1).

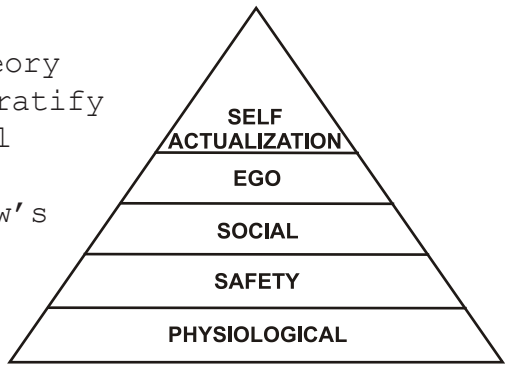


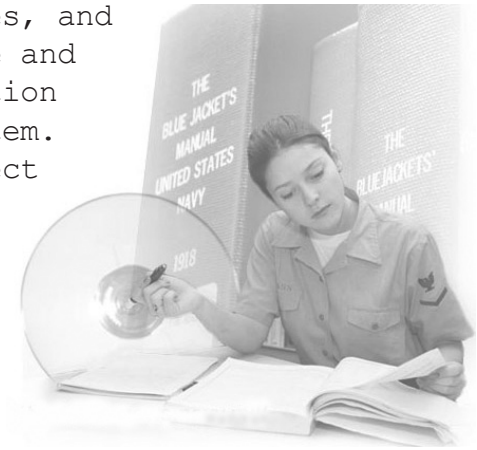
Figure 3-1: Maslow's Hierarchy of Needs Theory

The implications of this particular theory to the training environment are intriguing. As the instructor, you control what takes place in the classroom or laboratory. That means you play an important role in gratifying the needs of your students. Students are more likely to try to satisfy their desire to know and understand once their physical and psychological needs have been met. They need to feel safe, relaxed, and comfortable (both physically and psychologically); have self-esteem; and have a sense of belonging.

Applying Maslow's theory in the classroom may be limited by your knowledge of the students or your ability to meet their needs. Chapter 2 discussed various influences that affect students in the training environment. You need to be aware of those influences and know the resources available to help students involved in conflicts that interfere with their training. This will greatly increase your effectiveness in motivating students to learn.

The key principles to applying Maslow's motivation theory in a training situation are summarized below:

- **Needs and Drives.** When students have a need or drive, they lack something. A need is usually defined as a deficit or lack that causes a desire for satisfaction. The need to belong, for instance, can motivate a student to seek group acceptance. That need, or drive, can cause the student to behave in a manner that eventually reduces the need and results in satisfaction.
- **Interest.** Interest refers to a person's view of an activity as worthwhile or enjoyable for its own sake. An instructor who captures students' interest draws on their internal motivation. As an instructor, you will learn to control student interest throughout the lesson; the learning process breaks down when students lose interest. To generate interest, state the purpose of the lesson at its beginning. Emphasize why students need to learn the material and how they will benefit from the information. If possible, relate a personal experience with the topic's importance (i.e., "Sea Story"). After students understand the need to learn something, they are more likely to give their full attention to your instruction.
- **Values.** The students' values, attitudes, and previous experiences affect the nature and amount of what they learn. The motivation you use must fit a student's value system. Students have more interest in a subject that deals with goals they see as important in their lives. For example, a lesson on the flag or the Code of Conduct would probably motivate a student who values patriotism.



- **Attitudes.** Attitudes consist of feelings for or against people, objects, or ideas. Showing a positive attitude about the subject you present can cause the student to want to learn. Students have more desire to learn when their instructors show an interest in what they teach.

- **Incentives.** Incentives or rewards can also stimulate motivation. Incentives such as good grades, awards, or selection as a distinguished graduate may motivate some students.
- **Achievement.** Achievement is a strong desire, a longing, an aim, a goal, or a desired objective. To make an effort to succeed, students must have a need and a desire to achieve at a certain level.

KELLER'S ARCS MODEL

In John Keller's ARCS model (Fig. 3-2), there are four principles in the motivation theory. They are Attention, Relevance, Confidence and Satisfaction. The four principles can be used to meet the challenge, and you can use the strategies to gain and maintain a learners' attention and encourage them to engage in the thinking and activities needed to promote learning.

Figure 3-2: Keller's ARCS Model

- **Attention.** Attracting attention is an important first step, but don't be fooled. Learners will certainly pay attention if you do something surprising like blow a boatswain's pipe. But unless what you do after that makes sense to learners or is relevant to them, you won't keep their attention and they are unlikely to learn what follows. Learners must think about what they hear, see, or do to optimize learning. The vivid descriptions of relevant sea stories or questions posed directly to the learner are among the best strategies that can capture their attention and focus their thinking.
- **Relevance.** Relevance motivates trainees by connecting what they are learning to what they will be doing on the job. When they see the relevance, they are more likely to put forth the effort it takes to understand and apply what is being taught.
- **Confidence.** When students feel confident they can do something competently, even if it takes some effort, they are more likely to give it a try. Instructors can guide learners by helping them set challenging but achievable goals, building their confidence, and helping them become aware of the relationship between effort and success.
- **Satisfaction.** Feeling good about an experience often serves as its own motivator. Some tasks are rewarding in themselves, and students will stay motivated until they achieve their goals. Other times, recognition from others contributes to

their sense of satisfaction. As an instructor, you can increase learners' satisfaction by creating opportunities for them to succeed, maintaining high standards, and recognizing students' attainment of those standards.

APPLYING MOTIVATION TECHNIQUES TO INSTRUCTION

The techniques of motivation have application in each part of a lesson topic: the introduction, the presentation, and the summary. Let's look at each part more closely to see how you can apply motivation techniques to it.

LESSON INTRODUCTION

As an instructor, you can use motivation at the beginning of a lesson as a means of introducing the material, stimulating interest, arousing curiosity, and developing a specific learning goal. Besides showing the need for learning the information, the introduction should serve as a connecting link between the present lesson and previous lessons.

Use the lesson introduction to discuss specific reasons why students need to learn the information you plan to present. To reinforce their desire to learn, show students how the information relates to their career advancement or some other need. Give the students specific examples of how they will apply what they are learning on the job. In many cases, you may motivate students by telling them they will need the information to understand future lessons or to pass later assessments.

Ideally, the lesson introduction should provide a road map for learning. A clear introduction can contribute greatly to a lesson by removing doubts in the minds of learners about where the lesson is going and how they are going to get there. It should explain how you have organized your ideas. Students understand better and retain more when they know what to expect. Effective visual aids may be helpful at this point.

The purpose of the introduction is to motivate students to learn by listening to the information you will present in the body of the lesson. Attention-getting methods for beginning a lesson may include:

- Focus on the importance of the subject.
- Use startling statistics.

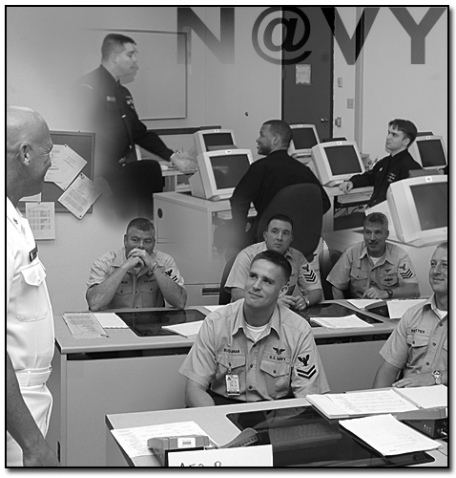
- Ask rhetorical questions. A rhetorical question is one you direct at the students, but do not really expect them to answer. For example, "Have you ever…?" or "Can you imagine…?"
- Use quotations. A striking quotation will arouse interest, particularly one by a well-known person.
- Ask overhead questions. An overhead question is an interest-arousing question directed to the entire class.
- Tell a story. A story is an interesting way of introducing a lesson, especially when it relates to experiences students have had. While humor may be appropriate, don't tell irrelevant stories, jokes, or incidents that distract from the lesson.

All of these attention-getting devices are potentially useful during the lesson introduction. However, decide which ones to use based solely on the subject and the students. Your primary concern is to focus student attention on the subject. The introduction to a lesson, no matter what form the lesson plan takes, must accomplish certain goals. It should:

- Develop students' interest.
- State the lesson objectives and their significance.
- Direct student thinking along desired lines.
- Outline the scope of the lesson.
- Show students the value of the subject matter.
- Explain the method or methods you will use.
- Let the students know what you expect of them.
- Tell the students how many periods the lesson is scheduled for and when you expect to finish.

After you have won the attention of the students, you must then direct them to the subject of the lesson.

LESSON PRESENTATION



To maintain student interest, **do not** read a lesson plan verbatim. Make sure you are thoroughly familiar with the material you are presenting. Know your lesson plan as well as the information in the references from which you will teach. To meet the specific objectives of the lesson, you must know exactly what you are going to teach and how you are going to teach it. Further, you must be careful not to over-teach; that is, to provide extraneous information merely because you are knowledgeable in a particular area. Help students define the most important parts of the material to take away with them by sticking to what they really need to know in the classroom.

Present the material in a logical sequence beginning with the known and moving to the unknown. Although slight variations and excursions off the main line of a lesson can promote interest, keep them to a minimum. During the presentation, one of the best motivators is the use of training aids, e.g., graphics, models, animations, etc. Another is to periodically ask questions that check for students' understanding.

LESSON SUMMARY

A lesson summary is used to recapture students' attention and build to a motivational climax. While you may want to give short or interim summaries at various places in a lesson, give final summaries after you have covered all of the main points of the lesson. Quickly reviewing the main points and asking questions can reinforce students' learning and help them retain more information.

Remember the purpose of the summary is to instill in students a desire to retain and use what they have learned. Although you motivate students throughout the lesson, the summary is your last chance to emphasize how important the information is to them as individuals. The ultimate goal of instruction is to cause students to remain motivated beyond the instructor's influence and apply what they have learned on the job and in other areas of their lives.

SUMMARY

You must constantly motivate your students to learn. Grasp every opportunity to motivate students. As an instructor, you must find which methods and devices work best with your students in certain situations. After instruction begins, assess students' achievement level, learning styles, and motivational patterns to determine their readiness to learn.

Remember Maslow's theory and Keller's model. Be sensitive to your students' needs and provide them with a proper learning environment. Those students with adequate motivation should then be ready to learn. Following Maslow's theory and/or Keller's model does not mean you should coddle students into learning. Rather, it means you look upon each student as a human being with certain inherent rights.

As an instructor, be professional, intellectually honest, and aware of your influence on students. Set a good example at all times by maintaining a neat, clean, and proper personal appearance and military bearing. Be courteous; use proper titles when addressing military or civilian students. Set rules early in the course and maintain them. Welcome and profit from the evaluations of the students and other instructors. Avoid arguments, control distractions, and be fair in all your dealings with students--above all be consistent. This will help you gain and keep the respect of your students and colleagues and greatly contribute to your students' overall motivation both in and out of the classroom.

CHAPTER 4

PRINCIPLES OF LEARNING

INTRODUCTION

Your goal as a Navy instructor is to contribute to the academic success of your students and, ultimately, to the success of the Navy in achieving its mission. As an instructor, your primary objective is to ensure your students understand the concepts of your lessons and lectures. By grasping these concepts, students will have an opportunity to develop knowledge, gain skill sets, and in some cases, change behaviors and perceptions. Keep in mind that course content alone may not accomplish these goals, but your ability to engage your students effectively will greatly increase their chances for success.

As an instructor, your mastery of the subject matter, in conjunction with your ability to deliver an effective lesson, is likely to become a determining factor in your students' ability to learn and succeed. How people are taught often has as much, if not more, of an influence on their learning outcome than the content itself. That is because the abilities of the instructor are, in many cases, a key factor in determining the outcome of the students' learning experience. This requires you, as the instructor, to have a thorough understanding of the learning process before you ever present your first lesson.

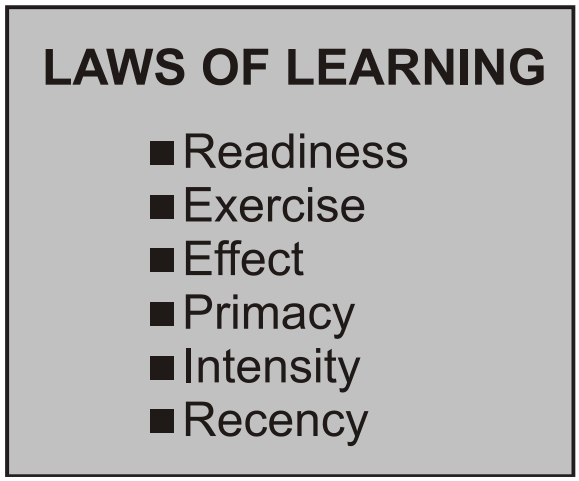
The information in this chapter is designed to give you a foundational understanding of learning styles and instructional modalities from both historical and modern perspectives. The intent here is twofold. First, to offer you an understanding of how students learn, and second, to outline various instructional styles you can use to best fit your students' differing learning styles, known as instructional differentiation.

Malcolm Knowles in "The Adult Learner" (1973) popularized the term andragogy, a term referring to a set of core principles that apply to adult learning. In his early work, Knowles drew attention to factors that distinguished adult learning (andragogy) from child learning (pedagogy). Whether we are discussing adult or child learning, the explanation of learning is very similar.

DEFINITION OF LEARNING

What is "learning?" Learning occurs when there is a change in behavior as a result of experience. This change is reflected in a person's newly acquired perceptions or thoughts, physical behaviors, emotional reactions or attitudes. Learning may or may not be directly observable. For example, it is easy to observe a student driving a car (physical skill), but attitudinal changes must often be observed over time and may only display themselves well after the course has ended.

LAWS OF LEARNING



At the onset of the 20th century, Edward L. Thorndike, a pioneer in the field of educational psychology, suggested three laws of learning. These "laws" were deemed accurate and reflective of the whole learning process, and as such, were generally accepted as facts. They were delineated as: The Law of Readiness, The Law of Exercise, and The Law of Effect. Since that time, further research revealed the learning process to be a bit more complex. As such, an additional three laws were added to Thorndike's originals. They are: The Law of Primacy, The Law of Intensity, and The Law of Recency. Let us look at each of the laws of learning more closely.

LAW OF READINESS

The Law of Readiness states that people can only learn when they are physically and mentally ready. Individuals learn best when they are ready to learn, and they will not learn much if they see no reason for learning. When students have a strong purpose, a clear objective, and a sound reason for learning, they usually make more progress than students who lack motivation. Ready students are willing participants in the learning process, which makes the instructor's job easier. Students with worries or concerns outside the classroom, or those who suffer personal problems, have little interest in learning and, thus, may not be ready to learn.

LAW OF EXERCISE

The Law of Exercise stresses that practice makes permanent and perfect (when taught correctly). Those topics most often repeated are easiest to remember. Rarely can the mind recall new concepts after a single exposure; however, every time it is practiced, learning continues and is further enforced. The instructor must provide opportunities for students to practice or repeat the task. Repetition consists of many types of activities, including: recall, review, restatement, manual drill, and physical application.

LAW OF EFFECT

The Law of Effect involves the emotional reaction of the learner. Learning will always be much more effective when a feeling of satisfaction, pleasantness, or reward accompanies or is a result of the learning process. Learning is strengthened when it is accompanied by a pleasant or satisfying feeling and it is weakened when it is associated with an unpleasant experience. An experience that produces feelings of defeat, frustration, anger, or confusion in a trainee is unpleasant. instructors should be cautious about using negative motivation. Usually it is better to show students that a problem is not impossible but is within their capability to understand and solve.

LAW OF PRIMACY

The Greek word kairos is defined as the most "timely" or "opportune" moment. Therefore, The Law of Primacy is a kairotic event for learning. This law states that the first instructional event often creates a strong, almost unshakeable, impression on the learner. For the instructors, this means what they teach the first time must be correct, as the students' first learning experience should be positive and functionally related to training. If a subject is incorrectly taught, it must be corrected. It is far more difficult, time consuming, and costly to provide remediation for a particular subject than it is to take the time to properly prepare for and teach it correctly the first time.

LAW OF INTENSITY

The Law of Intensity states that if the stimulus (experience) is real, a change in behavior (learning) is far more likely to occur. A vivid, dramatic or exciting learning experience teaches more than a routine or boring experience. A trainee will learn more from the real thing than from a substitute. Demonstrations, skits, and models do much to intensify the learning experiences of students.

LAW OF RECENCY

All things being equal, the things learned last will be best remembered. The opposite is also true. The longer a student is away from a new fact or understanding, the harder it is to remember. For example, it is fairly easy to remember a telephone number dialed a few minutes ago, but it is usually impossible to remember a new number dialed last week. Reviews, warm-ups, and similar activities are all based on the principle that the more recent the exercise, the more effective the performance. Practicing a skill or new concept just before using it will ensure a more effective performance. Instructors recognize the Law of Recency when they plan a lesson summary or a conclusion of the lecture. Repeat, restate, or reemphasize important matters at the end of a lesson to make sure that students remember them, instead of inconsequential details.

LEARNING THEORY

As mentioned earlier, there are numerous theories on learning. Every learning theory fits, or aligns with, one of the two models we will consider here. The behaviorist theory is very traditional and time-honored. Conversely, the constructivist theory is more recent, modern, but still well-tested.

BEHAVIORIST THEORY

Although most notably associated with B.F. Skinner, John Watson and their contemporaries, the earliest forms of behaviorism were actually present in ancient Greece. Take, for example, the Socratic Method for teaching debate as a skill. In this method, the teacher selected a student and provided him with a topic. The teacher then taught the student the two types of rational appeals used in formulating a proper argument, which were based on inductive and deductive reasoning.

- Inductive reasoning is a process of generalizing information by moving from detailed facts to general principles to draw an understanding of a subject. Here's an example: 5 + 7 = 12. 5 and 7 are odd numbers, but 12 is an even number. Therefore, an odd number added to another odd number will result in an even number.
- Deductive reasoning moves from the general to the specific, essentially determining a cause and an effect. It is often seen as diametrically opposed to inductive reasoning, but both are valid and valued methods of reasoning. Here is an example of deductive reasoning: All men are mortal. Socrates is a man. Therefore, Socrates is mortal.

The student's ability to reason was then demonstrated through a long exchange of questions and answers between the teacher and the student. The student was engaged in a debate to allow the teacher to judge the student's ability to adequately build arguments based on one of the two forms of reasoning.

The teacher did this first by providing the student with background information or clues about the subject, then presenting a question, and finally by providing the student with feedback. The goal of this exchange was for the student to formulate a response to adequately answer the teacher's question, using various methods of argument. This teaching-learning exchange, fundamentally, is the basis for the behaviorist model of instruction.

The behaviorist model of instruction is one of the most common forms of teaching used today, and is often referred to as Instructor-Led Learning (ILL). Behaviorists are often associated with direct instruction, much as one would see in an instructor-led classroom. Behaviorists typically work to establish the pedagogic process within the learning environment by introducing a stimulus (question, problem, riddle, etc.) and awaiting a response in the students' behavior. As such, much of the teaching-learning exchange in this modality is conducted through a system of structured lessons that provide detailed outlines of the lesson's objectives and expectations prior to instruction.

Navy instruction is traditionally driven by the behaviorist learning theory, where the instructor engages the students in an ongoing-exchange of questions and answers with the goal of developing in the students a more comprehensive understanding of the subject matter as the lessons progress.

CONSTRUCTIVIST THEORY

Instead of viewing knowledge as something to be received, the constructivist model of learning enables the student to construct knowledge through interaction. Learners build their own internal renditions of external events often by relating them to prior experiences. The constructivist theory is often associated with John Dewey and Malcolm Knowles.

Constructivism is very much student-focused, self-directed learning. The student actively "constructs" or builds new ideas and meaning as a result of an open dialogue and ongoing reflection on one's own prior experiences or knowledge. It is a building-block model for learning and has increased in popularity throughout classrooms across the United States since the 1960s.

There are challenges to constructivism, though, just as there are with other learning theories. For example, disequilibrium occurs if new information does not make sense in relation to prior experience. This state of imbalance requires learners to readjust mental schema, or create new schema in order to understand information. Therefore, an instructor must help learners understand their existing cognitive structures and activate prior knowledge at the time of learning.

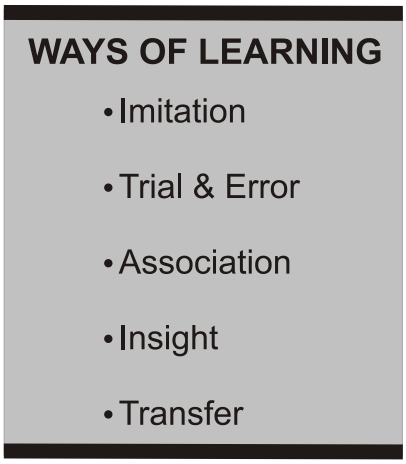
If learners can make the connection, they make sense of new information, which then becomes stored with relevant prior knowledge in a network (Bransford, Goldman, & Hasselbring, 1996; Gagne, 1995). In this perspective, prior knowledge is an important influence in learning. Constructivist models of learning advocate interactive learning environments in which students make their own meaning by connecting new knowledge to prior experiences (Greeno, Collins, & Resnick, 1996). A constructivist strategy that focuses on the social factors affecting learning, defines knowledge as the result of social consensus, and thus finds all the necessary ingredients in social life (Gruender, 1996).

Students are typically given opportunities to organize their own problem-solving and to work collaboratively to achieve mutual goals. As a social activity, students learn to ask questions, exchange ideas, and solve problems (Walker & Lambert, 1995). They also learn how to ask critical questions about the work of others, which in turn helps learners to ask critical questions of themselves. When these two processes occur, the instructor assumes the facilitation role.

An instructor in a facilitation role encourages students to be personally responsible and self-directed in learning and uses a variety of teaching methods and learning resources. Seminal research on adult learning indicates that mature learners prefer to be in charge of their own learning with minimal direction from instructors (Cross, 1998; Wlodkowski, 1993). However, there are times when instructors in a facilitation role must maintain control to varying degrees because of the nature of the subject matter and the learners' limited backgrounds. For example, learners with entry-level knowledge may require a more structured experience with less autonomy.

WAYS OF LEARNNG

All learning should be meaningful. To make learning as meaningful as possible, you need to understand how students learn. Of the five different ways of learning addressed here, no one particular way is necessarily better than the others. Your students will use some combination of these ways of learning in every class you teach. Your understanding of the ways people learn will assist you in helping your students learn and retain the information presented.



Imitation: A significant part of what a person learns occurs through imitation. This way of learning begins early in people's lives and lasts throughout their lifetime. Learning takes place even without direct reinforcement of the repeated behavior. Therefore, as a Navy instructor, you must create a training environment for students to observe others and always strive to set the proper example because you are their role model. Additionally, you need to provide positive reinforcement to students for properly imitated behavior.

Trial and Error: Sometimes referred to as discovery learning, trial and error is learning by doing. Students achieve success sooner when the proper example is set for them to imitate. Proper examples reduce the number of errors students make, and thus, help develop self-confidence. Although mastery of most skills requires this way of learning to some degree, it does involve some hazards. Think back to when you learned how to ride a bicycle to help you visualize some of the hazards of this way of learning. It can be dangerous to the students and the equipment. It can also become frustrating if repeated trials don't lead to some success.

Association: Association is a comparison of past learning to a new learning situation. It is a mental process that serves as a reference point for students. Learners can confront new problems more easily if those new problems contain elements similar to those previously mastered. For example, to help students more easily understand electricity flowing in a circuit, you might compare it to water flowing through a pipe. Use comparisons, contrasts, and examples to reinforce your explanations. Although you will have many opportunities to use association during your lessons, remember that you will have students with different experience levels in your class. Make sure you use associations to which all students can relate.

Insight: Insight is the understanding that the whole is more than the sum of the parts. Learning by insight occurs when the learner suddenly grasps the way elements of a problem situation are connected. The term describes a person's unplanned discovery of a solution to a problem--often referred to as the "ah-ha" phenomenon. That phenomenon results from a mental reorganization of ideas and concepts rather than from simple trial and error. Some individuals gain insight more rapidly than others. Individual backgrounds affect each learner's ability to gain insight, as does the sequence in which you present basic learning experiences. To help students gain insight, you must stimulate thinking. Use appropriate questions to get their minds working. Encourage thought rather than rote memorization by using questions that require associations, comparisons, and contrasts.

Transfer: Transfer is the process of applying past learning to new but somewhat similar situations. This process is important in Navy training as the training environment can rarely duplicate the actual job environment. Your goal is to teach students the importance of applying their learning on the job. Where possible, provide realistic exercises by using the actual (or same type of) equipment students will use on the job. The Navy's damage control team training is a good example of how this type of learning takes place.

THE SCIENCE OF LEARNING

The Executive Review of Navy Training (ERNT) charter placed emphasis on the Science of Learning and Human Performance process. The Science of Learning can be defined as the body of knowledge derived through scientific research about the way that people learn, the factors that affect learning, and the ways in which instructional methods and technology can be used to facilitate learning (Hays, 2006). The Science of Learning has been a rapidly growing research field over the last three decades. At its core, the Science of Learning seeks to understand how individuals and teams come to acquire the competencies needed to perform their jobs. Theorists have identified basic principles of knowledge and skill acquisition, and have determined how to maximize the transfer of learned competencies to the job. The long held notion that "telling is teaching and listening is learning" does not recognize what researchers now understand: individuals retain knowledge best when they learn theory while applying it, individuals internalize complex information at higher rates when they learn it in a collaborative environment; and learning is maximized when organizational structures are aligned.

FACTORS AFFECTING LEARNING

Many factors affect learning. No two people learn in exactly the same way or at the same rate. Each is subject to a variety of positive and negative influences in the process. You need to be aware of the many factors affecting learning. The more you know, the better chance you have of positively influencing the learning process.

LEARNER MOTIVATION

Perhaps the single most important factor in a student's educational advancement is motivation. Unfortunately, it is one of the hardest for instructors to get a handle on or to channel effectively. Humans basically try to succeed and, conversely, try vigorously to avoid failure. While we need to remember that occasional failure is human, we must do everything possible to organize student efforts toward success. Simple things like word selection in the training environment can add to or detract from the learning effort. Motivation often has as much or more impact than scholastic ability.

Students bring different abilities and experience levels to the training environment. Motivation often determines whether or not a student achieves course objectives. Many times students with the highest ASVAB scores do not make the grade while students with academic waivers do very well. Talk to any seasoned Navy instructor and he or she can probably recall at least one special student who "made it" in spite of minimal background or less-than-average ability. Little doubt exists that motivation, either internally or externally stimulated, initiates and directs behavior. Conversely, when motivation is derailed it can likely reduce or end desired behavior.

SENSORY LEARNING

Sensory learning is the first type of learning that occurs for any human being. Its influence is apparent in children as we watch them grow up. Each sense, either singularly or in various combinations, provides a pathway to learning. With that in mind, an examination of sensory learning and its special considerations may provide insight into the learning process.

The sense of touch, while important in itself, becomes a major learning factor when combined with other senses. Children do not associate the word "hot" with anything in particular until they associate the word with their sense of touch. Through experience, we become sensitive to temperature, pressure, and the overall feel

of things. For instance, an experienced engineer does not need a temperature gauge to determine if a bearing is running hot, just as an experienced damage control investigator does not need one to decide that the temperature of a watertight door is above normal.

The senses of taste and smell may not seem important in Navy training and in many cases they are not. Consider if you will, though, the importance of taste to the training of cooks and bakers. The sense of smell, which is closely associated with taste, is very strong and primitive in nature. It is part of our human warning system. For example, electricians immediately recognize the smell of burning insulation. Others become sensitive to the smell of various gases. Therefore, the sense of smell is a valuable learning tool in certain applications. Let us consider the various types of sensory learners:

- **Visual Learner.** Sight is considered the most important sense, accounting for as much as 75 percent of our basic learning. Most early learning comes from seeing and imitating. Therefore, you would be wise to consider using appropriate visual aids in your presentations. For example, visual learners prefer and enjoy graphic illustrations, color coding, maps, written materials to define new concepts, wall charts, drawings and designs and sitting up close during briefs. Be sure to recognize and accommodate students with any visual impairment.
- **Auditory Learner.** Hearing is the second most important sense, accounting for a large percentage of the remaining sensory learning capacity. Experts differ on specific numbers, but the significance of sight and sound together is overwhelming. Your speech patterns and volume are critical classroom learning factors. For example, auditory learners prefer a verbal presentation of new information, a lecture, a group discussion to hear other points of view, fast-paced verbal exchange of ideas, a good joke or story they can repeat, verbal cues or pneumonic devices to help them remember information, words to accompany a cartoon, and oral reports from working groups. Just as with sight impairments, you must accommodate students with hearing impairments.
- **Kinesthetic Learner.** Although it is not normally identified as one of the senses, the phenomenon of kinesthesia is an extension of sensory learning. Think of it as a sensory perception residing in one's muscles, joints, and tendons that gives people a special awareness of their spatial relationship with their surroundings. Kinesthesia is actually a blend of all senses with psychomotor and perceptual skills. It manifests itself in people's ability to balance or move with coordination. For example, kinesthetic learners like movement,

hands-on experience to learn, gestures while making a point, role-play exercises over discussion groups, shaking hands when meeting or greeting people, trying new things without a lengthy explanation of the activity, frequent breaks, regular opportunities to change seating or room arrangement, and they would rather just do it rather than talk about it.

Remember, students develop their skills through practice. You cannot realistically expect students in a welding class to have the coordination to weld the back side of a pipe in the overhead while using a mirror without some practice to first develop the more basic skill of welding.

Retention, with respect to sensory learning, is open to many interpretations and opinions. It has been estimated that people retain only ten percent of what they read, twenty percent of what they hear, and thirty percent of what they see. When those senses are combined, however, retention takes a dramatic leap forward. Those same estimates tell us that when someone hears and sees, retention may jump as high as fifty percent. That makes a great argument for incorporating appropriate audiovisual media into your instruction. By asking proper questions to augment sight and sound to stimulate thinking, you can push student retention close to the seventy percent level. Requiring students to use all of their senses in skill training along with procedural steps and principles can increase their retention to as much as ninety percent. That implies a fair degree of mastery learning.

LEARNING STYLES OR PREFERENCES

Much has been written about individual learning styles (preferences) and the ways in which particular styles affect the way we learn or prefer to learn. Just as students have different ways of learning new material, they also have different styles of learning. One person’s learning style may not be effective for another person. You must be flexible and perceptive enough to use various instructor techniques that appeal to more than one learning style. Varying your instructing techniques increases the chances for all students to master the objectives of the training. You especially need to know a student’s learning style when you provide remediation or tutoring for a student having academic problems. Most people have a dominant style of learning, but use all of the basic learning preferences to some extent depending upon the situation. Let us examine David Kolb’s Experiential Learning Theory that identifies four distinct learning styles, which are based on a four-stage learning cycle:

Concrete Experience. Many learners prefer an experience-based approach to learning. They rely heavily on their own feelings and personal judgments. Personal involvement is the key for them. They learn best by imitation after watching others take part in role-playing and simulations. They very much like to be involved with the "real thing." For example, suppose you were trying to teach your students how to operate a fire pump. Concrete learners would prefer to watch you demonstrate the operation. Then they would like an opportunity to operate the pump by imitating your performance.

Active Experimentation. Other learners prefer to learn by becoming involved with the subject and taking an active step-by-step approach. They learn best from small group discussions, structured exercises, and problem-solving approaches. Active learners are experimenters who prefer to systematically try out new skills. A trial-and-error way of learning appeals to them. To operate the fire pump, active learners would systematically try out several different ways of operation.

Reflective Observation. Some learners like to observe and reflect (make comparisons and contrasts) before drawing conclusions. They learn best from lectures, films, and reading. Reflective learners prefer to play the role of the impartial observer while watching others. To operate the fire pump, reflective learners would watch others operate the pump and reflect (think) about the different ways of operation. They would then analyze their observations before attempting to operate the pump themselves.

Abstract Conceptualization. Abstract learners prefer a theory-based, analytical approach to learning. They learn best from lectures by experts, theoretical reading, case studies, and activities that require solitary thinking. Abstract learners like to find the "theory" behind the subject matter and analyze the approach to discover what concepts are involved. In operating the fire pump, they would prefer to read about its principles of operation and to analyze the concepts involved in its operation before attempting to operate it.

Research shows that students learn best and retain information longer when they are exposed to learning situations that include all four learning styles. That research found that retention of information improved dramatically when instructors employed methods designed to involve more than one learning style. Note the following percentages:

- Abstract = Twenty percent retained
- Abstract and reflective = Fifty percent retained
- Abstract, reflective, and concrete = Seventy percent retained
- Abstract, reflective, concrete, and active = Ninety percent retained

HOW CAN STUDENTS LEARN MORE EFFECTIVELY?

We learn new things constantly—new names, new procedures, new concepts. Do you consider yourself a fast learner? If so, what do you do that helps you to learn new information? If not, is there anything you can do to help your learning process so that you can learn faster and more efficiently? The following discussion provides some methods or techniques you can share with students to help them learn new information more efficiently.

As previously discussed, learning involves processing new information so that it can be stored in long-term memory. In order to learn more efficiently, it is necessary to process and store new information in such a way that it can be retrieved from long-term memory when needed. Consider the following learning strategies:

Repetition: You have probably used a variety of learning strategies in the past without even realizing what you were doing. For instance, you may have repeated something over and over in your mind until it "stuck." Repetition is one way to transfer information from short-term memory to long-term memory. Repetition can be enhanced by saying the information aloud or writing it. The more senses used in imprinting the information in long-term memory, the more likely you will be able to recall it later. Review is another form of repetition. Without review, most information would be lost from memory very quickly.

Memory Aids: Another common learning strategy is the use of memory aids. Devise "methods" to help you remember a particular piece of information. For instance, when trying to remember whether to turn a valve handle clockwise or counter-clockwise to shut off the valve, many people will use a memory aid they learned in childhood: "righty-tighty; lefty-loosey."

Memorizing vs. Understanding

Although memory aids may be helpful when trying to memorize a list of terms or steps, they do have some disadvantages. For instance, some lists do not easily lend themselves to making acronyms or mnemonic sentences. Also, if you cannot remember the correct acronym or mnemonic, you will not be able to remember the list. The biggest problem with memory aids is that they aid

memorization, but they do not promote understanding. Seeking understanding is the most effective way to learn new information.

Active Learning: Learning should be an active process. Students should pay attention to what they are trying to learn and not let their thoughts drift to other things. Paying attention, however, is only the first step. They must also think about what they are learning. Students must try to make sense out of the information and look for relationships, such as categories, similarities and differences, or cause and effect.

Studying in Chunks ("Chunking"): Students tend to remember first things and last things best and forget the information in the middle. To take advantage of this tendency, advise students to study in twenty to fifty minute chunks of time, centered on a single idea or group of related ideas. Chunking the information to learn for the purpose of analyzing it also helps students to understand it better. Recommend that students take at least a ten minute break before studying the next chunk of information. This strategy allows them to have more beginning and ending points in their learning, taking advantage of natural learning tendencies.

Relating New Information to Prior Knowledge ("Scaffolding"): Do not just try to memorize new information. Make sense out of it by considering it in light of what you already know. When you relate information, you are creating a web of memories that lead to each other. The more ways there are to access information in long-term memory, the more likely we will be able to recall it when necessary.

Using the "Puzzle" Approach: Have you ever put together a jigsaw puzzle? Generally, people will start the puzzle by finding and fitting together the outside pieces so that they have a frame of reference for the rest of the puzzle. When learning something new, first learn the general concept before trying to learn the details. This strategy will help you to understand the details later as you consider how they fit within your framework of understanding.

Testing Understanding: A good practice when learning new information is to put the information in your own words. If you cannot, then you do not understand it. If possible, ask someone more knowledgeable to listen to your interpretation of the information and assess your level of understanding. Another method is to create a mental picture of the information. Often, a picture is easier to recall than words.

Applying Information: The old saying "Use it or lose it" applies just as much to information stored in long-term memory as it does to physical fitness. How easily we recall information depends a great deal on how frequently we use the information. That is why application and practice are so important. When you learn new information, find opportunities to use it. Not only does frequent use help with retention, but also every time you use the information, you are forming more associations to it within your memory that will help you remember the information later. These associations, in turn, increase your understanding of the information as you see its applicability to a variety of situations.

Effective learning strategies promote retention and an understanding of the information to be learned. As a Navy instructor, encourage your students to practice one or more of the learning strategies listed above, based upon their own learning styles or preferences.

INFORMATION PROCESSING AND RETENTION

Learning can be compared to using a file cabinet. Students select information important enough to be saved and file it with related information for future use. To better understand this, you as an instructor need to know how students learn and process information.

Information Processing: Learning involves processing information, then storing it in an easily accessible location. Figure 4-1 illustrates how we process information in the brain. After something has gained our attention or someone has brought our attention to it we begin processing the information.

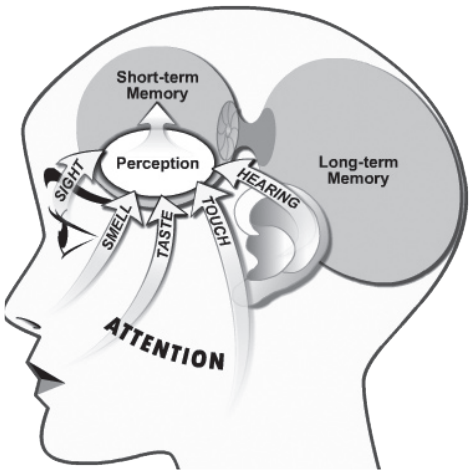


Figure 4-1: Information Processing

Attention: The first step in processing information is attention. Something must first capture our attention in order for us to learn it. Example: PO2 Kestler shows Seaman Turner some corrosion on a hatch. "See this corrosion, Turner? Today you're going to learn how to get rid of it." Although Turner had not noticed the corrosion before, this statement grabs Turner's attention.

Perception: After something has gained our attention or someone has brought our attnetion to it we begin processing the information. Perception is the stage at which we determine whether the information is of value to us. If we perceive that it has no value, we ignore the information. How we perceive is colored by a number of factors, including: our own expectations, previous knowledge, life experiences, and our personality. Example: Turner perceives that this is something he needs to learn because he might need to know it later on the job.

SHORT-TERM MEMORY

Short-term memory is temporary storage, or "working" memory. It is often compared to computer RAM. Theorists believe the duration of information in short-term memory is somewhere between 5 and twenty seconds.

If we want to retain information, we begin to encode it for storage in long-term memory. Encoding often involves trying to make sense of the new information by relating it to what we already know.

If we do not continue processing the information, it will fade away and be replaced with new information. For example: Turner and Kestler don protective gear, and Kestler picks up an odd-looking tube, saying, "This is a needle gun." Because Turner has perceived that this is important information, this term goes into Turner's short-term memory.

LONG-TERM MEMORY

Long-term memory provides permanent storage of learned information. We seem to have an unlimited capacity to store information. However, retrieving it from long-term memory so that we can use it is sometimes a problem.

The ease with which we access information in long-term memory depends very much on how it was stored. Consider the filing cabinet. If you file by just throwing all your papers randomly in a drawer, you will have a hard time finding them later. If you file papers with related ones, you can find them more easily. For example: Kestler asks, "Have you ever seen someone using a jackhammer?" Turner nods affirmatively. "Well, the needle gun works in much the same way." Kestler then demonstrates. Kestler's comparison enables Turner to make a mental connection between the needle gun, which is unfamiliar, and jackhammers, which are familiar. This association will help Turner store the information in long-term memory in such a way that he can easily remember it.

BARRIERS TO LEARNING AND RECALL

Have you ever had trouble learning something? Why is it easy to learn some things and difficult to learn others? Have you ever thought you knew something but could not recall it when you needed to? Problems with learning and recall often result from a barrier that causes a breakdown in information processing.

- **Attention/Perception:** Attention does not guarantee learning. If students perceive that the new information has no value, their perception will act as a barrier that will stop any further information processing.
- **Short-term Memory:** If something or someone else grabs students' attention during information processing, the information in short-term memory will become unavailable in a matter of seconds.
- **Long-term Memory:** Barriers to recall will prevent students from recalling information stored in long-term memory.

BARRIERS TO ATTENTION

Sometimes new information may catch students' attention without any outside assistance. For instance, a sudden motion or sound may cause them to focus on something they never noticed before.

However, if there is nothing to capture their attention, information processing may be blocked before it even gets started! In this case, something or someone must draw their attention to the new information.

BARRIERS DURING PERCEPTION

If students perceive new information is not important, they may discard it. A number of factors can act as barriers during this phase of information processing:

- **Perceived Irrelevance:** If students perceive new information has no application to their job or their interests, they will likely ignore it.
- **Repeated or Contradictory Information:** If new information appears to repeat or contradict what students believe to be true, they may reject the new information without further consideration.
- **Overriding Physical Discomfort:** Have you ever been so tired all you could think about was sleep? Being too hot or too cold, having a headache or feeling sick may cause students to ignore new information because they are more concerned with their immediate discomfort.

- **Emotional Reaction:** A strong emotional reaction to an information source may cause students to ignore information from that source.

BARRIERS IN SHORT-TERM MEMORY

Actively processing information in short-term memory prepares it for storage in long-term memory. Without this process of encoding and storing information, short-term memory can be lost very quickly.

Have you ever lost a thought when something distracted you? Interruptions are the primary barrier at this stage of information processing. The longer the interruption, the greater the chance the information may be lost from memory. Interruptions may take several forms—someone coming in the room, an unexpected noise, or a sudden, unrelated thought. Getting too much information too quickly is another type of interruption. Anything that stops students from processing information has the potential to disrupt learning.

Another type of barrier is prior knowledge that contradicts what students are trying to learn. Prior knowledge is usually helpful during information processing because students may use it to make sense out of new information. However, it may be a barrier to learning if it differs greatly from what they are trying to learn. For instance, imagine that you are a pilot and a new system has been installed in the cockpit of your aircraft. The sequence of steps for using this system is quite different from what it used to be. In this case, your knowledge of how to operate the old system may interfere with your learning how to operate the new one. This barrier may cause you to have difficulty remembering the correct procedure.

BARRIERS TO RECALL FROM LONG-TERM MEMORY

What makes us forget? Do we lose memory over time? Science still does not know the answer to this question. Although it is suspected that we do not lose the information but the ability to access it.

How we access information depends primarily on how we first processed it in short-term memory. Have you ever tried to remember something by repeating it over and over to yourself? Repetition

is one process we use to store information in long-term memory. However, a more effective way to process information is to draw connections to previously learned information. Normally, we do this unconsciously as we try to make sense of new information by considering it in light of what we already know. Many experiments have shown that related ideas may be recalled more quickly than unrelated concepts.

The two key barriers to recalling information are disuse and improperly stored information. Information memorized through repetition with no attempt to make associations with other information may "decay" very quickly through disuse. Think of this in terms of finding a missing person. It would be very difficult to find someone if all that is known is the person's name. We locate people through their associations with friends and family, with organizations, and with certain known activities or habits. The more associations, the easier the person is to find. Likewise, the more associations we make to information the better our chances of recalling it later when we need it.

OVERCOMING BARRIERS TO LEARNING AND RECALL DURING TRAINING

Knowing the barriers to learning and recall will help you understand why learning can sometimes be difficult. As an instructor, you can use various strategies to help your students overcome barriers such as the following:

- **Attention.** When you are training, you have to gain and retain your students' attention. Emphasize the important points you want them to learn. Use eye contact and observe body language to ensure you are maintaining their attention throughout the training session. Ask questions if you believe their attention is wavering.
- **Perception.** Overcoming your students' barriers to perception is more difficult because of the personal factors involved. Ensure students know the relevance of the training to their jobs.
- **Short-term memory.** During training, minimize distractions that can interrupt information processing.
- **Long-term memory.** Help students link new material to what they already know. The more links, the more associations they will be able to use later to recall the information.

Now that you understand how students learn, how do you use this information to provide the best instruction for their individual learning styles? This is where instructional differentiation comes into play.

INSTRUCTIONAL DIFFERENTIATION

Students' experiences and backgrounds play major roles in the makeup of most classes. As an instructor, you should be cognizant of your students' socio-economic, racial, and gender differences; all of which present many varying perspectives in the classroom. You should also be aware of your own personal preferences and biases and how they could influence your students and impact their training. The more you involve your students and use their experiences and backgrounds, the more realistic the training will be.

Instructional differentiation will allow you to meet the needs of all of your students, despite age, race, gender, socio-economic status, marital status, religious preference, and other individual factors affecting students' learning. Differentiation simply means the delivery of your lessons takes several approaches and provides each student with specialized and targeted instruction.

GENDER BIAS IN LEARNING

Gender bias, in general terms, is the practice of differential and preferential treatment toward one gender over the other in the classroom environment. When gender bias occurs, it is often readily evident to students that the instructor shows favoritism towards one specific gender. Your efforts as an instructor should minimize gender bias through your development of an inclusive classroom environment that routinely engages both male and female students in the learning process and maintains the same learning standards for each gender. Below are a few suggestions for a gender inclusive classroom environment:

- **Avoid Stereotypes:** By reviewing your lessons and activities for gender bias and regularly ensuring that gender neutral language is used in the classroom by the instructor and students alike, you can avoid stereotyping students based on gender.
- **Foster Gender Integration:** Both genders should work collaboratively on activities and projects within the learning environment in an effort to foster gender integration.
- **Equality for Both Genders:** Instructors should provide equal opportunities for both genders to serve in leadership roles and ensure both genders actively participate in learning activities. This effort ensures all students have the chance to do complex technical work.

WHAT ABOUT GENERATIONAL DIFFERENCES?

The Navy is extremely diverse with several generational groups in the workforce. Generations are typically identified from the historical events and the emotional ties of the times and several defined time periods; those listed below are one representation of a generational time period. The point is, generational differences do exist and have caused most educators and trainers to reassess how adult learning should be addressed for each of these generations. Listed below are examples of recent generations and their general preferences:

- **The "Boom" Generation (roughly born 1946-1965):** Boomers tend to prefer a more hands-on, moving parts type of approach to learning. Many are hard-working, competitive, team-players, anti-rules and regulations, and have a mentality of "show me" or "prove yourself." These are the people that are typically in our more senior leadership positions today.
- **The "Generation X" (roughly born 1966-1980):** Closely behind the "Boomers" are the "Gen Xers" who tend to prefer a more structured training environment with well-defined expectations, clear assignments, parameters for each phase of their training, and sequential steps to meeting objectives. This generation is quickly replacing the "Boomers" in leadership positions and exerting their influence into the workplace.
- **The "Millennial," "Generation Y," or "Nexters" (roughly born 1981-2000):** Nexters have arrived on the scene and make up our newest generation of incoming Sailors. This generation grew up in the electronic age of laptop computers, cellular phones, cable TV, PDAs, and instant messages. The Millennials are gravitating in large numbers toward large institutional and government agencies, seeking teamwork, protection against risk, and a solid work-life balance. They focus on upbeat messages and big brands; they are more conventional, as evidenced by a resurgence of oldies and remakes. They have stronger and closer relationships with their parents and extended families.

Understanding these generational differences helps us better understand how adult learning may evolve once again. Each generation brings a different set of social values that define their presence. These shared values will play a pivotal role in how they perceive themselves and are perceived by others. In turn, these perceptions will no doubt impact their style of learning and will drive the way the Navy provides training and development opportunities in the future.

Additionally, the differences in attitudes that students bring into the classroom will directly impact their learning. There are many different reasons for attending a class or completing a training evolution. Some will be in the class because they want to be for all the right reasons. Others will only be in the class because they have to be, and they will resent it. Some might be indifferent, just marking time.

Attitudes undoubtedly affect performance since they indicate how students feel about learning at a particular time. As an instructor you must detect the individual motivation levels indicated by attitudes so that you can channel students' efforts toward success.

Why is all this important to a Navy instructor? Because learning to be the best instructor involves understanding the differences we all have and how our make-up affects our ability to learn. We want people to learn as much as they can in the time we have to train. As we have discussed, the more you understand your students, the better you may prepare training and adjust your instructional delivery techniques to have the greatest impact on learning possible.

SUMMARY

Your practical application of the basic principles of adult learning theory will have an enormous impact on your students' ability to master course objectives. Learning about these fundamentals is not enough; you must discuss and exchange thoughts on these principles with your fellow instructors and commit to using these fundamentals in the classroom on a daily basis.

To transfer your knowledge and skills as an expert in your field to others, you must understand what causes student learning and what can interfere with their learning. Students have enough built-in obstacles to learning without you becoming an obstacle too. Learn, understand, and apply the principles of learning and you will be well on your way to becoming a master trainer.

CHAPTER 5

EFFECTIVE COMMUNICATION

INTRODUCTION

The ability to communicate effectively is essential. Communicating is more than speaking; it involves your entire presence. How you present yourself has a great deal of impact on your students' interest and desire to learn. As a Navy instructor, you must be able to communicate your knowledge, skills, and experiences to students in order to facilitate the learning process. How you communicate often has more impact than the content of your message. The skills and techniques explained in this chapter will assist you in strengthening your ability to communicate effectively.

EFFECTIVE COMMUNICATION PRINCIPLES

The purpose of effective communication in a training environment is to ensure students accurately understand the material presented by the instructor. There are basically two principles you need to understand that have to do with communicating effectively: (1) the identification and removal of barriers and (2) the communication process itself.

THE COMMUNICATION PROCESS

Communication is the exchange of thoughts, opinions, and information through speech, writing, nonverbal cues, signs and images. The communication process consists of a sender, a message, a delivery vehicle, and a receiver. This concept is illustrated using the Model of Communication (Fig. 5-1).

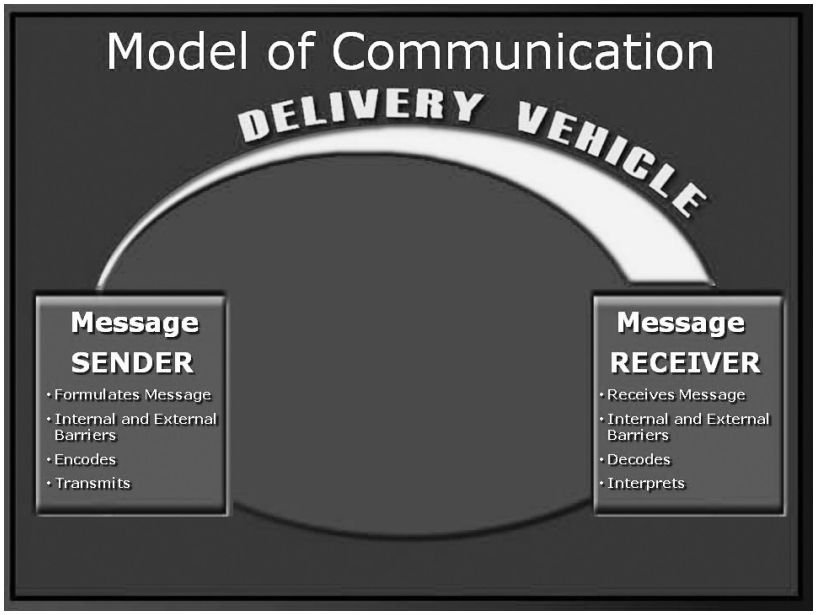


Figure 5-1: Model of Communication

SENDING THE MESSAGE

There are four elements involved in sending a message. First, as the instructor (sender), you formulate the message you intend to communicate in your mind or in a lesson plan. Next, you consider possible barriers that may affect your message. These barriers may include your own experience, your students' experience, the terms you will use, and even your feeling toward the subject or that of the students. External barriers and environmental factors such as noise must also be considered. Third, you encode the message; that is, you put the message into the words you want to use. Lastly, you clearly communicate (transmit) the message.

THE MESSAGE

The message is whatever information you want to convey. The message may be verbal or non-verbal.

THE DELIVERY VEHICLE

The delivery vehicle is the method you choose to deliver the message. Delivery vehicles include spoken or written words, pictures or other visual aides, computer-based lessons or TV. Technology is just another way to deliver the message, an alternative "vehicle."

In order to accommodate the different styles of learning it is generally a good idea to convey the same message through several delivery vehicles. For example, you may write an important term on

the board and then pronounce it for the students, addressing both the auditory and the visual learners with the same message through two different delivery vehicles.

RECEIVING THE MESSAGE

There are also four elements involved in receiving a message. The students (receivers) will first hear and/or see the message you sent. Second, the message is affected by external barriers, if any, and the students' own internal barriers. Possible internal barriers may include the students experience level, their understanding of the terms used, their attitude toward the material, or the way they feel about you. Third, your students decode the message using mental images and thoughts. For instance, when you say the word circus, the receiver may not "see" the letters that form the word. Instead, a mental image of some sort may appear or thoughts may begin to formulate. How many different mental images or thoughts might arise among your students based on this one word alone? Images or thoughts of a clown, a big top, lions, acrobats, and so forth may be recalled. Fourth, the students interpret the message. Clearly, at this point in the process there is no way for you to determine that all of the students received the message you intended. To determine this, you must get feedback.

Your challenge, as an instructor, is not to merely communicate with your students--but to communicate effectively with them. This concept is illustrated in the Model of Effective Communication (Fig. 5-2).

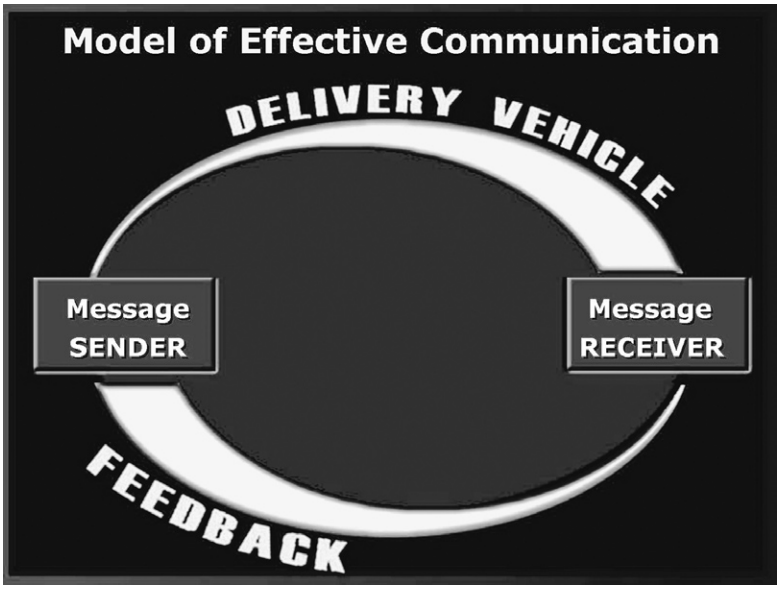


Figure 5-2: Model of Effective Communication

Effective communication involves a message being sent and received and occurs when the receiver has understood the message intended. Feedback is a useful tool for testing whether or not a message has been received and understood as the sender intended.

FEEDBACK

Feedback, which may take several forms, provides essential information about your success in communicating the message. To get feedback, have the students respond to oral questions and encourage them to ask questions. The students' non-verbal behaviors also provide important clues as to their understanding of the material. Facial expressions and body movements often indicate when students are unsure about the meaning of your message. You should be careful in accepting a "yes" response when you ask "Do you understand?" Obtain meaningful feedback by asking questions that require the students to provide answers, which indicate that they in fact do understand exactly what you intended (e.g., paraphrasing).

BARRIERS TO EFFECTIVE COMMUNICATION

The existence of certain barriers increases the potential for poor communication. By being aware of these barriers, you can reduce them and enhance the clear understanding of your students. Let us discuss some common barriers to effective communication.

LACK OF COMMON CORE EXPERIENCE

One barrier is the lack of common core experience. You are unlikely to find any group in which students have the same common core experience. For example, if you say that a kiwi tastes like a kumquat, students who have tasted one would have the experience to make the proper association. However, for the students who have tasted neither, the comparison will have no meaning. To prevent that problem, determine student experience level before you prepare your lesson. Then check for understanding as you use examples and analogies with your explanations.

OVERUSE OF ABSTRACTIONS

Abstractions are concepts, ideas, or terms that are indirectly related to the subject being discussed. To avoid confusion you should speak in concrete terms--be specific. Be aware of the background and experience level of your students and use appropriate terms and examples. You will normally have more experience in the subject matter than any of your students, so you have the responsibility of ensuring their understanding. This

requires that you not only present the information clearly, but also that you check to ensure the students understand exactly what you intended.

FEAR

Fear may be one of the greatest barriers to effective communication. The fear of showing ignorance, fear of disapproval, fear of losing status, and fear of judgment are all common barriers to communication. Many times, students will have anxieties or fears about their abilities. Students may hesitate to take part in your discussions because they have a lack of confidence and are afraid they will appear ignorant. That, in turn, brings about a fear of judgment and a fear of losing status in front of their peers.

Try to understand your students' fears. Provide a threat-free learning environment by being encouraging and nonjudgmental of the students. Remember how long it took you to learn your subject matter and that this is your chosen area of expertise. Your student may not have the same natural ability for or interest in your subject area that you do. Many may be required to take your course(s) in order to achieve a larger goal. Take the time to recognize individual differences in your students so that you will know how to motivate them.

Since you have control of the class, you must direct the class energy in a positive direction. Do not allow fellow students to make fun of or exhibit disapproval of a struggling student. Avoid embarrassing any of your students or offending human values. Follow the basic principle of motivation by giving them positive feedback.

ENVIRONMENTAL FACTORS

Environmental factors such as noise and temperature may interfere with the communication process. Obviously, noise is a barrier to hearing what is being said. If students are overly hot or cold it may be difficult for them to listen attentively. However, more subtle factors may also affect the communication process. Poor lighting, the color of the walls, uncomfortable seats, the location of pictures or illustrations, and the arrangement of students in relation to the instructor may all become barriers to effective communication.

You should constantly strive to identify and eliminate barriers to effective communication. Some will be obvious while others may be very difficult to detect. For this reason it is a good practice to ask students regularly if they can hear you or see what you are demonstrating right before you do it. After students see you are responsive to their environmental needs they are more willing to bring them to your attention even when you do not remember to ask. Your awareness of barriers, along with knowledge of the communication process, and sensitivity to students' needs will assist you in communicating effectively in the classroom.

EFFECTIVE COMMUNICATION SKILLS AND TECHNIQUES

There are many skills and techniques you must master to be an effective communicator and instructor. Many of these skills you already possess, all that is required now is that you use them to their best advantage. Others, you may need to learn and/or practice.

LISTENING

Listening is one of our most important communication skills. It is an active process of hearing and understanding that demands concentration and attention. Both you and your students have responsibilities in the communication process.

You must ensure that the learning environment is free of distractions that might interfere with the students' ability to listen. Be alert to the non-verbal behaviors of your students. Facial expressions reveal much of what is happening in the mind of a student. A quizzical look indicates some misunderstanding has occurred or a question needs to be addressed. A student leaning slightly forward and maintaining good eye contact with you is probably interested and sincere about learning. An affirmative head nod indicates approval, agreement, or understanding. Conversely, eye contact out the window or someplace other than the front of the room may indicate boredom or lack of interest. Fidgeting in the chair or a slouched posture may also be an indication of something other than effective listening. Raised hands and relevant questions are sure signs that you are communicating effectively. Learn to determine if students are listening by the type of feedback they provide. Remember effective listening depends on motivation, and you are the prime motivator in your classroom.

Students should arrive for instruction ready to learn. They should participate and ask questions as they arise. Students must understand that they have responsibility for their own learning. This requires active listening on their part. One way to help students understand their learning responsibilities is for you to make them clear at the outset of the course and periodically remind them of your expectations throughout the course.

EFFECTIVE INSTRUCTOR DELIVERY TECHNIQUES

Delivery style has a major impact on student motivation and determines to a great extent how well students listen. Studies have shown that spoken words alone account for only seven percent of the impact of the message.

SPEECH IMPROVEMENT

There are two methods which will improve all aspects of your speaking voice. First, listen closely to polished speakers on television, such as popular newscasters. Their techniques of speech make them good models for study. Do not try to imitate them exactly, but study how they use their voices to give meaning to their words and emphasis to their ideas. Second, listen to yourself daily as you instruct and casually converse with your contemporaries. Make a habit of constantly evaluating how you use the speech factors listed in this section. The following verbal skill factors are important considerations in your delivery of instruction:

Articulation. Articulation is simply understandable speech. You can achieve good articulation in two ways. First, enunciate: speak clearly. Second, pronunciation: accent syllables and reproduce consonant and vowel sounds in conformity with the accepted standard--the dictionary. To be a good speaker, make crisp, distinct enunciation your goal. Avoid slurring and mumbling. Avoid slang such as jist, git, gonna, whut, watcha, or hafta. In rehearsal, exaggerate your enunciation beyond what is required in normal speech. Apply the principle of sharpened enunciation not only in your classes but in ordinary conversation. Make it a habit.

If you have a regional accent, such as a Southern drawl or a New England twang, do not try to eliminate it--make the most of it! It is part of your personality. A slight accent is pleasant and adds interest and personality to your speech. However, be sure that people from other parts of the country can clearly understand you. It is okay to correct your own pronunciation if you realize you have mispronounced something in front of the class.

Grammar. Grammar concerns the correct usage of the spoken or written word. It is like a code. When you use the code correctly, the message comes through clearly and quickly. But when you make encoding errors, the one who receives the message has to labor to extract the precise meaning. Sometimes your message may not come out exactly right. That is okay on an occasional basis. However, as an instructor, you should strive to be as clear as possible and never to commit glaring grammatical errors. It is okay to correct yourself if you realize you have used incorrect grammar in front of the class.

Rate of speech. As a speaker, you should neither talk at a slow, plodding rate that puts your listeners to sleep nor rattle off words so rapidly that they run together. As a rule, speak fast enough to be interesting yet slow enough to be understood. Just as a good baseball pitcher keeps the batter alert by changing the speed of the ball, take advantage of a vocal change of pace to hold the interest of your audience. Your rate of speech should be governed by the complexity of the thought, idea, or emotion you are communicating. Use a fast rate for joy, excitement, or vigorous action. Use a slow rate for a deliberate or methodical presentation. Add emphasis by either slowing or speeding your rate. The normal rate of delivery is 125 to 150 words per minute. As you gain experience as an instructor, you may even be able to help your students pick out the most important points of their lessons simply by varying your rate of speech.

To improve common rate difficulties, observe the following suggestions:

- **Slow, ponderous rate.** Use a tape recorder to record yourself, reading aloud. Try to interpret the meaning of the words by the rate at which you speak them. Then play back the recording. If your rate is still too slow, record the same reading selection again, but force yourself to use a faster rate of speech to cut down the total playback time.
- **Fast, machine-gun delivery.** Curb your impatience to blurt out ideas. Take time to make them clear. Force yourself to slow down. Recognize the listeners' need to absorb ideas; give them time to do so by saying words clearly and by pausing longer between ideas. Read aloud, observing the marks of punctuation. Express the meaning of the words carefully at the rate that fits your interpretation. Taking care to enunciate more precisely will generally slow your rate. You may want to use a tape recorder to help you with this problem as well.
- **Halting, choppy rate.** Concentrate on speaking complete ideas or sentences. Take a deep breath before you begin a sentence; breathe between, not in the middle of, ideas or phrases.

Sometimes a choppy rate results from tenseness, nervousness, or lack of familiarity with the subject matter. Be prepared and be calm before you start to speak. It is okay to stop speaking and think for a moment before going on to your next point.

- **Pauses.** In writing, punctuation marks separate thoughts and ideas and give the desired meaning and emphasis to words. In speaking, pauses serve the same functions to a large degree. You may use pauses to gain humorous, dramatic, or thought-provoking effects. Use them as a vocal means of punctuating your ideas. Proper use of pauses gives listeners a chance to absorb ideas and gives the speaker a chance to breathe and concentrate on their next point. Pauses also give emphasis, meaning, and interpretation to ideas.

  The following suggestions will help you overcome common pausing difficulties:

  - **Not enough pauses.** Begin by reading aloud something that you like. Force yourself to pause between ideas and at periods,
    commas, and other punctuation marks. Try to adopt the attitude of the artist who makes a few brush strokes and then steps back to evaluate the results.
  - **Too many pauses.** A lack of knowledge of the subject, failure to organize material thoroughly, or inadequate rehearsals usually result in too many pauses in the speaker's delivery. Study your material and organize the lesson on paper. Then rehearse until your thoughts and words flow smoothly. Thorough familiarity with the subject matter increases verbal fluency.
  - **Overuse of verbal connectors.** Pauses, properly placed in the flow of speech, are often more effective than words. Filling pauses with meaningless, guttural sounds gives listeners the impression that you are not confident of what you are saying and that you are not prepared to speak to them. It may also prove to be an annoying distraction for your students. Too many "uhs" and "ahs" may be detrimental to an otherwise effective lesson presentation. To improve on this difficulty, use the same techniques suggested for eliminating too many pauses and leave out the "uhs" and "ahs." Many people are unaware they have this habit. You may want to use a tape recorder to see if this is a problem for you or not.

- **Inflection.** Inflection is a change in the normal pitch or tone of the speaker's voice. Just as musical notes become melody when arranged in different relative positions on the musical scale, your voice becomes more interesting and words more meaningful

when you use changes in pitch. Using inflection can increase emphasis on certain words. The following example illustrates how inflection on different words changes the meaning of a question. Say the question to yourself, raising your pitch (but not your volume) on the underlined words, as indicated:

What am I doing?
What am I doing?
What am I doing?
What am I doing?

Inflection is the key to expression of mood. It can be emotional, persuasive, or convincing. Using inflection can move an audience to tears or laughter and create a lasting impression. Without inflection, the audience may fall asleep. Like pauses, inflection is a way of punctuating speech. It can put the question mark at the end of a question, make a statement of fact more positive, or help to put an exclamation mark at the end of a strong statement. Inflection is the principal difference between just saying words and speaking ideas with meaning. Try the following suggestions to improve inflection:

- **Read aloud and communicate your emotions.** Inflection conveys feeling and meaning. However, feeling also produces good inflection. As an instructor, you must show your feeling about what you say. To practice using inflection, read aloud and communicate your emotions. Using a tape recorder is a good way to improve inflection because you must communicate emotion entirely through your voice; gestures or visible facial expressions provide no help.
- **Practice downward and upward inflection.** Generally, downward inflection at the end of a sentence expresses conviction. However, downward inflection within the sentence itself gives a sense of finality to the thought and creates a mental break in the listeners' thoughts. Use slight upward inflection within the sentence to indicate that the thought is not yet complete; that serves to bind ideas together and to give unity to the thought. Use upward inflection at the end of a sentence only when you ask a question or imply uncertainty.

- **Force.** Forceful speech combines the volume or carrying power of the voice with the demonstrated vitality, strength, and conviction of the speaker; it includes the proper placement of stress or emphasis on key words and phrases. Like rate, pauses, and inflection, force is a way of conveying conviction, of giving meaning, or of adding emphasis. Yet,

unlike rate, pauses, and inflection, it cannot be set apart distinctly. Force involves rate, pauses, and inflection plus carrying power, fullness of tone or body, and proper regulation of loudness. Listeners will not respond to a speaker who shouts and is insensitive to their feelings. Neither will they be convinced by the cool, detached manner of a speaker who is consistently calm, quiet, or patronizing. To communicate, you must awaken reactions and feelings in your listeners.

Knowledge of the subject and of the sequence in which you plan to present ideas will help you to calmly lead the thoughts of your audience. You can then drive home a point with power and let silence underline the significance of your words.

Through your gestures, voice, movement, eye contact, and choice of words, you can convey force to your listeners. But your listeners will neither hear you nor see you unless you project words and actions with a vitality and strength of conviction. Force is not loudness, shouting, wild gesturing, or vulgar language. Force is knowing what you want to say and then saying it with implicit firmness and undeniable confidence. The following common difficulties with force have accompanying suggestions for improvement:

Lack of volume. To increase volume, select someone in the back of the room and concentrate on making him or her hear you. Rehearse in an empty classroom and speak to an imaginary person in the back of the room. Since these exercises will make you aware of the distance involved, they will motivate you to increase your volume. When you speak with increased volume, you will be able to feel your diaphragm working.

Dropping volume at end of words or sentences. Dropping volume usually results when a speaker incorrectly associates a drop in volume with downward inflection. Develop the habit of paying attention to the sound of your own voice so that you can judge whether you are being heard. Practice lowering the pitch of your voice without dropping the volume. Record your voice so that you can hear how you sound to others. Read aloud and concentrate on projecting every word in a thought or idea to an imaginary listener seated in the back of the room.

Failure to give emphasis to main points or key words. To emphasize main points and key words, you must first know your subject well. Then you can communicate main and subordinate ideas by stressing

key words and phrases using volume, pitch, rate, and pauses. That will result in convincing and authoritative presentations and help your students know which points are the main ones to take away from their lessons.

Some additional verbal skills to consider while delivering instruction are:

- Use language appropriate to the educational level of class.
- Use gender-neutral language.
- Define terms and acronyms.
- Avoid profanity, sarcasm, and inappropriate humor.

EYE CONTACT

The most powerful and influential element of instructor presence in front of a class is direct eye contact with your audience. By looking directly in the eyes of each of your students, you personalize the lesson being presented and stimulate the desire for them to listen more intently. Each student should have your direct eye contact several times during an instructional period. Make and maintain this eye contact for 3 to 5 seconds. This time interval is appropriate for personal contact without being overbearing or creating some level of discomfort for individual students. Scan the entire class without developing a mechanical pattern. Avoid the common pitfall of talking to the chalkboard or visual aid panel or to any other training aid you may be using.

Maintaining effective eye contact enhances your credibility. Another important reason for looking directly at your students is to observe their nonverbal reactions to your instruction. Feedback provides you with the opportunity to judge your effectiveness and make necessary adjustments as discussed later in this chapter. Students are more likely to participate actively in their own learning when they know you are as aware of them as they are of you.

BODY MOVEMENT

Body movement is an important part of successful communication; it reinforces, emphasizes, and clarifies verbally expressed ideas. However, your actions while instructing must reinforce rather than contradict your words. Make sure the image you present and your body movements strengthen your communication.

Movement is the motion of the whole body as you travel about the classroom. Movement attracts the attention of the listener because the eye instinctively follows moving objects and focuses on them. Movement can help you convey thoughts to your audience.

The basic rule in movement is moderation. Do not remain glued to one spot, but do not keep on the move all the time. As your skills and experience increase, your movement will become less obvious and more meaningful. Learn to modify the degree of movement to make it natural and meaningful.

Plan your movement so that you are at the proper place at the proper time. For example, when using computer-aided instruction, plan movement so that you are at the Smart Board when it is time to discuss the next teaching point.

GESTURES

A gesture is a natural movement of any part of the body that conveys a thought or emotion or reinforces oral expression. Your arms, hands, and facial expressions are your principal tools of gesture. Your gestures will depend to a large extent on whether your personality is vigorous and dynamic or calm and easygoing. Regardless of your personality, gestures will add to the effectiveness of your speech if you relax your shoulders, arms, and hands, and concentrate on communicating to the audience the meaning and importance of your ideas. When the gesture is natural, it is effective. These natural gestures, when accomplished properly, add confidence to your instruction. If the gesture is artificial, posed, or strained, it detracts rather than reinforces. Practice gestures as a natural part of your speaking manner; they should arise spontaneously from enthusiasm and conviction.

Descriptive gestures portray an object or illustrate an action. Describe the size, shape, or movement of an object by imitation. Show a vigorous punch by striking with your fist; show height by holding your hand at the desired level; show speed by a quick sweep of your arm. Pantomime a complicated or humorous movement as you describe it. Use your hands to sign a message, such as a “V” formed with two fingers as a symbol of victory. Fig. 5-3 demonstrates body movement and gestures to avoid.

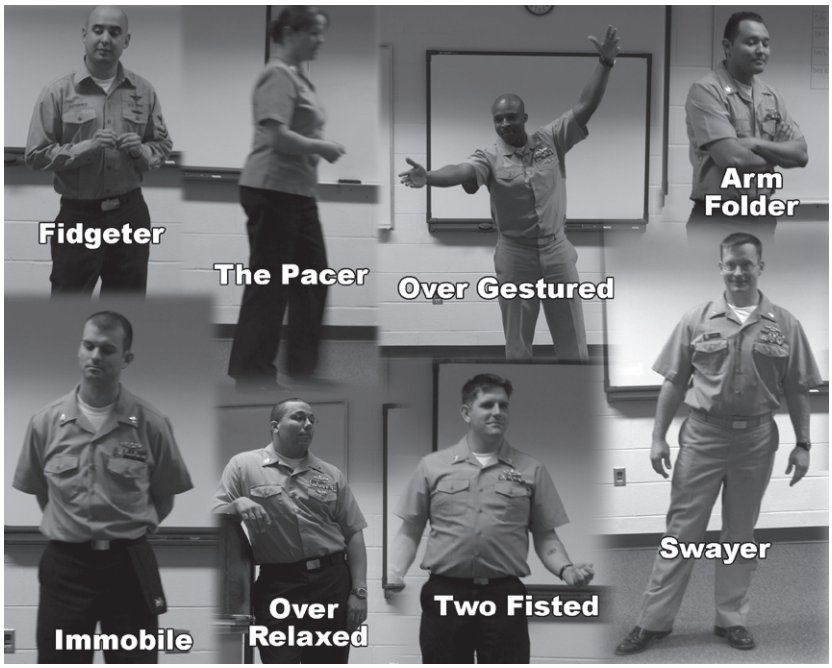


Figure 5-3: Body Movement and Gestures to Avoid

Facial Expression

Facial expression is a specific type of gesture. To change opinions or to inspire or interest people, your face must show what you are feeling and thinking. Facial expressions show many feelings such as joy, dejection, anger, and poise.

The most common fault in facial expression is the deadpan face that shows a total lack of expression. Another common difficulty is the use of a constantly intense expression, usually manifested by a frown. Overcome this problem by relaxing all over; then use your intensity only on key ideas.

When using gestures and facial expression to enhance your delivery style:

- Use effective physical gestures and facial expressions that coincide with your verbal communication.
- Avoid inappropriate gestures such as hands in pockets and jangling change and keys.
- Avoid distracting mannerisms such as scratching arms, pulling on ears, touching hair, playing with glasses, etc.

Finally, remember that you are neither a wooden statue nor a clown. You are a human being. The more natural you appear and act, the more you will influence your listeners. The classroom is no place for a poker face.

ATTITUDE

Attitude is the most important trait. It will be given away by your verbal skills, eye contact, and gesturing. It can be a positive or negative motivating factor. Your speech reveals how you feel about what you say. It has an emotional impact on others. Thus, emotion indicates how you feel about all that surrounds you—it shows your attitude. Your attitude affects the words you use. The four specific indicators of a good speaking attitude are sincerity, confidence, enthusiasm, and humor. Let us look at each of them a bit more closely.

Sincerity

Sincerity, from the speaker's point of view, is the apparent earnest desire to convince the audience of the truth and value of an idea. The two sources of sincerity are a personal, intense belief in your subject and a belief in the value of your subject to your listeners. The first of these sources is ideal because intense personal belief is natural sincerity that shows in your every word or gesture. But, don't over do it and make a particular lesson your personal "Soapbox." That will detract from the task of teaching the lesson and your credibility as an instructor could be diminished. The second source is more rational than emotional. If you know your teaching material is valuable, you will present it in an honest and forthright manner. You will not rely on gimmicks or questionable reasoning to make your presentation look good.

By showing that you believe in what you say, you convince your students of the importance of the subject. Sincerity shows in a number of ways: directness of manner, facial expressions, clarity of explanation, proper combination of humility and authority, and the effective use of the voice and body to reinforce and emphasize ideas. Students must see, hear, and feel that you believe in what you say.

Confidence

Confidence is a personal attitude or feeling of assurance. It is belief in your ability to perform a task well. To be confident and control stage fright requires two prerequisites: knowledge of the subject and belief in your ability to speak. You obtain knowledge of a subject through research and study. Belief in your ability comes from preparation, rehearsal, and experience. These requirements are entirely up to you to accomplish in your own way.

Enthusiasm

Enthusiasm is the outward manifestation of sincerity and confidence. From the speaker's standpoint, enthusiasm is a strong personal excitement or feeling about a cause or a subject.

Enthusiasm is not shouting; it is not phony, overdramatic speech; it is not waving of the arms and leaping about on the platform. Rather, it is the way you show your belief in your subject. How you show enthusiasm is governed by your personality. If you are a vigorous and dynamic person, you may show enthusiasm by brisk, energetic movement; sweeping gestures; a rapid rate of speech; widely-varying inflection; or plenty of vocal force. If, on the other hand, you have a more subdued nature, you will move and gesture with less energy and speak in more measured tones. You will use force only on the key words and ideas; make more use of the pause for effect; and maintain a calm, pleasant, but confident and authoritative manner. Most instructors show enthusiasm by combining characteristics from both of these styles.

Humor

You may be a sincere, confident, and enthusiastic instructor, yet still lack the humor needed for effective instruction. If you lack a sense of humor, you will seem unreal, inhuman, or very conceited. Humor shows that you are, after all, just another human being and that you have a warm, lively interest in all that goes on around you. Having a sense of humor does not necessarily imply an ability to tell funny jokes, although tasteful, relevant jokes certainly have a place in good instruction.

A more effective type of humor is spontaneous humor. Take advantage of unexpected humorous classroom situations that sometimes arise--make a brief comment, pause, or simply smile. Humor directed at yourself is very effective. Most people laugh when someone in authority is receptive to being the object of good humor.

In addition to decency, the only rule to follow in using humor is good judgment. Take care not to direct humor at a specific person or use sarcasm. Students may resent having a classmate singled out. Be sure your humor is good-natured and lightly done. Clean humor is as American as the hot dog and will often assist student learning.

FEEDBACK

Observation of your students provides important feedback that will help you in evaluating the effectiveness of your communications skills. Puzzled looks, frowns, and whispered questions between students indicate that you have not communicated effectively. The students have unconsciously shown signs of a lack of understanding.

The observation of these signs and their on-the-spot analysis is called feedback. That again underlines the importance of maintaining good eye contact with your students.

Students can also send signs of positive feedback. You may often observe students at the very moment they gain new knowledge. When you see a student's face light up, you are seeing understanding take place. This positive feedback is one of the most personally rewarding experiences of an instructor.

Feedback is important because it indicates how you must adjust your instruction to communicate effectively. If the students have obviously not learned, then you must modify your instructional approach.

Feedback makes the learning process an intercommunication activity between the students and the instructor. As such, it is critical to the success of the instructional mission.

MANAGING NERVOUSNESS

Perhaps the biggest fear of any beginning instructor is that they may not be able to overcome their nervousness. The trick is not to overcome nervousness, but instead, to manage nervousness (Fig. 5-4). Nervousness is okay. The table below displays some common manifestations of nervousness and strategies for managing them.

What Nervousness Looks Like	Strategies for Managing Nervousness
Shifting your weight from foot to foot and pacing back and forth or up and back	Move naturally about the classroom. Don't move to and from the same spot over and over.
Talking to the ceiling, floor, notes, or slides	Prepare thoroughly. When you are unsure of what you need to say, your eyes will move away from your students. Practice, practice, practice.
Using excessive pause words	Slow your speech. Notice when you are about to say a pause word (such as "Um" or "Uh"), and pause instead. It is OK to pause while you are speaking. Additional pause words or phrases include but are not limited to: • "Ok" • "All right" • "Like"
Losing your train of thought	Don't apologize. Stop talking, check your notes, look back at your students, and then resume talking.
Getting dry-mouthed	Have a drink of water available nearby.
Using distracting gestures such as hand-wringing, etc.	When you notice yourself doing this, place your hands behind you. Use them only when you need to emphasize a point.

Figure 5-4: Strategies for Managing Nervousness

ORAL QUESTIONS

For two-way communication to take place between you and the students, you must use good, thought-provoking questions throughout the lesson. The use of oral questions allows you to determine from time to time if you are maintaining essential communication. Properly planned, implemented, and evaluated, oral questioning improves effectiveness and more importantly, student learning.

The greatest resource for enhancing your classroom instruction is the students themselves. Training is most effective and learning more permanent when the students take an active part in the process. Students need to interact with the subject matter and the instructor during the lessons rather than just at test or performance time.

The responsibility of active class participation lies with you, the instructor. Avoid overusing the questioning technique of asking, “Are there any questions?” That does not stimulate much thought or generate productive class participation.

As an instructor, always remember that one purpose of questioning is to help students get involved in learning the material at hand. Some instructors have mastered the technique of teaching a lesson almost entirely using oral questions. Questions add variety to a lesson and require active student involvement. However, questions

are only as effective as the manner in which they are used. You can defeat the whole purpose of the questioning technique by using it improperly, so make sure you learn how to use questions properly.

If you do not have a natural knack for oral questioning, you can develop some degree of skill by setting yourself a goal for improvement and then practicing constantly.

Try to decrease the amount of one-way communication in the classroom by asking questions as much as you make statements. As an instructor, you will find that you have a natural compulsion to "tell," which is understandable. After all, that is probably what your instructors did. Studies show that in a typical classroom, someone is talking two-thirds of the time; and of that time, the instructor does the majority of the talking. This means that the students get only one-third of the time to respond in those classrooms. Through good questioning techniques, you can increase and improve the amount of student responses beyond the one-word contribution.

A key point to remember is that the intent of a question is to elicit a response. Effective use of questions will result in more students learning than any other single technique. Becoming skillful in the art of questioning will increase your effectiveness as an instructor.

PURPOSES OF ORAL QUESTIONING

The primary purpose of oral questioning is to stimulate the students to think. Navy requirements call for people who can operate complex equipment and carry out those troubleshooting and maintenance procedures needed to keep the equipment operating at peak performance. To perform those duties effectively, Sailors must be trained to analyze, compare, and interpret facts, data, and methods, all of which require a high caliber of thinking.

Oral questioning also provides you with a practical means for establishing the level of instruction. Students may vary greatly in the quantity and quality of background knowledge they have acquired through previous training and experience. You must determine the level of achievement of the students before proceeding with the presentation of new subject matter. Although you may use a pretest or a questionnaire for this purpose, the quickest and simplest means is a series of oral questions.

Oral questioning has three other important purposes: First, it arouses interest in the subject matter. Second, it focuses attention upon a particular area of the subject matter. Third, it drills students on subject matter they must recall precisely, such as correct terminology, functions of parts, and safety precautions.

Use questions to achieve the following benefits:

- Discover each student's interests, abilities, and depth of knowledge.
- Arouse student interest in the subject matter of the lesson.
- Stimulate discussion, and keep it closely tied to the subject matter.
- Review and summarize important points.
- Test students' knowledge of what the lesson has covered, and check the effectiveness of the instruction.

CHARACTERISTICS OF GOOD ORAL QUESTIONING

Questions that are poorly worded, vague in meaning, or ambiguous will frustrate both you and the students. Students who do not comprehend the true meaning of poorly phrased questions will hesitate longer than usual and then give uncertain answers. You may feel dissatisfied with the answers and want to reprimand the students for their lack of attention and understanding. The students, knowing that they have answered unsatisfactorily through no fault of their own, may lose enthusiasm and withdraw from active participation. You can avoid frustrations of this kind by planning your questions well in advance as well as carefully choosing and arranging words and phrases.

The construction of good oral questions requires three considerations: level of instruction, use of the interrogative, and clarity of meaning. Let us consider each of these more closely now.

Level of Instruction

In asking questions, use simple words, correct grammar, and complete sentences. Use words the students know and understand. As the course progresses, introduce new terms and more technical phraseology.

Ask questions at times that suit your presentation of course material. Plan questions that require students to think before answering. Do not use questions that give away the answer or closed questions that students can answer with a simple yes or no.

Use of Interrogative

Use an interrogatory word or phrase at the beginning of your question so that students know immediately when you are asking a question. Examples of interrogatory words are Who, What, When, Where, Why and How. These are also known as the journalistic questions. In other words, when a person knows the Who, What, When, Where, Why and How of a thing, then they have the full story.

Let us consider two examples where this is not done: (1) The two sizes of fire hose most frequently used in the Navy are what? and (2) You can determine whether or not explosive vapors are in a compartment by what means?

Questions worded in this way handicap the students in at least two ways. First, the students are expecting a declarative statement, not a question. Second, they cannot identify the meaning of the question until the final words are spoken. Note the improvement in these same questions when an interrogatory word or phrase is placed at the beginning: (1) What are the two sizes of fire hoses used most frequently in the Navy? and (2) By what means can you determine whether or not explosive or toxic vapors are in a compartment?

Clarity of Meaning

Avoid the use of catch or trick questions as a teaching device, especially for beginners. Make sure the wording of the question conveys to the students the true or intended meaning. The students must understand what you want, regardless of whether they know the correct answer. "Where are storm warnings flags flown aboard ship?" is a good question; but "Where are storm warnings flags flown?" fails to indicate what point is being tested.

Make your questions brief, and limit them to one thought. To include too many factors in a single question confuses the students. Ask well-stated, clearly understood questions in a normal conversational tone as part of the lesson. After each lesson, reevaluate your questions in light of how well the student responses contributed to better learning.

TYPES OF ORAL QUESTIONS

Learn to use oral questions throughout the lesson. Use them in the introduction to create interest and focus attention on the subject matter and during the lesson presentation to ensure student understanding. Then use them at the end of the presentation for review and drill purposes.

Feel free to ask factual, thought-provoking, and interest-arousing questions as often as you choose. Other types of questions may serve one or more useful purposes if used sparingly but may prove ineffective if you use them too often.

Factual/Close-Ended Questions

Factual questions ask for specific information; for example, "When was the first U.S. nuclear powered submarine built?" Although the primary purpose of factual questions is to help students memorize facts, they may, under certain conditions, have important secondary purposes. For example, you may use factual questions to arouse interest, to focus attention upon certain parts of the subject matter, and to assist in determining the proper level of instruction.

Thought-Provoking/Open-ended Questions

Thought-provoking questions normally begin with interrogatory expressions such as "What is the advantage of," "What is the difference between," "Why is this method considered superior to," "How would you solve the problem if," and so forth. The value of these questions is that when a single question, is properly used it may stimulate the students to think. Prepare good, thought-provoking questions on key lesson points in advance of the lesson. Reevaluate them after the lesson to see which ones you may want to use again next time and which you may want to revise for next time.

Interest-Arousing Questions

Interest-arousing questions are often a cue prompting curiousity or further thought. Initially these questions appear to require a factual answer. For example "How many Navy ships were involved in collisions at sea during the past year?" would be responded to correctly by a specific number. However, the number is not the goal. The goal of this question is to focus attention and stimulate curiousity about the subject you are presenting.

Multiple-Answer Questions

Multiple-answer questions have more than one correct answer. They may be used to increase student participation or cause students to think about the other students' answers. Multiple-answer questions generate a high interest level and improve listening skills.

Factual, thought-provoking, or multiple-answer questions may also be interest-arousing. That depends upon your intention in

asking them, not upon the question's form or content. However, if you overestimate the knowledge of your students, questions intended to be factual may turn out to be thought-provoking. If you underestimate the students' knowledge, questions intended to be thought-provoking may turn out to be factual.

As previously mentioned, certain kinds of questions are effective if used occasionally but are detrimental if used frequently. Typical of these types of questions are closed, yes or no questions, leading questions, and canvassing questions. Now let us look at each of these more closely as well.

Closed Yes/No Questions

Closed yes or no questions, of course, call for a simple answer--yes or no. Closed questions have value in arousing interest, focusing attention, encouraging student participation, and serving as lead-ins to other kinds of questions, such as "Why do you believe that to be true?" An excessive use of yes or no questions tends to encourage students to guess and limit student participation.

Leading Questions

Leading questions suggest their own answer; for example, "You would not smoke in the paint locker, would you?" or "The 40mm gun is larger than the 20mm gun, isn't it?" If used properly, leading questions have value in focusing attention, in arousing interest, and in emphasizing a point. You can also use leading questions to help the student think the matter through to the right answer. If you notice students groping for the right answer, ask a question that directs their attention to information they know but may have overlooked in answering the question. This technique has value when used skillfully because it builds a student's confidence. Occasionally, use leading questions to help struggling students, saving them the embarrassment of failure in front of the class. However, if used too frequently leading questions may discourage any real thinking and become boring to the students.

Canvassing Questions

Use canvassing questions to determine those who are familiar with a specific area of subject matter. If you are teaching damage control for instance, you may ask "How many of you have been involved in an actual shipboard fire?" A show of hands provides information about student experiences that you may find useful as your lesson progresses. It gives you a great opportunity to

bring some real life examples into your lesson and to provide some individual recognition for student contributions. Canvassing questions can also help to determine the necessary level of instruction for the class.

ORAL-QUESTIONING TECHNIQUES

A recommended technique of oral questioning consists of five steps: asking the question, pausing, calling upon a student, evaluating the student's answer, and finally, emphasizing the correct answer (Fig. 5-5). Put time and thought into making each step count in the teaching process.

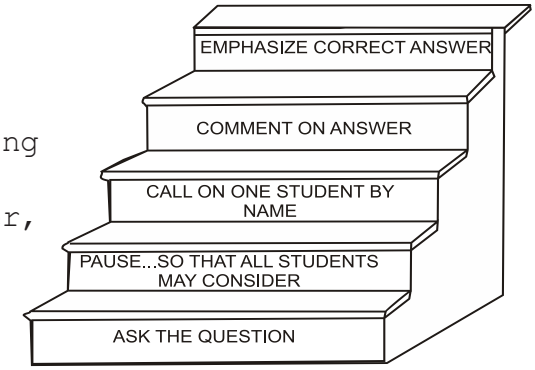


Figure 5-5. The 5-Step Questioning Technique

1. **Ask the Question.** The first step in good questioning techniques is to clearly state the question. Since the intent of questioning is to provoke thought, ask the question before calling on a person to answer. That encourages each member of the class to formulate an answer. Many instructors make the mistake of calling on a student before stating the question. That allows the rest of the students to relax and not formulate an answer. When you state the question first and then pause for a few seconds, everyone should begin actively thinking of an answer. This pause also enables students whom you do not select to answer the question time to think so that they may add to the response later. Identifying the respondent before asking the question may also startle and fluster some students so much that they may not be able to respond, even if they know the answer. State the question clearly, using only one central thought, by placing the interrogative word at the beginning of the statement to alert students that a question is coming. Do not repeat the question or change the wording of the question unless necessary.

2. **Pause.** After asking a question, pause to allow students time to think through their answers. Vary the duration of the pause depending on the difficulty of the question and the level of the students. Most instructors fail to pause long enough after asking their questions. Calling on a student too quickly is often as detrimental as calling on the student before asking the question. Do not get in the habit of answering your own questions before allowing students enough time to answer or you will lose the value of the questioning technique.

3. **Pick a Student.** After pausing for a reasonable time, call on a student by name to answer the question. That satisfies a basic student need for recognition. If students feel you recognize their individual efforts, they will put forth greater effort. When selecting a person to respond, consider both the difficulty of the question and the individual abilities of students. Consistently assigning a difficult question to a slower learner will demotivate that student. Always calling on your top student for the most difficult questions may demoralize the whole group. Instead, spread the questions around without establishing a predictable pattern. A predictable pattern includes calling on students either in alphabetical or seating order or calling upon a select few whose names you know. Scattering questions also prevents mental loafing. Faster learners will dominate the class discussion if you do not control student participation. Achieve a balance between calling on volunteer respondents and non-volunteers. Allow only one student to answer at a time, but encourage all students to participate and volunteer answers. Although you may not call upon every student during each class, let students know you expect them to take an active part. If there are not enough questions to get to each student, you can always ask two or three students to respond to the same question before evaluating their answers.

4. **Listen to and Evaluate the Student's Answer.** The next step is to comment on the given answer or acknowledge the response. That demands a careful and quick mental evaluation of the answer for accuracy and completeness. Provide feedback to the responder and class on the quality of the answer. When a student gives an incorrect answer, be critical only of the answer and not the student. Be sure to provide positive reinforcement for correct answers. The strength of the reinforcement depends on the difficulty of the question asked and the relative difficulty level for the student selected. Do not overdo the reinforcement. A simple "correct" or "thank you" may suffice.

5. **Emphasize the Correct Answer.** The fifth and last step in the process, which is optional, is to emphasize or repeat the answer given. Avoid the tendency to repeat each answer as that has the effect of diminishing the student's response. Remember that the student's answer has an importance for the class as well as for you. Insist that answers be clearly spoken; heard by all; phrased intelligibly; and if possible, stated in the terminology of the lesson.

THE APPLE TECHNIQUE

A simple mnemonic to help you remember how to use the 5-step questioning technique effectively is APPLE (Fig. 5-6).

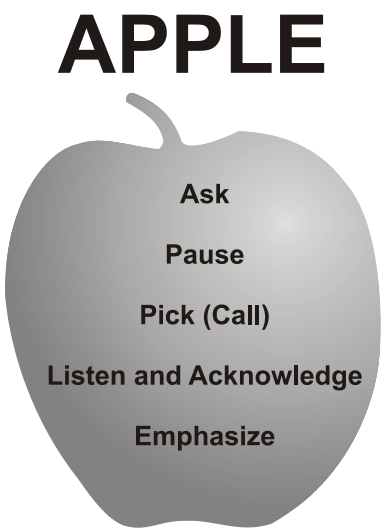


Figure 5-6: The Apple Technique

Other Questioning Techniques

The following techniques may be used in addition to or in conjunction with the five-step or Apple questioning technique:

- **Calling on non-volunteers.** Focus on the non-volunteer students; avoid eye contact with the active participants when asking a question. This will encourage the quieter students to reply. Assign a question to a student who does not have a hand raised; then provide appropriate recognition for that student's contribution. This technique will increase class involvement, attention, and participation because all students will know you may call on them regardless of whether they volunteer.
- **Prompting.** Sometimes you may need to prompt a student who has given a weak, incorrect, or an "I don't know" response to your question. Help the student to arrive at a correct answer by asking follow-up questions that contain direct hints or clues to the correct answer. The key to effective prompting is to begin on a simple enough level that the student can relate to the material. The questions in the prompting sequence depend on the student's previous response(s) and build until the correct response is given:

  - To begin the sequence, refer to material the student already knows.

- If the initial student response was partially correct, first provide reinforcement by telling the student what was right about their answer. Then ask prompting questions until the student can give the entire correct response. If the student's first answer is "I don't know," rephrase the question or provide an example to eliminate any confusion, ambiguity, or vagueness in the original question.
- Acknowledge the final correct student response in the same manner as if the student had given the correct response the first time.
- Do not allow the prompting technique to result in student badgering from you or from other members of the class.

- **Seek further clarification.** When a student gives a response that is poorly organized, lacking in detail, or incomplete, do not provide the student with any hints (prompts), clues, or additional information, but rather ask the student to do so. Request clarification when you believe the student has guessed at an answer or knows the correct answer but is having trouble stating it properly by asking the student to justify or clarify their answer. For example ask, "What else can you add?"
- **Reverse.** Use the reverse questioning technique (answering a question with a question) to get students to think, make associations, and discover the answers to their own questions. Example: The student asks, "Why did the Chief give that order?" The instructor might respond, "If you were in the same situation, what order would you have given?"
- **Redirect.** Use a redirected question to increase class involvement and provide recognition for students who are answering questions. A redirected question occurs when you assign a question asked by one student to another member of the class for answering. Note: Never use this technique unless you know the answer and believe the student to whom you redirect the question also knows the answer.
- **Refocusing.** Use the technique of refocusing when you want the student to relate a correct answer to another topic. This technique helps students to consider the implications of their response within a broader framework by noting associations with other topics studied.

SUMMARY

As an instructor, you give an impression to your class from your appearance, speech, habits, questions, and overall manner every time you present a lesson. This impression has a strong impact on the learning process. You must be an enthusiastic, positive motivator in your classroom. You control the energy and dynamics of the learning process. Remembering and applying effective communication and oral questioning techniques will improve your presentations and assist your students in learning the material.

CHAPTER 6

INSTRUCTIONAL METHODS

INTRODUCTION

Instructional methods are educational approaches for turning knowledge into learning. Instructional methods are the "how to" in the delivery of training. The methods used in any learning situation are primarily dictated by the learning objectives decided upon by the course designers. In many cases a combination of methods is used to intensify the learning experiences.

As an instructor, you need to understand the following methods and your responsibilities in using them: lecture, lesson, demonstration, role-playing, team dimensional training, gaming and simulation, case study, facilitation, blended learning, and distance learning. The lesson method and the demonstration method are the two most commonly used methods in Navy training. However, for purposes of this chapter, all the methods are discussed as sequenced above.

LECTURE

The lecture method is an instructional presentation of information, concepts, or principles. Its main purpose is to present a large amount of information in a short period of time.

The lecture method is an efficient way to introduce a new topic of study or present background material students need for future classes. A lecture allows instructors to present a subject to a large audience because they use no visuals and there is no interaction between the students and the instructor. In fact, with the use of closed-circuit television (CCTV), audience size is essentially unlimited. A lecture may be presented to thousands of persons at a time through the use of a CCTV system.

Since the lecture method depends primarily on students' listening and note-taking skills for the transfer of learning, you must have effective speaking skills. Your speaking skills may help you overcome some of the major shortcomings of poor student participation.

In preparing to deliver a lecture, set clear-cut goals and objectives. Make sure you have an in-depth knowledge of the subject matter, and find realistic examples and analogies to use with your explanations. As with any presentation, apply the laws of learning in your preparation and delivery.

Remember, the only feedback you will get is the nonverbal communications from your audience, if you can see them. Since your audience may quickly lose interest with no active part in the instruction, your lecture should last no more than 30 minutes. Lectures should be short, well organized, and to the point.

LECTURE WITH AUDIOVISUALS

A lecture with audiovisuals includes visual and/or audio learning aids. Navy training frequently uses this instructional method of presenting information, concepts, and principles. As you learned in the chapter on learning principles, most learning takes place through the sense of sight. It follows then that all students must be able to see the visuals being used, which may limit class size.

The visual aids you use can reduce the amount of explanation time required for students to grasp concepts, structures, and relationships. You simply cannot get some ideas across to students without the use of visual aids. For example, think how difficult an explanation of the operation of the internal combustion engine would be without the use of visual aids.

Lecturing with audiovisuals requires more preparation. That includes practicing with the actual visual aids in the place you will be using them. Plan your timing of the use of visual aids to keep the students' attention and to stress important points. Since your explanation of the visual aids will require you to use effective instructional methods, decide which ones you will use. Then mentally rehearse those techniques and practice using the visual aids until you can present your lecture smoothly.

LESSON

The most often used method of classroom instruction within Navy training is the lesson method. The lesson method is interactive in nature and is primarily used to transfer knowledge or information to the students. This method not only includes audiovisual aids, it involves the use of two-way communication. The lesson method involves exactly what its name implies--teaching a lesson and teaching a lesson involves much more than just presenting information. When using the lesson method, you will follow a lesson plan written by curriculum developers. You will incorporate questions into your lesson to encourage student thinking and check for understanding throughout the lesson. Even though you have a lesson plan, you must anticipate students' questions. That means you must have a thorough understanding of the subject matter.

The lesson method involves the use of training aids to support and clarify the main teaching points of your presentation. Follow the same procedures used in the lecture with audiovisuals method: prepare, plan the timing of their use, and practice. To strengthen the effect of training aids, ask questions that require students to analyze and evaluate concepts and principles while referring to the audiovisual materials. Your use of audiovisuals with the lesson method dictates a limited class size of between 5 and 40 students. Less than five students presents a problem in generating meaningful class participation. Besides the problem of poor visibility of training aids, more than 40 students presents the problem of keeping students actively involved in the lesson.

Because the lesson method of instructing is versatile, it may employ many different instructor techniques. Regardless of the techniques used, the lesson method involves three basic elements: the introduction, presentation, and review or summary. As an instructor, you have specific responsibilities for each element.

In the introduction, you must create interest in your topic and establish why students need to pay attention and learn the material. Begin by introducing yourself and explain your background and experiences with the topic. Explain the objectives of the lesson

and stress the importance of the students' being able to master them. Remember the laws of readiness and effect as you prepare your students for learning. Motivation is the key. If you can help students see how they will benefit from your training, you give them reason to pay attention and learn. Get the students to share experiences that show why they need to learn the material. That helps to establish their responsibility for learning. Ask questions to break down barriers early in the training session. Then establish ground rules by providing students with an overview of what you expect of them and how you will conduct the lesson. Last, make a smooth transition into your presentation.

The introduction represents only a small amount of the time spent in a lesson, but its importance cannot be overemphasized. Students will form their first impression of you and the material during your introduction. Since you only get one chance to make a first impression, make a good one. Use the introduction to get the attention of and to motivate every student in your class.

The presentation is the part of the lesson in which you teach the lesson objectives. The lesson plan outlines the learning objectives and provides all the technical support you need for your presentation. As you use this material in your teaching, apply the law of primacy. Begin teaching the new information at a level that your students can understand; move from the known to the unknown. Teach information in a logical sequence, making associations to previously learned information. Use examples and analogies to appeal to different learning styles and to reinforce the learning process. Actively involve your students throughout the presentation. Ask questions, plan group exercises, and encourage discussions and note taking. Use training aids at appropriate times to support explanations and to stimulate and maintain student interest. Many times, the training aids may prompt student questions and lead to a class discussion. While you want to encourage discussions, keep in mind that you have a limited amount of time to teach each lesson. Make effective use of the training time allotted. Do not get bogged down in discussions that do not relate directly to the lesson objectives. Control the pace of the instruction so that you will have enough time to properly cover and summarize your lesson.

In the review or summary, recap the information taught in the presentation. Go over the main discussion points of your lesson; do not try to re-teach it. Ask questions that help students mentally review what has been taught. As your students respond, reinforce important points (safety, steps of procedure, concepts, terminology, etc). Clarify and correct misconceptions and errors so that students do not leave the class with an inaccurate

understanding. Finish your lesson strongly with positive statements about the importance of the topic, its relationship to the job, and the responsibilities of the students.

The lesson method is the most flexible and perhaps the most useful of all the methods in the training environment. The use of questions and visual aids contribute to maximum class activity and better maintains student attention. Student involvement builds teamwork and helps students understand their responsibility toward learning. The lesson method develops more positive attitudes and provides motivation, not only from the instructor's viewpoint but also from the viewpoint of the group itself. As a Navy instructor, resist the temptation to lecture only; instead use the positive aspects of active student involvement.

DEMONSTRATION

The basic, and most often used, method of instruction for teaching skill-type subjects is the demonstration method. It covers all of the steps your students need to learn a skill in an effective learning sequence. This method always includes – at a minimum – a demonstration step and a performance step and allows you to use other steps as needed.

DEMONSTRATION STEP

Related to every Navy skill, mental or physical, is a body of background knowledge students must know to perform the skill properly. You can best teach some kinds of background knowledge in a standard lecture classroom with adequate provisions for comfortable seating and for the display of training aids. You must present other kinds of background knowledge by actual demonstrations conducted in laboratories.

To present background knowledge and develop proper attitudes, vary your use of the learning techniques discussed in earlier chapters. Use the following techniques when giving an actual demonstration:

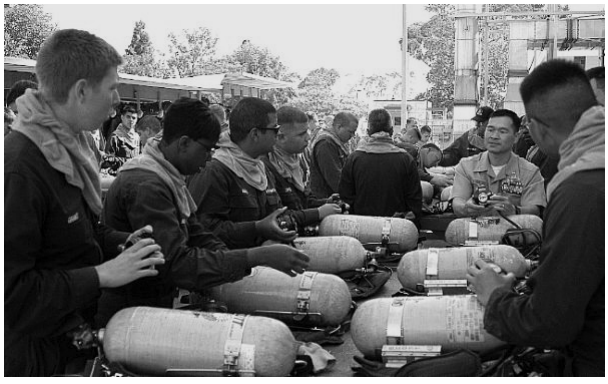
- Observe safety precautions. Rigging a safety line, donning a safety mask, or tagging an electric cable may take a few more seconds, but you have not wasted the time. Instead, you have impressed the students with the importance of exercising extreme care in dealing with potentially dangerous equipment.

- Position the students and training aids properly. If you direct the students to gather around a worktable or a training aid, make sure every student has an unobstructed view.
- Show and explain the operations. Perform the operations in step-by-step order. Whenever possible, explain and perform the steps (process) simultaneously. Do not hurry; you will not normally emphasize speed in performing operations or in moving from one operation to another in the demonstration step. Make certain the students understand the first step before you proceed to the second, and so on. Repeat difficult operations. Pause briefly after each operation to observe student reaction and to check student comprehension.
- Give proper attention to terminology. Call each part of a training aid by its proper name each time you call attention to it. Getting students to retain the correct nomenclature requires more than just mentioning the name. The following suggestions should prove helpful:

  - List the names of parts.
  - Refer students to any available chart that shows the parts and names of parts.
  - Conduct a terminology drill on the parts of the training aid while the aid is being assembled or disassembled, as appropriate.

- Check student comprehension carefully. Ask questions during the demonstration step that require the students to recall nomenclature, procedural steps, underlying principles, safety precautions, and the like. Watch the class for reactions indicating lack of attention, confusion, or doubt; but do not depend solely upon visual observations.

When teaching skills, such as donning an Self-Contained Breathing Apparatus (SCBA), in which a distinction between right and left is important; ask an assistant instructor or a well-coached student to help you. Ask the assistant to stand so that the class may see what he or she is doing. Then direct the assistant in performing the activity while you observe the reaction of the students.



Remember the law of primacy when performing the demonstration step. Always proceed from simple to complex in logical sequence; show the correct way to perform the steps the first time you demonstrate them. Along with teaching a skill, develop proper attitudes, such as the desire to perform safely.

REPETITION STEPS

When using the demonstration method, you will always provide a demonstration step and a performance step. Generally, you will include one or more repetition steps between the demonstration step and the performance step.

In deciding how many and what kinds of repetition steps you should include, you must consider several elements, the most important being the complexity of the skill. As a general rule, the more complex the skill, the greater the need for repetition steps. Also consider the nature of the skill. For example, some skills involve visual signaling in which speed is important. You may need to have students learn how to perform a skill correctly and then have them work on their speed after they have mastered doing it correctly. Other skills may involve ease of manipulation, conservation of materials, and safety. Always consider the ability of the students to acquire the skill and the amount of time available for training. Four types of repetition steps used with good results in Navy schools are described in the following paragraphs:

Instructor Repetition Step

When using this step, repeat the job without noticeable interruptions, restating the procedure and the important safety factors as you perform the steps. This step has two important purposes: to show continuity (how the procedural steps follow each other under actual operating conditions) and to set standards of ease, speed, and accuracy. Related techniques of instruction are as follows:

- Introduce the step properly. Motivate the students to pay close attention by explaining the nature of the step and by stressing the primary and secondary values.
- Perform the job with the proper degree of ease, speed, and accuracy. Streamline your oral explanations to the point that they do not hinder your performance. The proper degree of speed is the standard speed you expect the majority of students to attain by the end of the scheduled practice period. A lower standard may fail to challenge the average and fast learners;

a higher standard may cause many students to feel the goal is impossible to reach.

- Avoid any activity that might break the continuity of your performance. For example, discussion or questions during this step may distract you as well as the students. However, give students an opportunity to ask questions at the conclusion of the instructor repetition step. You may need to include more than one instructor repetition step.

Student Repetition Step

In the student repetition step, select a student to repeat the job. Restate the procedure and the important safety factors as the student performs the steps. This step will motivate the students by proving that they can do the job with the instruction given. It will also show you those areas of instruction you need to strengthen.

One of the advantages of this step is the great amount of student interest generated when a student performs the job. The other students will put themselves in the selected student's place and perform the job mentally. Related techniques of instruction are as follows:

- Introduce the step properly. Motivate the students to pay close attention by explaining the nature of the step and what the selected student must do. In teaching a mental skill involving computation, set up the problem as part of the introduction. Always use new values (not those used in your demonstration step) in the problem the student will solve.
- Call upon a student from the average learner group to perform the job.
- Give the selected student adequate directions. These directions should include where to stand, what to do, and how to hold and manipulate training aids. Direct the student in the use of any other techniques that would benefit the class.
- Correct errors, but do so in a constructive fashion. Remember that the selected student is under some degree of mental pressure. Give the student an opportunity to correct his or her own errors before calling upon other students to help. Avoid the use of mechanical guidance. When the student has completed the job provide positive reinforcement and feedback.
- A variation of this step is to have the student explain each step and its importance before performing it or as they perform it or to have the other students tell you what the next step is and why it is important. You can then correct misunderstandings and reinforce the most important information before or while the selected student performs each step.

Group Performance Repetition Step

When using the group performance repetition step, repeat the job slowly, one step at a time, while all the students observe and imitate you, one step at a time. Use this step for teaching simple and non-dangerous physical skills, such as knot tying, sending semaphore, and performing the manual of arms. To use this step, you must be able to readily see the students' movements and they must be able to see yours. Also use this method to teach mental skills, such as solving mathematical or maneuvering problems or completing forms. The following are related techniques of instruction:

- Position the students properly. Their position should provide an unobstructed line of vision both for you and them.
- Introduce the step properly. Explain the general plan. Stress the need for close observation and exact imitation; the need for the students to keep in step and not to get ahead of you; and the need for students to hold and manipulate training aids (if any are used) so that you can easily see each student's work.
- Perform the job properly, one step at a time. For the first repetition, explain the movements or operations as you perform them. For subsequent repetitions, you may use briefer directions. Use the technique discussed in the section on the demonstration step.
- Correct errors. Call attention to errors, demonstrate the correct movements, and then require the students to repeat the movements correctly. Remember that this is a repetition step only. It does not take the place of the performance step, during which students practice individually until they have attained the required standards of proficiency.

Coach-pupil Repetition Step

The coach-pupil repetition step requires you to divide students into small groups. If a group consists of two students, one (as the pupil) performs the job while the other (as the coach) checks the "pupil's" performance. After the pupil has acquired a certain degree of proficiency, they reverse positions. This step is particularly useful in imparting skills in which performance involves potential danger to personnel or equipment; for example, firing small arms or troubleshooting electronics equipment. You use a job sheet with this repetition step. The following are related techniques of instruction:

- Introduce the step properly. Assemble the students in one group, and give all necessary preliminary instructions. Include

the location of each coach and pupil group in the training area, the time allowed each pupil to practice, and the specific duties of each student, both the coach and the pupil.

- Position the small groups properly. Make a preliminary check to ensure that all groups are in their assigned positions and that the coach-pupil relationship is being observed.
- Maintain adequate supervision. Although theoretically the coaches are acting in the capacity of assistant instructors, they are still students. Maintain close supervision over all groups to ensure the students are observing safety rules and regulations and are making good use of the available time.

PERFORMANCE STEP

The performance step is the step in which the students practice under your supervision until they have attained the required proficiency. During this step, the students apply what they have previously learned as a result of the preceding demonstrations. Consequently, the term application or supervised application may be used to identify the activity in which the students are engaged.

The performance step involves many kinds of application. Some skills (knot tying, welding, machinery repair) result in a finished product. The application of such skills consists of students practicing a procedure until they reach the required standards of ease and precision.

Normally, speed is not important. Other skills (typing, visual signaling, radio code receiving) involve speed and accuracy. The application of these skills consists of students practicing until they reach the required proficiency in both speed and accuracy.

Broadly speaking, the performance step involves several instructor duties. You must brief the students on the application activity and expected standards and proficiencies, organize the students into working groups, supervise the activity, re-teach as necessary, evaluate the results, and keep records. The following instructional techniques elaborate on these duties:

- Give the students a clear understanding of the work required of them. That includes definite answers to questions of what they must do and when, where, how, and why they will perform the required work.

- **WHAT** must be made, done, or practiced? Tell the students exactly what they must do. For complex skills, supplement oral instructions with instruction sheets--job sheets for physical skills and problem sheets for mental skills.
- **WHEN** should the required work be done? Give specific periods in the class schedule, a specified time limit, or a specific date for work completion.
- **WHERE** should the required work be done? Tell students whether it is to be done in a classroom, workshop, laboratory, or operating space.
- **HOW** should the required work be done? Explain the procedures to follow as well as the style of work, degree of neatness, or degree of proficiency required.
- **WHY** should the required work be done? Explain how the work will affect the mission of their unit and the Navy as well as their future career.

- Provide adequate supervision. Make sure students follow the correct procedural steps, observe safety precautions, observe good housekeeping rules, take advantage of available time, and develop good work habits.
- Re-instruct the students when necessary. Teach students to be self-reliant; but if a student gets stuck at some point, help the student get started on the right path. If several students appear to be having the same difficulty, call them aside and re-instruct them as a group.
- Evaluate the results. Determine whether or not the students have met the required performance criteria. Provide feedback to students regarding their performance in order to reinforce desired behaviors and correct areas that need improvement.
- Maintain required progress records. Keep a record of the day-to-day progress of students, or give performance tests at periodic intervals and record the results. Even when the curriculum does not specify graded applications, keep some progress records.

Do not overlook the law of effect. Students naturally want to succeed, to know their progress, and to be recognized by those in authority over them. Encourage wholesome competition, and frequently advise the students of their progress.

ROLE-PLAYING

Role-playing requires the students to assume active roles in a simulated situation followed by a group discussion. It is particularly useful in teaching the development of leadership, counseling skills, and team dynamics.

Many Navy jobs, such as those performed by personnel in supervisory or administrative billets, require two different kinds of skill. One skill pertains to their occupational specialty, and the other skill is human relations.

Personnel can acquire this latter skill only through practice. The practice may involve the handling of actual human relations situations during on-the-job training or practice in handling simulated human relations in a school. From a training standpoint, the simulated situation is preferable because instructors can note and correct student errors. Errors made in a real life situation usually result in serious consequences, such as failure to get the job done, dissatisfaction, blame, and even reprimand. The role-playing method, therefore, is designed to impart human relations skills without the risk inherent in training by other methods. This type of learning is called experiential. The student has the opportunity to experience parts of the training in a physical or emotional sense before they discuss it.

To use this method, first describe the situation. Then select students to play the parts of the principal characters and give them a short time to think through what they are going to say and do. Next, let the students enact or role play the situation. Finally, under your direction, allow the group to analyze the enactment. Help them to evaluate what the characters said and did, how they felt, how they reacted, and how they might have acted or reacted differently.

Successful role playing provides a chance for every student to take part in the lesson. It provides vivid experiences both for the participants and for the observers. Remember, however, that students can completely develop their human relations skills only through experience.

TEAM DIMENSIONAL TRAINING (TDT)

Team Dimensional Training (TDT) is a product of a research effort conducted by the Naval Air Warfare Center Training Systems Division (NAWCTSD) that spanned over 10 years. This effort is known as TADMUS, which stands for Tactical Decision-Making Under Stress. The program launched in the late 1980s because of two tragic incidents at sea which are identified below:

- In 1987, a missile struck the USS Stark and this incident led to a heightened readiness and tension aboard all U.S. military ships operating in the Persian Gulf.
- In 1988, with tensions in the area already high, the USS Vincennes mistakenly shot down an Iranian airbus.

TDT is a process that enables team members to diagnose and correct their own performance problems, thereby enabling them to adapt quickly to unfolding events, and to learn from and build upon their previous experiences together. The TDT process involves a structured approach, which includes: a pre-briefing observation of team performance, a diagnosis of performance, and a de-briefing. These TDT process terms are explained below (Fig. 6-1).

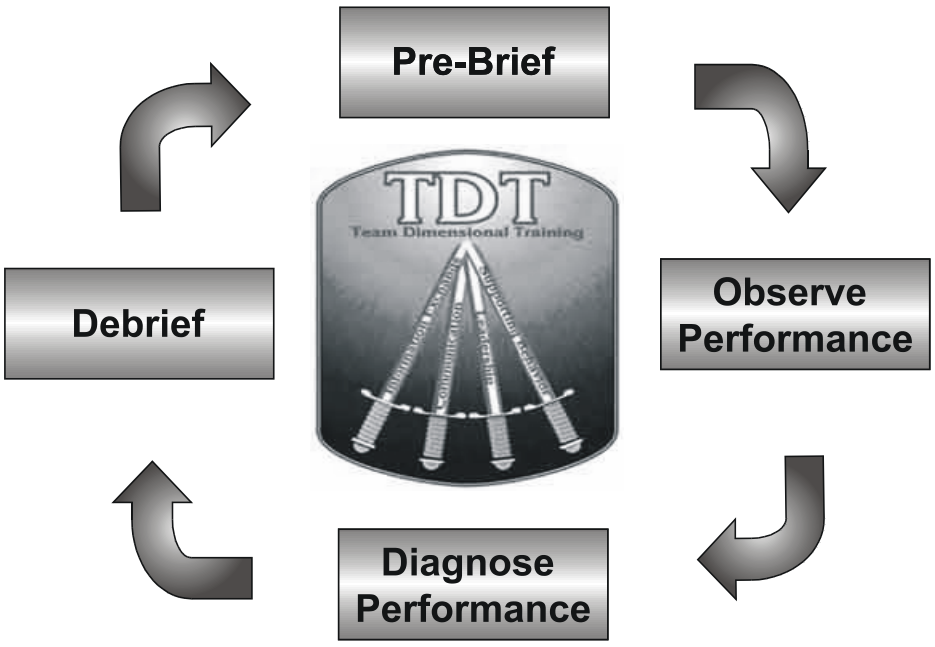


Figure 6-1: Team Dimensional Training Process

- **Pre-brief:** The purpose of the pre-brief is to focus the observing team on the teamwork process they are about to evaluate. This is where the goals of the drill are discussed. The team also organizes and coordinates any "prompts" which are used to simulate casualties or impose certain conditions on the

trainees. Critical procedures and a timeline of events are set and a checklist is created. When the observing team is ready, they impose the drill.

- **Observe Performance:** This step begins when the drill is called away. The observers allow errors to unfold naturally. They record detailed examples of actions of the team.
- **Diagnose Performance:** At this point, the training team discusses their observations taken. The evaluating training team selects, categorizes (safety, procedure, etc.), and prioritizes examples for presentation to the trainees. The last part of this step is to conduct a self-evaluation of the training team itself. Did they plan the drill correctly? Was the timing realistic? What could have been done to improve the training experience for the trainees?
- **De-brief:** In the de-brief, the trainers recap key events with the trainees. By using effective questioning and feedback techniques, the trainers guide the team in the self-critique process. They also help the trainees set their own goals for overcoming performance and safety issues.

TDT's focus is to provide a common framework for instructors to teach and improve team performance. TDT has proved to lower repeat mistakes, reduce errors, increase trainee participation in de-briefs, and increase learning amongst teams. Team Dimensional Training (TDT) is:

- **Teamwork:** A systematic way of identifying and evaluating teamwork behaviors critical to team performance.
- **Structured:** A process of preparing a structured de-brief to support team learning.
- **Self-correction:** A method of guiding teams through a process of self-correction using effective feedback skills.

GAMING AND SIMULATION

The most recent generation of learners entering the Navy has grown up playing video games. This generation has no problem learning how to manipulate hundreds of video-game characters in a variety of crises that require split-second decisions. The popularity of these highly complex games demonstrates that individuals can learn just about anything if they are motivated enough to do so.

Both gaming and simulation allow learners to make real-time decisions and see the consequences of those decisions. They require learners to apply problem-solving skills. The outcome of the game or the simulation is often the learning goal itself.

The best part about gaming and simulation is, of course, that they are hands on and fun! Other benefits of using games and simulations for instruction are:

- Providing realistic and risk-free practice.
- Increasing learners' ability to understand and remember content.
- Encouraging active learning.
- Stimulating interest by engaging the physical senses.
- Fostering team building and healthy competition through multiplayer games.

CASE STUDY

When using the case study method, focus the attention of the students upon a specific case, which may be hypothetical or real. Collisions at sea, fires, flooding, grounding, and aircraft casualties all make good case studies. You will normally present the class with case studies in printed form. You may also present case studies through the use of pictures, films, role-playing, and oral or slide presentations.

After presenting a case study, divide the class into groups to analyze why or how the incident happened and how it may be prevented in the future. Have each group briefly explain their conclusions so that the class can learn if more than one correct alternative exists.

The main objective is for students to learn from experience and develop problem-solving skills. Use case studies to help students identify safety violations that have led to incidents, accidents, or casualties and how they may be prevented in the future. Proper planning and organization are your keys to getting results in using this method of instruction.

FACILITATION

Do you know what it means to serve as an instructor in a facilitation role? The definition of an individual performing in a facilitattion role is, "Someone who aids or assists in a process, especially by encouraging people to find their own solutions to problems or tasks."

Facilitation is one of the many roles an instructor fulfills in the Navy learning environment. In your facilitation role, you will not play the traditional role of instructor as a presenter of knowledge with all of the answers. Instead, you will put the learner in charge of his or her own learning and become a learning resource. When you facilitate learning vs. instruct, you:

- Make the learner the center of instruction.
- Give the learner as much control over the learning process as possible.
- Act as a guide on the side.

The purpose of facilitation is to make things easier for students to achieve their learning objectives. Facilitation leverages existing student knowledge and/or skills to create synergistic learning experiences.

DISCUSSION

The skill of guiding discussion is integral to almost any learning event. When the instructor uses thought provoking and probing questions to get students to share their knowledge, experiences, or thoughts with the other students. Discussion may be used to preface a learning event, during the body of a lesson, and/or in the de-brief.

Discussion is an activity in which people talk together to share information about a topic or problem or to seek possible available evidence or a solution. When you use discussion, make sure the seating arrangement allows all participants to have eye contact with each other. You can keep the class together or break it up into smaller groups which later interact with the other groups. This method necessarily limits class size.

This method involves an interchange of ideas by the students while you facilitate by providing guidance. Used alone or in combination with other methods, discussion stimulates every student to think constructively. It also encourages students to share their personal experiences and knowledge with their classmates and to contribute ideas as a means of solving problems.

DIRECTED DISCUSSION

Initiating discussion and channeling students' thinking and responses along predetermined lines is called "directed discussion." This method is useful in teaching skills such as problem solving and understanding cause-and-effect relationships.

Directed discussion is often used in training that is conducted for the purpose of developing favorable attitudes toward a subject or situation. When that is your purpose, directed discussion gives students more freedom to express their opinions. The success of directed discussion depends to a large extent on your leadership as an instructor.

Facilitation and instructing are different in that with facilitation, you are not trying to impart your knowledge as the SME. As a matter of fact, the combined experiences of the class usually exceed that of the instructor in the facilitation role. You will use your instructor guide as a blueprint of where the discussion should go. This may be done with questions or setting up exercises.

While serving in the facilitation role, your job is not to teach. It is to ensure the discussion follows a pre-determined course to meet the objectives. Properly guided through methods like directed discussion, the class will teach itself. Just ensure that the purpose is clear to the student and there is a thorough de-brief.

As in previous methods discussed, the success of a directed discussion depends on careful planning by the instructor. Remember that some elements of the discussion method are included in every other method of instruction except for a straight lecture. Your goal in using the discussion method is to actively involve your students in the learning process. The old Chinese proverb, "I hear and I forget, I see and I remember, I do and I understand," certainly applies in the training arena. Therefore, strive for maximum student involvement.

BLENDED LEARNING

Blended learning commonly refers to the students interacting with their instructor in a technology setting, typically an electronic classroom. The instructor's computer has control of the peripheral learners' computers using a Local Area Network (LAN) in some cases establishing an Intranet. This method of instruction is not to be confused with distance learning, in which the instructor does not occupy the same classroom as the students.

In a blended learning environment, you are physically in the same location as your students. You guide them through the lesson using traditional classroom methods and using computer-based training content delivered on the individual student workstations via the Intranet. In this delivery environment, there are two categories of computer-based training:

Asynchronous CBT. Generally, as learners complete self-paced CBT in the classroom together, they will be directed to perform certain performance assessments. In some cases, the instructor will grade these performance assessments and then enter the completion date and grades into the Learning Management System (LMS). Once a learner has completed all of the self-paced modules and performance assessments, you should notify Student Control/Student Management so that the seat is available for the next learner.

Synchronous CBT. Synchronous CBT allows learners to interact with an instructor via the Internet or face to face. The instructor and learners are all logged on at the same time, viewing the same content. The learners can ask questions by raising their hands, via email, a discussion board, or chat room.

INSTRUCTOR DUTIES TO THE STUDENTS

No matter if the learning event you are conducting is a role play, a case study, self-paced computer-based training, guided individual practice, a game, a simulation, a demonstration, a lecture, a lesson, or Team Dimensional Training, there are

specific duties that you, the instructor, must perform for all of them. You will need to adapt your skills for the various learning environments. The six duties you have as a Navy instructor are to:

PREPARE

- Determine how many students you will have.
- Decide which students will perform each role.
- Logistics:
  - Do you have enough of the right equipment in working order?
  - Is there enough space?
- Conduct a walk-through.
- Ensure the exercises or scenarios meet the objectives.

BRIEF

- Demonstrate any Steps if necessary:
  - Learners may need to see you demonstrate the steps to learn how to complete them appropriately.
  - Ensure you have their complete attention prior to the demonstration.
- Check for Understanding:
  - Wait until all points of your brief are covered prior to asking if everyone understands the directions.
- Distribute Materials:
  - Distributing materials too early will distract learners from listening to your brief, forcing you to re-brief or correct performance after the activity has begun.

  DO NOT DISTRIBUTE MATERIALS UNTIL AFTER YOU HAVE CHECKED FOR UNDERSTANDING!

In select instances, it may be necessary for you to distribute materials before or during the brief. In this case, give learners a few moments to look them over before resuming your brief.

- Explain the Purpose:

  - What type of learning event is this?
  - Why are you doing this activity or exercise?
  - What is the desired learning outcome?
  - Establish clear rules, particularly when safety matters.

- Background:

  - Establish the setting.
  - Make it realistic and relevant for your learners.
  - Describe the background and characters.
  - Describe the operational situation.

- Tasks and Timeline:

  - Tell the learners exactly what is expected of them.
  - Explain to the learners the sequence you expect them to follow during the event. In some cases, these may be guidelines, rather than exact steps.

MONITOR

- Monitor progress to ensure learning objectives are met.
- Provide time checks.
- Assess involvement of observers and intervene or prompt as necessary.

DEBRIEF

Debriefing allows you to encourage insightful discussion and provide feedback to participants. Affective Questions and General Questions are formats to use for class debriefs.

- Affective Questions:

  - Participants should be provided an opportunity to discuss their reaction to the material.

- General Questions:

  - Small Group Discussion – Assign small groups and ask the members to discuss and present what they learned.

- Open Audience Discussion – Invite the group as a whole to give reactions and feedback to the class material. Give learners guidelines on how to present their feedback, for example, give positive feedback first.

INSTRUCTOR EVALUATION OF PERFORMANCE

Instructor observations are often the most valued feedback. Follow these guidelines when giving feedback as an instructor:

- Give constructive feedback even when correcting.
- Own the feedback, for example, "It seemed to me…."

SUMMARY

Recap the objective of the training event and any key points brought up during the discussion.

DISTANCE LEARNING

Distance learning or distance education focuses on delivering instruction to learners who are not in the same physical or geographical location as the teacher or institution. Advances in technology have made distance learning commonplace in academia, corporate, government, and military settings.

Distance learning is typically broken down into two categories: synchronous learning and asynchronous learning. What distinguishes these two categories is typically the technology required.

In synchronous learning environments, the instructor and the students all convene at the same time. This can be accomplished via non-computer means such as phone conferences, teleconferences, or even Video Tele-Training (VTT). Synchronous learning via computers can take place through online communication software such as chat rooms or even specialized programs that provide an interface where students can interact with the instructor and other students on the internet. These can even involve screen-top web cameras and microphones.

Asynchronous learning environments are those where the group or class does not meet simultaneously at an established time. Classes of this type may make use of commercially available online

collaborative learning environments. These packages contain many features such as discussion boards, environment-specific e-mail as well as the capability to share learning materials.

It is not unusual for distance learning classes to use techniques and features from both synchronous and asynchronous environments. For example, a class may convene online for one hour and communicate via chat and web audio and then use discussion boards and other asynchronous tools for the rest of the week to complete course activities. These courses are sometimes called hybrid classes because they are made up of both synchronous and asynchronous or both real-time and virtual learning environments.

SUMMARY

Every course you teach will require you to impart knowledge and develop the skills of your students. In teaching those knowledge and skills you may use different instructional methods. A combination of methods allows you to add variety to reach the diverse group of students you may have. Your skill and flexibility in using different instructional methods will be the determining factor in how effective training is in accomplishing the objectives of the course of instruction.

The types of instructional methods that are available to you will allow you to keep the training pace varied and actively promote learner mastery of the information. The learning objectives determine the primary method you will use in a given training setting. As a Navy instructor, you must be competent to use each of the methods dictated for your particular courses. That requires research, observation, and practice. You can never learn too much about training. Constantly strive for improvement and mastery, and you and your students will be the better for it.

CHAPTER 7

LEARNING OBJECTIVES

INTRODUCTION

What are learning objectives? Why are learning objectives used? Perhaps you have asked yourself these or very similar questions. An objective is a description of the performance standard you want students to demonstrate before you consider them competent in that performance. Objectives provide a road map for the delivery of course content. Objectives provide direction for instruction, guidelines for testing, and convey instructional intent. Objectives provide the foundation upon which course curriculum is built as well as the road map for the delivery of course content. They define what you will teach and how you will measure student accomplishment. As a Navy instructor, in addition to having knowledge of the purpose of objectives, you must also have an understanding of the classifications, elements, and types of learning objectives.

LEARNING OBJECTIVE CLASSIFICATION

Learning Objective (LOs) are founded on job analysis data and describe what the learner must achieve to successfully complete the course of instruction. Learning objectives are broadly classified as either knowledge or skill objectives. Bloom's "Taxonomy of Educational Objectives" was developed in 1956 to help identify and define learning objectives. This classification system is based on the assumption that learning outcomes can best be described as changes in student behavior. The taxonomy is divided into three main parts or domains: (1) the cognitive, (2) the affective, and (3) the psychomotor.

THE COGNITIVE DOMAIN

The cognitive domain contains the following six major categories. An example is given in each category to help illustrate the level of understanding the student should be able to demonstrate as a result of the instruction provided.

Knowledge (Level 1)

Knowledge is defined as the remembering of previously learned information. All that is involved is the recall of the appropriate information. Knowledge represents the lowest level of learning outcomes in the cognitive domain. Objectives at this level require students to demonstrate their knowledge of the subject, but not their understanding of it.

EXAMPLE: State the three elements of learning objectives.

Comprehension (Level 2)

Comprehension is defined as the ability to grasp the meaning of material. These learning outcomes are more complex than simple recall of information and represent the lowest level of understanding.

EXAMPLE: Explain the use of oral questions in a lesson introduction.

Application (Level 3)

Application is the ability to apply learning in new and concrete ways. Application differs from comprehension in that application shows that students can use (apply) learning correctly.

EXAMPLE: Demonstrate effective communication skills and techniques.

Analysis (Level 4)

Analysis is the ability to separate material into its component parts to arrive at an understanding of its organizational structure. Analysis requires a higher level of understanding than either comprehension or application. Learning outcomes that involve decision-making, problem-solving, or troubleshooting skills normally require this level of understanding.

EXAMPLE: Distinguish between appropriate and inappropriate motivational techniques.

Synthesis (Level 5)

Synthesis refers to the ability to reason from the general to the particular. Synthesis stresses creative behavior that combines many parts into a meaningful whole.

EXAMPLE: Prepare your self, materials, and environment to deliver instruction.

Evaluation (Level 6)

Evaluation involves the ability to judge the value of material based on defined criteria. Learning outcomes of this category contain elements of all the other cognitive categories in addition to value judgments. This category represents the highest level of understanding within the cognitive domain.

EXAMPLE: Evaluate the effectiveness of another instructor's performance.

When using the objectives in this domain, you must make sure they are realistic. You must make sure they reflect an accurate indication of the desired learning outcomes and, in fact, measure what you think they are measuring. You cannot measure level three outcomes by level one objectives. Nor can you measure student comprehension by asking "recall" level questions.

The responsibility for ensuring learning outcomes falls largely to you, the instructor. If the intended outcome of instruction is for the student to be able to "apply" theory, principles, or concepts (level three of the cognitive domain), then objectives must be developed and taught at that level.

Domains involve a "hierarchy" of learning outcomes. Those outcomes allow you to provide instruction in a defined sequence. Thus, you first present facts, methods, basic procedures, and terminology. Then you can measure your students' accomplishment of those objectives (by testing) before teaching higher levels of information.

The objectives show students what they are expected to learn from instruction. The objectives tell the instructor "at what level" to present information. If the purpose of a topic, as defined by the learning objectives, is to cover information at the knowledge level, be careful not to go into too much detail. Conversely, if the purpose is to teach students to apply the information presented, do not make the critical error of presenting information only at the knowledge level.

THE AFFECTIVE DOMAIN

The affective domain defines learning outcomes associated with emotions and feelings such as interest, attitudes, and appreciation. Measuring the accomplishment of objectives in the affective domain is generally more difficult than in the other domains. In this domain, we are not only interested in a "correct response" but also in determining students' feelings, values, attitudes, and interests toward the subject.

THE PSYCHOMOTOR DOMAIN

In Navy training, a large percentage of course objectives are associated with the cognitive domain, while a relatively small percentage of objectives are associated with the affective domain. Because of the nature of technical training, the Navy also places a great deal of emphasis on learning outcomes of the psychomotor domain.

In the chapter on learning principles you read about the ways people learn. You may recall they included: imitation, trial and error, transfer, association, and insight. While none of these ways are unique to any one domain, imitation, trial and error, and transfer are closely associated with the psychomotor domain.

Students accomplish much of their skill learning by imitating behaviors they observe in others. They also acquire some skills by trying something until they hit upon a satisfactory (though not necessarily correct) solution or outcome.

Transfer, you remember, is applying past learning in new but somewhat similar ways. You cannot always provide students with skill training on actual equipment. Thus, you must strive to create realistic learning situations that will enable students to later "transfer" that learning to their actual job. The categories of the psychomotor domain include: perception, set, guided response, mechanism, complex overt response, adaptation, and origination. Let us look at each a little more closely now.

Perception (Level 1)

Perception concerns the students' use of their sensory organs to obtain cues that guide their motor activity. It involves the students' learning from sensory stimulation (awareness of a sight, sound, or scent) and from recognition of the stimulus (identification of the object, sound, or scent) to perform certain actions.

EXAMPLE: Choose appropriate colored markers for lettering charts.

Set (Level 2)

Set refers to the students' being ready to perform a particular action. Perception of cues serves as an important prerequisite for this level. This category includes mental set (mental readiness to act), physical set (physical readiness to act), and emotional set (willingness to act).

EXAMPLE: Display proper student behavior in a learning environment to indicate learning readiness.

Guided Response (Level 3)

This level involves the early stages of learning a complex skill. It includes learning through imitation and trial and error. Students are guided by their instructor as a role model and their own experience. The adequacy of their performance is normally judged by another person or by the use of pre-defined criteria.

EXAMPLE: Display proper instructor behaviors in a training environment.

Mechanism (Level 4)

This level concerns performance skills of which the learned responses are more practiced than in the previous level, but are less complex than in the next higher level. You expect the student to be able to perform these skills with some degree of confidence and proficiency.

EXAMPLE: Use the visual aids panel as instructional media.

NOTE: Before going onto the next level, we must point out that this example objective could apply equally as well to levels two and three as it does to level four. Obviously, however, you would measure student accomplishment of the objective differently. You should expect much more of a student in the way of proficient performance at level four than at level two. That is why you need to understand the intended level of instruction and the learning outcomes expected as a result of that instruction. While that is specifically the responsibility of curriculum developers, you, the instructor, must help students accomplish the desired training outcomes from the learning objectives.

Complex Overt Response (Level 5)

At this level within the domain, you should expect the student to demonstrate a high degree of proficiency. This level includes highly coordinated motor activities.

EXAMPLE: Demonstrate the procedure for disarming live ordnance.

Adaptation (Level 6)

Adaptation concerns highly developed skills. Transfer learning is associated with this level in that students use previously learned skills to perform new but related tasks.

EXAMPLE: Adapt your instructional style to the appropriate level of instruction for your students.

NOTE: You are more likely to find behaviors at levels six and seven outside of the training environment because of their complexity. The example objective used in level six might be more appropriate to an evaluation program for experienced instructors than to students in an instructor-training course.

Origination (Level 7)

Origination refers to a student's ability for new and creative performance after having developed a skill. Learning outcomes at this level emphasize creativity in responding to a particular situation or specific problem.

EXAMPLE: Develop alternative strategies for delivering instruction.

Bloom's "Taxonomy of Educational Objectives" provides a three-domain system for the classification of instructional objectives. Each domain is subdivided into categories arranged in hierarchical order from simple to complex. These categories aid in (1) identifying objectives for an instructional unit, (2) stating objectives at the proper level for the defined learning outcome, (3) defining objectives in the most relevant terms, (4) checking the comprehensiveness of objectives, and (5) communicating to others the nature and level of intended learning outcomes.

TYPES OF LEARNING OBJECTIVES

In training, Learning Objectives (LOs) are achieved when Enabling Objectives (EOs) and Terminal Objectives (TOs) are taught. These objectives do not vary and the two development approaches the Navy uses for curriculum development: task-based (NAVEDTRA 130 series); and Personnel Performance Profile (PPP) based (NAVEDTRA 131 series). You can refer to these NAVEDTRA series to learn more about the curriculum development process and the roles these objectives play. Let us examine these different types of learning objectives a bit more closely.

LEARNING OBJECTIVES

LOs are statements of what the trainee can do after training (completing the course or part of the course). LOs are based on a Course Training Task List (CTTL) if NAVEDTRA 130 (series) is used or a PPP Table if NAVEDTRA 131 (series) is used. LOs are composed of three elements: the behavior, the condition, and the standard. These elements define what the student will be able to do (Behavior Element), under what conditions (Condition Element), and to what degree of proficiency (Standard Element). Fig. 7-1 provides an outline of these elements.

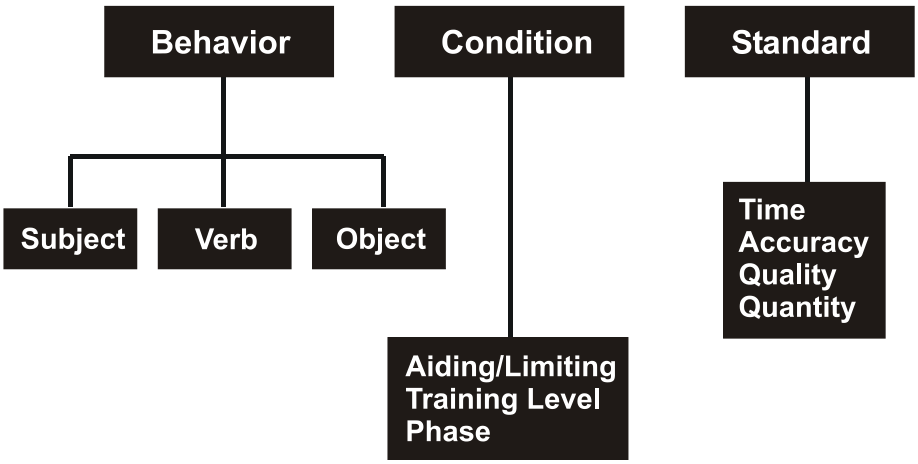


Figure 7-1: Elements of a Learning Objective

THE BEHAVIOR ELEMENT

The behavior element of a learning objective defines what the learner should be able to do as an outcome of training. It may include application of knowledge, accomplishment of a skill, or demonstration of an attitude or value. This element of the objective always specifies student performance. You must be able to observe the behavior and to measure what the student must do to demonstrate accomplishment of the objective. The significant parts of the behavior element are (1) the subject, (2) a performance-oriented verb, and (3) an object.

The student is always the subject. Commonly, the phrase, "Upon successful completion of this topic, the student will be able to . . ." introduces learning objective statements. When a topic lists several learning objectives, the introductory statement appears once with all of the objectives grouped beneath it.

The performance-oriented verb, or "action" verb, immediately follows the introductory statement and expresses the student performance required to demonstrate achievement of the objective. Learning objectives should contain only verbs that express active, measurable performance. Objectives should not contain verbs that are vague, such as "understand," "know," and "realize," as they are open to interpretation and can be measured in many different ways.

The object of a behavior element is a word or phrase that denotes what is acted upon. The object should include all modifiers needed to define what the student will be acting upon. For example, consider the following objective: "Upon successful completion of this topic, the student will be able to state the three elements of a learning objective." The "student" is the subject, "state" is the action verb, and the phrase "the three elements of a learning objective" is the objective.

THE CONDITION ELEMENT

The condition basically defines aiding and limiting factors imposed upon the student in satisfying the performance requirements of the objective. This element may also define the degree of interaction with the training environment that the learner may expect. One of the major concerns in Navy training is to ensure that the conditions of the training environment approach those of real life. You may encounter objectives that contain several conditions or none at all. In some instances, objectives may contain no aiding or limiting factors, or the conditions of performance may be obvious. The objective should not include conditions that are not legitimate training concerns. The following are some examples of conditions:

. . . given a list of . . .
. . . without the use of references . . .
. . . provided with a Model X calculator . . .
. . . in a damage control wet trainer . . .

When combined with the behavior element, the condition element provides a clearer understanding of the learning outcome defined by the objective.

THE STANDARD ELEMENT

The standard element of a learning objective specifies the criteria the students' performance must meet. Standards are normally defined as time, accuracy, quantity, speed, or some other quantifiable measurement. As with the condition element, whether the standard element appears in the objective depends on how critical it is to determining the students' accomplishment of the objective. If you must measure student accomplishment against some criteria, then the learning objective will include the standard element. If not included, the standard is assumed to be 100 percent.

Examples of standards are as follows:
. . . 40 words per minute.
. . . plus or minus one gram.
. . . without error.
. . . with 80% accuracy.

ENABLING OBJECTIVES (EOS)

EOs are specific statements of the behavior to be exhibited, the condition(s) under which it is to be exhibited, and the standard to which it will be performed. EOs contain conditions and standards appropriate to the training environment including knowledge and

skills that support a TO. EOs are a learning objective that the trainee may accomplish at any point in the course after receiving appropriate training. EOs directly support the achievement of a TO and may support other EOs.

TERMINAL OBJECTIVES (TOS)

TOs are specific statements of the performance expected from a student as the result of training. It expresses the behavior to be exhibited, the condition(s) under which it is to be exhibited, and the standard to which it will be performed. TOs directly support the course mission statement.

CONSTRUCTION OF LEARNING OBJECTIVES

Although the writing of learning objectives is not difficult, it can present a challenge. Developers must determine the desired learning outcomes and the conditions under which the student must perform. They must also decide how to determine when a student has satisfactorily met the training requirement. After that, the information is converted into words that convey the message. Remember the following information about the construction of learning objectives:

- Learning objectives indicate what the student will be able to do as a result of training.
- The student is always the subject of the behavioral statement. The behavioral statement will also contain a performance-oriented verb and an object.
- Most objectives describe conditions that aid or limit performance.
- Standards describe the criteria of acceptable performance. They are usually expressed as time, accuracy, or quality. The lack of a stated standard implies that 100 percent accuracy is required.

Learning objectives for Navy training courses normally fall into the categories of knowledge, mental skills, or physical skills. These objectives all contain the same elements, but are written to determine different levels of understanding or achievement. For example, the following three behavioral statements pertain to the same subject but are written to determine various learning outcomes.

Upon completion of this topic, the student will be able to:

- (Knowledge) State Ohm's Law for determining voltage in a series circuit.
- (Mental Skill) Solve for an unknown value in a series circuit.
- (Physical Skill) Measure current in a series circuit.

These statements all indicate what the student is expected to be able to do as a result of training. When condition statements are added, the aiding or limiting factors to performance will be known:

- State Ohm's Law for determining voltage in a series circuit from memory.
- Solve for an unknown value in a series circuit when provided with two known values.
- Measure current in a series circuit using the Model XX Multimeter.

When the standard is added to these statements, the objectives will be complete. The objectives will then tell the students exactly what they will be expected to do, under what conditions, and the criteria of acceptable performance. For example:

- State Ohm's Law for determining voltage in a series circuit from memory. (The standard of 100 percent is implied).
- Solve for an unknown value in a series circuit when provided with two known values. Problems must be solved accurately to two decimal points.
- Measure current in a series circuit using the Model XX Multimeter. Measurements must be within plus or minus one milliamp of those specified on Maintenance Card 1-2-3.

These examples illustrate the development of learning objectives intended to measure various levels of student achievement. You should remember and apply your knowledge about how learning objectives are written so that you can help your students achieve specific learning outcomes. As an instructor, you are in a unique position. You will be able to help determine if Navy training is producing students with the knowledge and skills they need to perform the jobs to which they will be assigned in the future.

INSTRUCTOR TECHNICAL COMPETENCY

Knowledge of the subject matter directly related to the objectives of the curriculum in which you instruct is a key ingredient to achieving effective training. When planning individual lessons, be aware of how your training activity determined the objectives, and if the possibility exists to join in the process of validating them, then participate fully.

The following provides some guidelines applicable to learning objectives that could prove beneficial to you during your instruction in the classroom:

DIRECTION FOR INSTRUCTION

Tell your students that it increases their retention if you set clear expectations through the learning objectives. Stress that clearly written objectives commit you to providing the environment in which their learning objectives may be reached. If, for example, the student must isolate a fault within a certain time frame, the student must be given instruction and the tools necessary to accomplish the task.

GUIDELINES FOR TESTING

Stress that clearly written objectives signal how items should be tested. How can you be sure that learners have achieved an objective if the objective is not clear or if the testing is unfair?

CONVEY INSTRUCTIONAL INTENT TO OTHERS

Stress that clearly written objectives guide both teaching and learning. In a sense, they are a contract between instructor and student. The instructor's responsibility is to provide learning activities that enable the student to meet the objectives. The students' responsibility is to participate in those activities, monitor their comprehension, and seek additional learning opportunities if they do not feel they can meet the objectives.

CHECK UNDERSTANDING/RETENTION

When students are asked to recall specific information, their responses will act as feedback that may indicate their understanding and retention of the learning objectives. It is your responsibility to ensure that they have every opportunity to achieve their learning goals.

RELATE TO THE TRAINING OBJECTIVES

It is very important to stick to the topic when asking questions during a training event. While it is acceptable to include extra details during the training session in order to make it more interesting, do not construct questions using this additional information. The questions you ask should directly relate to the learning objectives.

SUMMARY

Learning objectives provide the foundation upon which course curriculum is built. They define what you teach and provide the basis for measurement of student accomplishment. While instructors do not typically need to know how to write objectives, they do need to be able to help students meet their learning objectives through their teaching. The instructor must ensure that the content is covered with an appropriate level of detail, within the time frame given, to ensure student success. Instructional objectives are broadly classified as either knowledge or skill objectives. These classifications are then divided into levels of learning within the cognitive and psychomotor domains. Your knowledge of the classifications, elements, types, and construction of learning objectives will help clarify your role in conducting training and strengthen your effectiveness in delivering training.

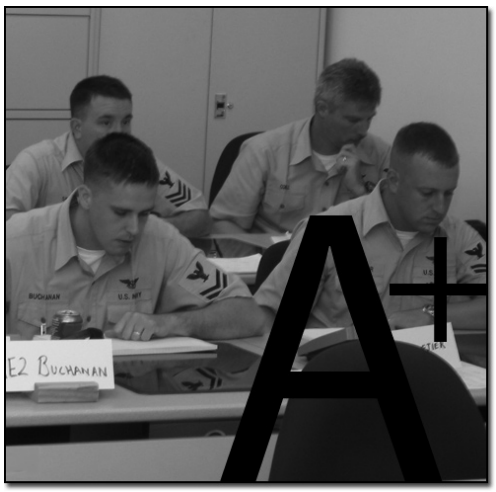
CHAPTER 8

TESTING

INTRODUCTION

Do you remember the first time that you took an advancement exam? How about your first Navy knowledge test? Do you also remember coming across test questions that made you stop and reread them because they did not make any sense?

Everyone in the Navy has been exposed to tests in one fashion or another. You are probably familiar with norm-referenced tests (tests in which your score is determined by the scores of your fellow Sailors and Marines). For example, only a certain percentage of Sailors and Marines taking a norm-referenced test such as an advancement exam will be considered advanced, no matter how many items they get correct. The majority of the test items used by the Navy are criterion-referenced (they must assess or test specific criteria). So how does this impact you as an instructor?



Navy training activities use tests to determine whether or not students have sufficient knowledge or skills to meet the requirements established by the learning objectives; that is, whether or not the student has learned the material and/or can meet a minimum standard. The philosophy underlying Navy testing is based on the achievement of learning objectives. Tests are given to determine if a student can demonstrate, in some measurable way, achievement of the objectives.

Everyone in the Navy has also been exposed to formal assessments. Formal assessment is simply an assessment that is structured. A formal assessment is one that is graded, scored, and has pre-established grading criteria against which the learner will be measured. Examples of formal assessment include:

- Standardized tests (e.g., Scholastic Aptitude Test, CLEP)
- Criterion-referenced tests (e.g., "A" and "C" School Knowledge Tests)
- Norm-referenced tests (e.g., Advancement Exams)
- Performance tests

You will fill a critical role in the testing program for the courses you instruct. After curriculum has been validated, course personnel (primarily instructors) are responsible for the maintenance of tests, development of additional test items, and analysis of tests and test items.

You will be concerned with two methods of testing: knowledge and performance. Knowledge tests measure achievement of objectives through the use of test items written at the appropriate learning level. Performance tests measure skill acquisition by having the student demonstrate specific behaviors defined by the learning objectives. This chapter focuses primarily on the information you will need as a Navy instructor to develop knowledge test items.

KNOWLEDGE TEST ITEM DEVELOPMENT

The behavior, conditions, and standards specified in the objectives will determine the level of learning tested. You need to know how students will use this material on the job so that you can test the material to that level. Navy training uses five levels of learning which are based on, though not identical to, the learning levels defined in Chapter 7. Definitions and examples of the five learning levels are as follows:

- **Recognition.** Recognition is the process of verbatim identification of specific terms, facts, rules, methods, principles, procedures, objects, and the like, presented during training. Students select from two or more choices to identify the information. For example, a test item may ask the students to identify a particular switch on a piece of equipment by matching its name to a diagram of the switch. That is a recognition test item if the student has been taught that specific information during training.

- **Recall.** Recall is the verbatim remembering of specific terms, facts, rules, methods, procedures, principles, and the like. To correctly answer a recall test item, students remember and respond exactly as taught. A recall test item requires students to respond from memory instead of selecting the response from two or more choices. Listing the steps of a maintenance procedure and answering a completion question by labeling parts on a diagram are examples of recall test items. Always test recall with closed book tests, otherwise you are not testing the students' ability to remember information.

- **Comprehension.** Comprehension is understanding what was taught rather than simply memorizing the words. It can be demonstrated by interpreting, explaining, translating, or summarizing information. When measuring the students' understanding of an objective, you must avoid the use of verbatim recall or recognition types of items. Comprehension requires students to paraphrase the material presented in the item rather than taking it word for word from the text. Asking a student to explain how a device works is an example of a comprehension test item.

- **Application.** Application involves the ability to use acquired knowledge in a job-related situation. Application questions require students to demonstrate knowledge through mental skill exercises such as solving a computational problem or determining resistance values from circuit diagrams. You must use different problems or circuits from the ones you used in class to develop application questions to be sure the student did not simply memorize the examples used in class but has mastered the skill.

- **Analysis/Evaluation.** Analysis involves the understanding of the elements of data and relationships among the data that make the meaning of information explicit. Evaluation involves the judgment of the value or the effectiveness of procedures or solutions based on data, criteria, and standards. For example, consider a question that asks the student to select the best approach to meet a stated objective. The question would require the student to know or determine which options would meet the objective (analysis) and which single option would be best (evaluation).

In developing knowledge test items, focus on the learning level being tested and write the test items to that level. You may use five types of knowledge test items: multiple-choice, true-false, matching, completion, and essay. Let us look at each of the five types of knowledge test questions more closely.

MULTIPLE-CHOICE TEST ITEM DEVELOPMENT

The multiple-choice item is the most frequently used of the five types of test items. They provide a fairly versatile tool with the benefit of fast and easy grading. Properly constucted, they can be used to test all levels of knowledge except recall. The multiple-choice test item consists of the following with an example provided in Figure 8-1:

- Instructions
- Stem
- Choices
- Correct answer

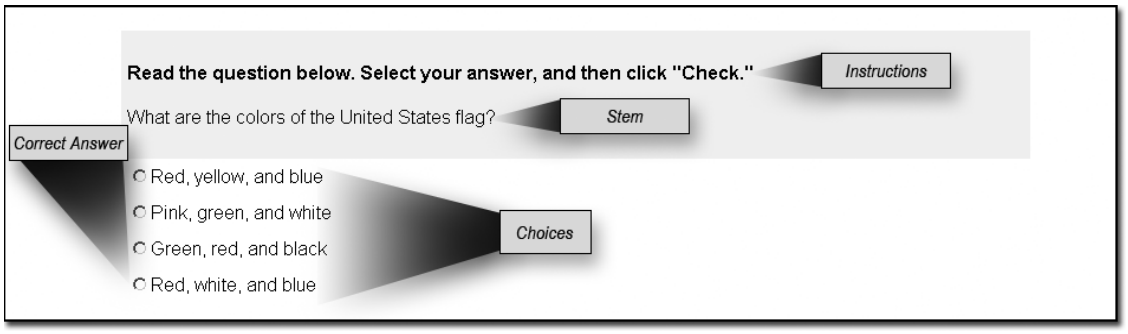


Figure 8-1: Parts of a Multiple-Choice Test Item

Typically, this type of test item contains four choices; however, depending on the nature of the content being tested, you can use more or less than four. Make one of the choices the correct answer to the test item and all of the others plausible choices.

The following sections present guidelines for stem construction, alternative (choice) construction, test item forms and formats, and common errors in item construction.

STEM CONSTRUCTION

A cardinal rule in test item development is to communicate effectively. Use the following guidelines as a checklist to make sure you properly write multiple-choice test item stems:

- Include all information, conditions, assumptions, and details required for the students to correctly answer the question without requiring them to refer to the choices.
- Phrase the stem positively.
- If you must use a negative, highlight it (in caps or underlined) so that the student will notice it and interpret the item correctly.

- Use clear, unambiguous wording so that only one answer is correct. If there are multiple correct answers, it must be clearly stated that more than one answer may apply.
- Include words, phrases, and so on, that pertain to all choices rather than repeating them in the alternative.
- Omit information not essential to the interpretation of a test item unless the learning objective being tested calls for the student to extract relevant information from a larger body of information.
- If the test item uses an illustration on a separate illustration form, refer to the illustration in the stem by figure number.
- Position the completion of an incomplete statement test item near or at the end of the stem.
- Use the question form over the incomplete statement form except when it would make the test item grammatically clumsy or difficult to understand.
- For test items in the form of questions, use complete sentences ending with a question mark.
- Avoid the use of more than one completion position.
- Test only one idea or central thought.

The following sections present guidelines for multiple-choice test item development. Let us look further at alternative construction, and stem and test item formats. We will also discuss some common errors to avoid in test item construction.

MULTIPLE-CHOICE ALTERNATIVE CONSTRUCTION

You must exercise care when designing the alternatives (choices) for multiple-choice test items. Make sure the possible answers are plausible and fit well with the stem. The difficulty of the item will depend largely upon the choices. The more closely related the options are, the more difficult it is for students to select the correct answer. A good rule is to develop choices based upon common misconceptions by students and inexperienced job incumbents. You may prepare choices based on how students may incorrectly manipulate terms, symbols, and the like. An additional rule is to look at the correct answer and determine how you may make it incorrect. Observe the following requirements in developing multiple-choice alternatives:

- Include only one correct answer or if there are multiple correct answers, clearly state more than one answer applies.
- Use closely related (relevant or plausible) choices.

- Use choices that are meaningful and not subject to automatic elimination because they are irrelevant or unrelated to the question.
- Do not use interrelated answers (e.g., "c" is true if "a" and "b" are false).
- Use terms with which students should be familiar or that you can explain within the limits of the test item.
- Make all choices approximately the same length and of the same complexity.
- Do not use the words "always" or "never" unless knowledge of the applicability/inapplicability of the absolutes is part of the knowledge being test.
- If using "All of the Above" or "None of the Above" on any questions you should use it on enough questions where it is correct and enough questions where it is incorrect, that the presence of this/these answer(s) do not permit it/their automatic selection or rejection.
- Avoid using negative wording. However, if you must use negative wording, highlight it (e.g., put the text in caps or underline it).
- If the stem is a question (i.e., a closed-stem) and the choices are complete sentences, begin each alternative with a capital letter and end each one with a period.
- If the stem is a question and the choices are incomplete sentences, begin each alternative with a capital letter and use no end punctuation.
- Punctuate choices that conform grammatically with the structure of the item stem and form a sentence.
- When writing an incomplete sentence test item, make the wording of the choices grammatically related to that of the item stem.
- Randomly select the position of the correct answer among the choices to avoid any patterns that may bias the test.
- When constructing items that involve numerical answers (or other answers that have a logical order), arrange the choices in ascending or descending order.

MULTIPLE-CHOICE STEM FORMATS

It is important to standardize how stems and alternatives are written. There are two different acceptable formats: closed-stem or open-stem.

Closed-Stem Format. You may write closed-stem items as a complete statement or incomplete statement. The following is an example of a closed-stem complete statement format:

EXAMPLE: Which of the following objectives should training accomplish?

(a) Attain personal goals.
(b) Reduce changes in opinions.
(c) Acquire knowledge for its own sake.
(d) Develop knowledge, skills, and ability.

The complete statement format has the advantage of forcing you to state the problem clearly in the stem. It also reduces the possibility of giving students grammatical clues. A disadvantage is that it may require lengthier responses. The following is an example of a closed-stem incomplete statement format:

EXAMPLE: The setting of the AN/ABC-3Q flip-flop . . . indicates that intent-to-fire has been energized.

(a) B43
(b) C21
(c) C24
(d) D32

When written as an incomplete statement, the completion position appears within the statement, not at the end of the stem. Although this form of test item is typically easier to write than complete statement stems, use them sparingly. They encourage lifting of test items verbatim from the material and encourage students to memorize answers.

Open-Stem Format. This format uses an open-ended stem, which is an incomplete statement with the response position at the end of the statement. Each choice provides a seemingly logical conclusion to the stem. Although incomplete-statement stems are typically easier to write than complete statement stems, they may cause you to avoid thinking about the question before you develop the alternatives. That may result in illogical and unrelated choices. Generally, the less similar choices are in content, the easier it is for students to select the correct choice. The following is an example of an open-stem test item.

EXAMPLE: When crimping both a stranded and a solid wire in the same contact, the solid wire’s position in relation to the stranded wire is:

(a) above it.
(b) below it.
(c) beside it.
(d) diagonal to it.

MULTIPLE-CHOICE TEST ITEM FORMATS

You may construct multiple-choice test items either as questions or incomplete statements using either the standard or except formats.

Standard Format. This particular format is straightforward and the easiest to develop. Use it when you only want students to select the correct answer from the four choices provided.

EXAMPLE: During the system verification test, what supplies voltages for TVC position sensor tracking?

(a) Minus 20 VDC precision power supply
(b) Self-test DC reference power supply
(c) TVC position sensor AC/DC converter
(d) Missile command module

Except Format. Use the except format when three or more equally correct choices answer the question. This format requires students to recognize which choices are correct and select the one that is incorrect. Always capitalize and bold or underline the word "EXCEPT" in the stem. Use the "EXCEPT" format sparingly.

EXAMPLE: A specific torquing pattern and associated torque values can be found in the SINS technical manual for all of the following assemblies or components **EXCEPT:**

(a) An azimuth synchro assembly mounted to the stem.
(b) A velocity meter mounted to the platform.
(c) A replacement gyroscope mounted to the stable platform.
(d) A platform stem mounted to the bedplate.

There are several common errors that you need to avoid when developing multiple-choice test items. Listed below are four examples of common errors:

Do NOT use similar wording in both the stem and ONLY the correct choice; it suggests the correct answer.

Example of an inappropriate test item: (error underlined): What is the purpose of the MARDAN maintenance test set?

(a) Monitors the C.P. operations.
(b) Furnishes power to MARDAN.
(c) Functions as a running time meter.
(d) Provides static testing of MARDAN.

Do NOT state the correct choice in greater detail than the other choices. This practice often cues the correct answers.

Example of an inappropriate item (error underlined): When all weapon power is removed from the PIP, which of the following statements is true?

(a) All power is lost to the MCC equipment.
(b) The MCC equipment is furnished power from NAV via the MSR.
(c) The DCCs have heater power applied.
(d) Power from the ship control center may be present in MCC since it only goes through the SHIP JP.

Do NOT use two or more choices that have the same meaning. It eliminates them as useful choices and simplifies the correct choice. In the following example, choices a and b have the same meaning. Thus, they reduce the number of realistic choices from three to one.

Example of an inappropriate item (error underlined): What is the final step in performing post maintenance checks?

(a) Secure the front panel to the chassis.
(b) Make sure the front panel is secure.
(c) Set manual test switch to "OFF."
(d) Rerun the diagnostic tests.

Do NOT use choices that are included in other choices. In the following example, alternative b includes alternative a. If alternative b is correct, then so is alternative a.

Example of an inappropriate item (error underlined): What is the operating time, in seconds, for the pressurization/compensation blow valve to roll from shut to open?

(a) 1 to 3
(b) 1 to 4
(c) 4 to 6
(d) 9 to 11

TRUE-FALSE TEST ITEM DEVELOPMENT

True-false test items are really just two-response multiple-choice questions. Use them only when one plausible alternative to an item exists. A major drawback to true-false items is that they are more susceptible to guessing. A student who does not know the correct answer has a 50 percent chance of responding correctly to a true-false item. Use true-false items to test recognition, comprehension, application, or evaluation. Use the following guidelines when writing the true-false test item.

TRUE-FALSE TEST ITEM FORMAT

The true-false item format is straightforward. Write the stem as a direct statement and label the two choices below it as "True" or "False." Be sure to place the (TRUE/FALSE) identification before the item stem as shown below.

EXAMPLE: (TRUE/FALSE) When placing the CA in stowage, you must make sure the CA temperature is normal before securing heater power.
a. True
b. False

TRUE-FALSE TEST ITEM CONSTRUCTION

Observe the following rules for constructing true-false items stems:

- Include all relevant information and conditions required for the students to correctly answer the item in the descriptive statement.
- Make the statement concise and clear. Make sure the proposition that makes the statement true or false is evident.
- Make sure the statement is clearly true or false.
- Place the (TRUE/FALSE) identification before the item stem.
- When possible, make a false statement consistent with a typical misconception.
- Do not use specific determiners (e. g., always, never, none, all, may, sometimes) unless knowledge of the applicability/ inapplicability of these absolutes is part of what is being tested.
- Keep items short. Long items are harder to read and more difficult to judge true or false.
- When possible, use positive statements to minimize confusion and reinforce key learning.
- Do not lift test items verbatim from the curriculum.

MATCHING TEST ITEM DEVELOPMENT

Matching test items are generally the hardest to construct. Matching test items are defined as two lists of connected words, phrases, pictures, or symbols. Every item in one list is paired with at least one item in the other list. Figure 8-2 provides an example of the basic construct of this style of test item.

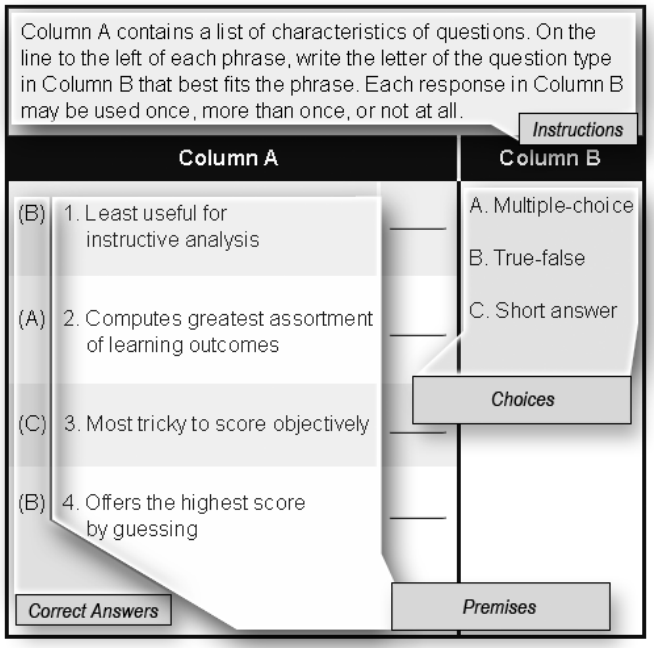


Figure 8-2: Parts of a Matching Test Item

Students must match elements on one list with associated elements on the other list based on specific instructions. Students pair the elements in each list and record the answer. Matching test items are ideally suited for testing recognition but, if written correctly, may also test comprehension and application.

MATCHING TEST ITEM FORMAT

The matching test item format consists of a stem and two columns listed below the stem. The stem provides direction as to how the student must match the items in the two columns. One column contains the questions or problems to be answered and the other column consists of the answers.

EXAMPLE: Using the FCDs in OP XXXX, match the circuit element listed in Column B to the signal it generates in (Column A). Write the letter representing your answer in the blank to the left of each signal in Column A. You may use a letter in Column B once, more than once, or not at all.

COLUMN A	COLUMN B
1._____DATA CHK NOT OK	a. B10
2._____DATA CHK OK	b. B13
3._____DRY RUN	c. B46
4._____EQ CONT RST 2	d. B47
5._____DATA CHK REQ	e. B49
6._____DATA CHK ALM	f. C30
	g. D56

MATCHING TEST ITEM CONSTRUCTION

Use the following guidelines when constructing matching test items:

- Always place the questions in the left-hand column, and place the answers in the right-hand column.
- When feasible, use single words, numbers, codes, symbols, short phrases, and the like, in the answer list.
- When feasible, make all answers relate to the question. That helps to prevent elimination of unrelated answers.
- Specify in the directions how often students may use the answers. If you avoid a one to one correlation between the questions and the answers, it increases the test item's degree of difficulty.
- When possible, arrange the answers according to some system (e.g., arrange numerical answers in ascending or descending order).
- Place both columns entirely on the same page. Students should not have to turn back and forth to see both the question and the answer choices.

COMPLETION TEST ITEM DEVELOPMENT

Completion test items are free response items in which the students must supply the missing information from memory. You may make completion items into listing test items in which students must list required answers such as part names, procedural steps, and so on, from memory. The advantage of completion items over multiple-choice or true-false test items is that completion tests require more than simple recognition of information. That is, they eliminate the possibility of guessing.

Completion items are easy to construct. You will find them useful in situations in which students must write a computational equation, define terms, list part names and functions, and the like. The disadvantage is that it is more difficult to score, and must be justified by grading criteria.

COMPLETION TEST ITEM FORMAT

You can construct completion items using three basic formats:

Students supply the word or phrase that completes the statement.

EXAMPLE: The station clock and time display are used to check the performance of _____of the designated register.
The student provides the phrase "the individual stages" to complete the sentence.

The student provides a definition, term, formula or similar response to a specific question.

EXAMPLE: What is the name of the unit that detects angular motion and supplies an output through precession?

_____

The student supplies a list of procedures, steps, parts, and so forth, from memory. This type of test item may be expressed in question or statement form.

EXAMPLE OF STATEMENT FORM: In the space below, list in order the steps for placing the Chemical Warfare Directional Detector (CWDD) in stowage.

_____

EXAMPLE OF A QUESTION FORM: What are the steps, in order, for performing a test sample on the hydraulic servicing unit?

_____

COMPLETION TEST ITEM CONSTRUCTION

Use the following guidelines when constructing completion test items:

- Word the test item clearly and comprehensively enough to allow a student who is knowledgeable in the subject area to answer correctly.
- Make sure the missing segment of the incomplete statement item is important, such as a key element of a process, parts of an assembly, or a method of repairing equipment.
- In incomplete statement items, do not omit too many words, or the statement will become unclear and force students to guess.

- In incomplete statements, make sure the response position appears near or at the end of the stem. Items with the response position near the beginning are harder to read, and generally take longer to answer.
- Provide sufficient space on the answer sheet for students to enter their entire response.
- Use a direct question to test for comprehension of technical terms or knowledge of definitions.
- Do not make the correct answer a "give-away" word that could be guessed by students who do not really know the information. In addition, avoid giving grammatical cues or other cues to the correct answer.
- Avoid using statements taken directly from the curriculum.
- Develop grading criteria that lists all acceptable answers to the test item. Have SMEs determine the acceptable answers.

ESSAY TEST ITEM DEVELOPMENT

Essay test items require students to answer a question with an original written response. Use comprehension essay test items for testing student's ability to organize data and express thoughts clearly in writing. Do not use them to test recall. Essay tests involve a relatively subjective scoring process since many factors may enter into the correctness of a response.

The disadvantage to essay test items is that they are time-consuming and difficult to score. The essay item must be scored by an individual knowledgeable in the subject area, unless only one basic response is possible to a given question or requirement.

ESSAY TEST ITEM FORMAT

You can use essay questions to assess learning of a comparatively large body of information, as well as individual elements within that body. Use the following guidelines for formatting essay test items:

- State clearly and precisely what type of response is required.
- If possible, place limits on the response by identifying the major points the students should address, the length of the response required, or time students may spend on the response.

  EXAMPLE: Compare the gas turbine and the 600 PSI steam propulsion plants. Your discussion should include descriptions of the major components of each system. Partial credit will be given.

ESSAY TEST ITEM CONSTRUCTION

The following are examples of types of information for which you may want to use essay test items:

- A comparison or contrast of items and procedures.
- A decision for or against system or equipment operation.
- Relationships such as causes and effects.
- Illustration (sketch) of principles learned.
- Statement of purpose in the selection of a method or technique.
- Criticism of the adequacy or correctness of a diagram or procedure.
- Discussion of primary, alternate, or emergency procedures.
- Explanation or definition of tasks.
- Observation from illustration or operation.
- Evaluation of the appropriateness of a procedure or technique.

MODEL ESSAY ANSWER OR GRADING CRITERIA

The essay test item must also contain a model answer you will use to grade the question. Observe the following guidelines in developing a model answer:

- Make sure the grading criteria identifies all of the essential information knowledgeable students should be able to supply in their essay.
- Make sure it promotes objective scoring of the test item by establishing a standard answer from which to judge all others.
- Make sure it identifies how much each item or part of each item is worth. For example, you may give ten points for the total essay. Five for identifying the correct steps in a process and five for listing them in the correct order. List common misconceptions/errors that could be reflected in answers and indicate how many points should be lost for making those errors.

VALIDATION OF TEST ITEMS

After you have constructed the test items, and before you actually assemble the test, validate the content of the items. Make sure they are technically and grammatically accurate, that they measure the objective, and that the items adhere to the guidelines presented in the preceding paragraphs. Have technically qualified SMEs perform the validation process. The individuals validating the test item should answer the following questions:

- Is the item technically accurate and is the correct response keyed?

- Is the item written to measure the objective?
- Does the item measure knowledge critical to the task associated with the objective?
- Is the item written to the appropriate learning level?
- If recognition, recall, or comprehension of the knowledge being tested is required for competent performance on the job, is the item a closed-book item?
- If the knowledge being tested is normally looked up during or before performance of on-the-job task(s), is the item an open-book item and is the essential reference material supplied?
- Are all words spelled correctly? Is the grammar correct?
- Is the information directly addressed in the course materials?
- Does the item meet format construction guidelines?

If the answer to any of the preceding validation criteria is NO, correct the discrepancy and revalidate the test item. If the item meets the validation criteria, then it should be approved for use.

PILOT TEST

Once you have assembled the complete test you should undertake a review process. Before submitting the test to others, begin by locating the material in the lesson plan. Note how the information is to be conveyed and how the learning objective is operationalized. Next, the test should be reviewed by others. First submit the test to two or more instructors/SMEs. They should provide a general review on test instructions, content, technical accuracy, item clarity, differentiation of response set, direct relation to objective, and grammar. Develop an instructor/SME test critique form. The second submittal is generally omitted but may be critical to developing a good test. Begin by identifying a cohort of students who are in the end stages of completing instruction in the same or very similar material. Test this group under actual test conditions with the caveat that they will not be evaluated on the results. Once the test is completed have them critique the test they have just taken. Develop a student test critique form. The final step would be to look at each student's performance on both tests. Are the results similar? Look at the items missed. Look at items answered correctly. Do you see patterns of behavior? For example does everyone miss or answer the same item correctly? What do patterns of students responses lead you to conclude? As an example if you observe a pattern of responses where a majority (90%+) answer an item correctly this item is not useful in discriminating among students over subject mastery. Conversely, if a significant majority fail to answer an item correctly this item needs to be examined for flaws (poor wording, ambiguity, etc) and if none are identified consider deleting this item.

TEST-ITEM ANALYSIS

After test items have been reviewed for content validity and administered to the students, statistics are kept by the course personnel to complete the validation process. These statistics include discrimination, difficulty, and for multiple choice items, effectiveness of choices. Curriculum development manuals NAVEDTRA 130 and 131, in addition to NAVEDTRA 135, contain additional information on tests and test-item analysis.

PERFORMANCE TEST DEVELOPMENT

The goal of many courses, as reflected in the learning objectives, is to teach students to perform skills needed on the job. Therefore, performance testing will constitute a significant portion of the testing for many Navy courses. Objectives that require the demonstration of observable skills are tested by performance tests. Performance tests include the following considerations:

- Performance tests are simulated work situations in which students demonstrate their ability to complete procedures, produce a product, or a combination of both.
- Evaluation of performance usually involves the detailed observation and critique of a student's performance by a trained evaluator or instructor. The evaluation is supported by checklists or rating scales.
- The performance is observed and evaluated under the conditions and standards set forth in the learning objectives.
- A final product performance test involves comparing the student's efforts to an acceptable completed example.
- Skill objectives to be performance tested are identified and rated as to their relative importance in measuring student attainment of the related job skills.

Development of performance tests can be very involved. Performance tests consist of a simulated work situation in which students perform tasks based on skill objectives. Two types of performance tests are used to measure skill achievement: process and product. The development steps are essentially the same for both types with the exception of the final evaluation device. Some performance tests require a combination of both process and product measurement. NAVEDTRA 130 and NAVEDTRA 131 provide detailed information about the development of performance tests and their elements.

INSTRUCTOR TESTING RESPONSIBILITIES

As an instructor, you will be administering criterion-referenced tests at specific points during training in the classroom environment. A criterion-referenced test item is an item that measures behaviors, according to specific criteria, as outlined in a given set of objectives.

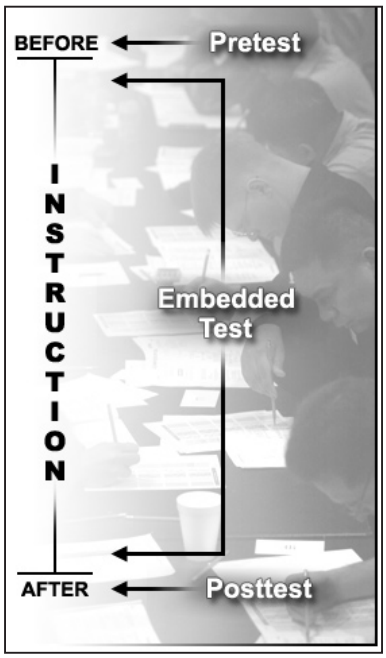
TYPES OF CRITERION-REFERENCED TESTS

There are three types of criterion-referenced tests:

- **Pretests.** Pretests measure a learner's entry-level behaviors and prior knowledge of selected instructional objectives. They are usually given before the learner has received instruction.

- **Embedded Tests.** Embedded tests measure selected instructional objectives. They are usually given while the learner is engaged in the instruction.

- **Posttests.** Posttests measure all instructional objectives. They are usually given after the learner has received instruction.



INSTRUCTOR-TESTING RESPONSIBILITIES

Each type of test should match the performance standards and conditions specified in the objective. Provide learners with the opportunity to show their achievement of the objective by meeting specified knowledge or skill performance criteria. Instructors must carry out a variety of responsibilities regarding testing. An overview of their five primary duties are categorized and explained below.

1. **Prepare Environment**
   - Preparing the environment in which learners will be assessed is very important. Here are some things to look for:
     - Secure a time and place for the assessment.
     - If you are in a classroom, make sure that the classroom is clean and neat.
     - Remove or limit any environmental distracters such as noise.

- If the assessment is taken asynchronously online, make sure the exam is accessible to the learners.

2. **Ensure Proper Tools**

Make sure that you have the tools necessary to perform the assessment (e.g., a test administrator's or proctor's guide). This means ensuring that the tools to be used are in working order and that there is a sufficient quantity for learners. Prepare for possible technical difficulties (whether equipment malfunctions in the lab or computer malfunctions in a CBT environment) by having resources available to resolve them.

3. **Review Protocols**

You will want to make sure your learners are aware of several protocols before they begin an assessment. Some of these protocols will apply only to group-paced instructors, while others will apply to those facilitating an online course; however, most will apply to any instructor. Protocols are identified and explained below:

Location. Point out the location of amenities such as heads, parking, vending machines, etc. Explain building evacuation procedures if the assessment is in a location different from the classroom.

Conduct. Explain expected learner conduct during the assessment and the consequences for violating expectations. For example, you may want to state whether learners may leave the assessment facility after they've started the assessment. Define what constitutes cheating for the exam and outline the consequences of doing so.

Time. Indicate the time allowed to complete the exam and how many times the learners may take the test before they are locked out of the program. As a group-paced instructor, you would verbally tell learners or have it written on the exam or a dry-erase board. As an online instructor, you would indicate on the course Web site a specified time period (say two weeks) in which learners could access the exam and how many tries they have at taking the exam.

Scoring. Indicate any scoring procedures.

Grades. Notify the learners of the date that they can expect to receive grades and procedures for receiving grades.

4. **Administer Test**

Depending on the environment in which you are teaching, you may have to administer the assessment. If your environment is group-paced, place the assessments face-down, giving learners instructions not to look at or begin the assessment until given permission by you. If your assessment is being given online, ensure that learners have access to the exam and that you are available for any possible questions or emergencies.

5. **Conclude Testing**

After the time allotted for taking the assessment has expired (if assessing in an online environment) or all learners have taken the assessment, account for all assessment materials. Afterward, secure all assessments for grading.

SUMMARY

Assessing a student's mastery of objectives in a knowledge test or skill acquisition in a performance test is a natural progression in the learning process. For the assessment to be accurate, test items should be directly related to the level of learning you want to measure, and they should be validated and analyzed by SMEs. The Navy's Formal Instructor Training Course uses both types of tests, and students are able to experience firsthand the benefits and limitations of each.

Remember, formal assessment is an integral part of the teaching and learning processes and as such should enhance effective learning and contribute to improved teaching. Instructors have many responsibilities when executing formal assessment, so it is imperative that the instructor understand the complexities of testing and be adequately prepared to give support to their students during their testing progression.

CHAPTER 9

COURSE MATERIALS

INTRODUCTION

Course materials are the tools used to lay the foundation, prepare the framework, and construct the bridge over which your students must pass to attain the knowledge and skills defined by the learning objectives of the course. Course materials include lesson plans, instruction sheets, and instructional media material. While you must be proficient in the use of all course materials to conduct effective instruction, these three are the primary materials you will use in presenting instruction. Let us look at each of these types of course materials more closely, beginning with lesson plans.

LESSON PLANS

The lesson plan, also called Instructor Guide (IG), is the most important document available to you as an instructor. Specifically, it is the blueprint that ensures instruction is presented in proper sequence and to the depth required by the objectives. Effective use of the lesson plan:

- Ensures you have considered all factors necessary to conduct a safe and effective lesson.
- Guides you in conducting lesson activities.
- Helps you maintain a constant check on your activities and your students' progress.
- Standardizes instruction.
- Informs training managers of what is being taught.

Lesson plan formats differ somewhat depending on how they are developed. However, there are major elements which are common to most lesson plans. Let us look more closely at some of the elements, common to the lesson plans, you will use as a Navy instructor.

FRONT MATTER

The front matter of a lesson plan provides essential information regarding the course of instruction. You must read and understand this information in order to ensure your instruction will comply with the course developer's intent.

LESSON TOPICS

The lesson topics identify the main discussion points of each lesson within the course and the sequence in which you will conduct each within the lesson. They include required instructor preparation and an outline of the instruction. Each lesson topic consists of five basic elements, refer to Figure 9-1. You must have a complete understanding of each element and its purpose in the lesson topic to be able to teach the knowledge and skills identified by the learning objectives. The elements, which also cue your actions as an instructor, are as follows:

- Introduction
- Presentation
- Review and Summary
- Assignment
- Application

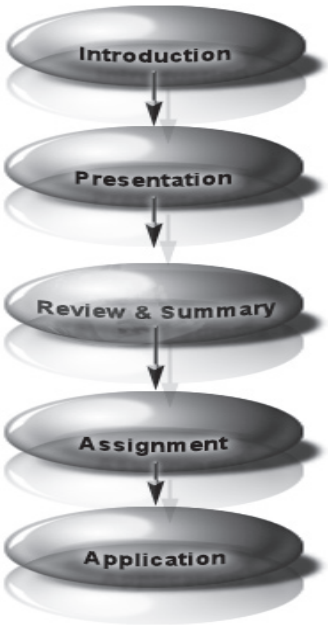


Figure 9-1:
The Five Basic Elements

Introduction

The introduction is one of the most crucial elements of the lesson. During the introduction, you introduce yourself and the topic, state the learning objectives, make motivating statements, and provide a topic overview. As a part of the motivating statement, you should explain why the students need to learn the material and how they will apply it on the job. Besides telling students how and why the lesson is important, you must show your own motivation and enthusiasm toward the information. From the students' perspective, the introduction builds emotional involvement, arouses interest, promotes motivation, builds a sense of purpose, and focuses attention on the subject matter.

Presentation

The presentation element is the main body of the lesson plan. It is where you teach and otherwise explain the learning objectives. It contains discussion points and related instructor activities. Properly prepared and taught, the presentation serves to build student understanding of facts, procedures, rules, concepts, terminology, and other principles of learning.

Review and Summary

The review and summary element of the lesson provides you with an opportunity to summarize the topic's major points and to find and correct any misunderstandings. You review the lesson to reinforce learning and to get valuable feedback on what learning has taken place. To get this feedback, you must ask questions that require your students to think and to respond beyond the recall level of learning.

Assignment

You use the assignment element to provide students with practice opportunities and/or to prepare them for their next lesson.

Application

This element enables students to apply knowledge to physical or mental skills. It allows students to practice those skills, use the material they have learned, and get feedback about their knowledge and skills. You evaluate the students' performance as they perform the skills. You provide reinforcement and feedback to students by pointing out errors and suggesting how to correct them. The application element is only used with topics teaching skills.

LESSON PLAN PERSONALIZATION

You will be provided with a copy of the approved lesson plan for the course you instruct. It is important that you add your own personalization to each of the five elements of the lesson topic and tailor the lesson plan to your style of teaching. Lesson plan personalization provides the information you need to make the instruction uniquely yours without deviating from the approved course of instruction. Let us look at some ways to personalize your lessons now.

Types of Personalization

Personalization of your lesson plan includes adding subject matter detail needed to cover the topic discussion points to the required depth. You may also want to add notes to indicate when and how you want to stress a point, relate a personal experience, or use an example or analogy. Here are some things you may wish to include to personalize your lesson plans:

- **Subject Matter Detail/Technical Information.** Use this type of information to provide technical data such as purposes, descriptions, facts, operations, and functions. Course reference materials provide this information.

- **Instructional Strategies and Methods.** Use carefully written questions, well-planned visual aids, or additional student/instructor activities to enhance the lesson.

- **Personal Experiences.** Whenever possible, relate your own on-the-job experiences to the lesson to increase student interest. Relating your personal experiences also has the positive effect of reinforcing the practical application of the material, while serving to increase student interest and motivation.

- **Examples and Analogies.** Whenever possible, support the main points of the lesson plan by using practical, real life examples and analogies to simplify the concepts or ideas being taught. For example, suppose your lesson is on the way sound waves travel through air, but your class has difficulty understanding that concept. Then perhaps an analogy such as "It is similar to the way ripples travel after a stone is dropped in water" will help them understand.

Steps of Personalization

When personalizing the lesson plan, follow these specific steps:

- Read the learning objectives to obtain an understanding of what the objectives are trying to achieve.
- Read through the entire lesson plan to gain an understanding of the contents.
- Research the reference materials to obtain subject matter detail/technical information needed to support the major discussion points.
- When possible, observe a qualified instructor's presentation of the lesson and discuss it with him or her before personalizing the topic.
- Personalize the lesson plan. By understanding the requirements of the objectives, you can put into your own words the information that will help you present the lesson.
- Update personalization as necessary. Review your lesson plan personalization for completeness and accuracy each time you teach. Make note of what worked well and use it again. Change what did not.

INSTRUCTION SHEETS

In addition to the lesson plan, you may also use instruction sheets to provide the students with information or directions they need to complete a particular course of study. You can use them to convey to students certain detailed information, instructions for a task, or a learning activity they must undertake. You may use six types of instruction sheets: outline sheets, information sheets, diagram sheets, problem sheets, job sheets, and assignment sheets. When a course requires a large number of instruction sheets, they are normally combined into a document known as a trainee guide.

OUTLINE SHEETS

Outline sheets (Fig. 9-1) provide an outline of the major discussion points of the topic. Outline sheets allow students to follow the progress of a topic more easily and also serve as notes for the lesson.

UNDERWATER HULL INSPECTION

A. Introduction

Underwater hull inspection involves the examination of the exterior underwater hull and components to determine the condition and needs for maintenance and repair. In this topic, you will be taught the components to be inspected and the procedures for inspection.

B. Enabling Objectives:

7.1 IDENTIFY the components of the ship's hull in accordance with the Underwater Work Techniques Manual, Volume 2.

7.2 DESCRIBE the stages of growth commonly found on underwater hulls in accordance with the NAVSHIPS Technical Manual, Waterborne Underwater Hull Cleaning of Surface Ships, Chapter 081, and the Underwater Work Techniques Manual, Volume 2.

7.3 STATE the general contents of the Fouling Rating Scale and the Paint Deterioration Rating Scale, in accordance with NAVSHIPS Technical Manual and Waterborne Underwater Hull Cleaning of Surface Ships, Chapter 081.

7.4 DESCRIBE the fouling areas of hulls in accordance with the NAVSHIPS Technical Manual; Waterborne Underwater Hull Cleaning of Surface Ships, Chapter 081; and the Underwater Work Techniques Manual, Volume 2.

7.5 APPLY the safety precautions associated with underwater hull inspections in accordance with the U. S. Navy Diving Manual, Volume 1; the Underwater Work Techniques Manual, Volume 2; and the NAVSHIPS Technical Manual, Waterborne Underwater Hull Cleaning of Surface Ships, Chapter 081.

7.6 PERFORM underwater hull inspections by day in accordance with the NAVSHIPS Technical Manual and Underwater Work Techniques Manual, Volume 2.

7.7 PREPARE the ship's hull inspection report in accordance with the Diving Training Standards.

C. Topic Outline

1. Introduction
2. Ship Hull Components
3. Stages of Sea Growth
4. Fouling Rating Scales
5. Critical Fouling Areas
6. Planning for a Dive
7. Use Repair Safety Checklist
8. Perform Underwater Hull Inspection
9. Hull Inspection Report
10. Summary and Review
11. Assignment

Figure 9-1: Example Outline Sheet

INFORMATION SHEETS

Information sheets (Fig. 9-2) provide information related to subject matter contained in texts or references required for the course but not readily available to students. Each information sheet contains three sections: the introduction, references, and information. Let us look at each of these three sections of the information sheet next.

Introduction

The introduction section of the information sheet provides a general explanation of how and why an understanding of the covered material benefits the students. It motivates students to learn.

References

The references section of the information sheet consists of a listing of all publications used to develop the course materials. Each reference fully identifies the source by number, volume, part, and complete title, etc., as applicable.

Information

The information section is written to a level consistent with the course content. Reference is made to information in technical manuals or other approved publications.

SAFETY POLICY FOR CONDUCTING TRAINING

A. INTRODUCTION

1. This information sheet is designed to provide you with an understanding of Navy policy regarding training safety.
2. This information sheet covers "Training Time Out" procedures that are to be used during the conduct of this course.

B. REFERENCES

1. NETCINST 1500.1 (series), Occupational Safety and Health, Training Safety and Firefighting Certification Programs

C. INFORMATION

1. The mission of the Navy dictates the need for an aggressive training program to prepare personnel to perform professionally and competently in many high-risk activities under diverse and possible adverse conditions. Potentially high-risk training includes, but is not limited to, training requiring exposure to potentially hazardous conditions involving: the environment (water entry, temperature extreme); atmosphere (fire-fighting, use of solvents); explosives (weapons); and electrical, mechanical, or hydraulic training devices or equipment.
2. It is the policy of the Naval Education and Training Command (NETC) to provide required training under controlled conditions, within practical and realistic limits, to obtain desired training outcomes while maintaining the maximum margin of safety. Included in this policy is the requirement that, in the event a trainee is apprehensive of their personal safety while undergoing training, to address this concern.
3. TRAINING TIME OUT (TTO) Any time a trainee or instructor has apprehension concerning their personal safety or that of another, they shall verbally signal "TRAINING TIME OUT" to stop the exercise and receive additional instruction as appropriate in accordance with NETCINST 5100.1 (series).

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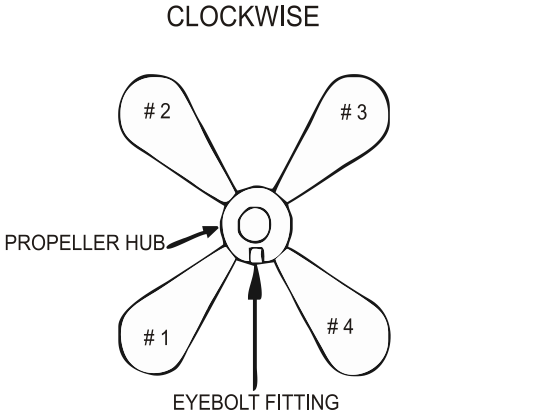
Figure 9-2: Example Information Sheet

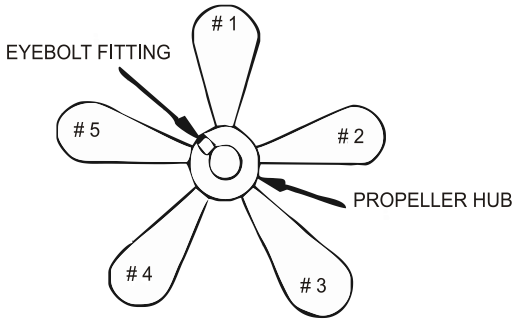
DIAGRAM SHEETS

Diagram sheets (Fig. 9-3) provide students with illustrative material or with material to support other instruction sheets. Avoid using diagrams that already exist in course material. An exception would be reference diagrams for students to make notes on, such as electrical/electronic schematics, hydraulic system drawings, etc.

BLADED PROPELLERS
(Looking from Stern Toward Bow)



4 BLADED PROPELLER (TYPICAL)



5 BLADED PROPELLER (TYPICAL)

Figure 9-3: Example Diagram Sheet

PROBLEM SHEETS

Problem sheets (Fig. 9-4) present practical problems requiring analysis and decision making similar to those encountered on the job. The problem sheet is an effective means of emphasizing the fundamentals of logical thinking. It is also an effective way to help students learn to problem solve and to help them gain practice in applying their knowledge to practical situations. Each problem sheet provides a clear statement of the problem, the conditions and parameters affecting the problem, and the directions and procedures for the solution to the problem.

DIAGNOSING GROUP PERFORMANCE

A. INTRODUCTION

The ability to evaluate student and group performance is developed by practice. The purpose of Problem Sheets B000-1-24-2 is to provide data for your consideration and allow you to determine why performance was poor. Using the data provided below, diagnose the probable cause(s) of poor group performance.

B. PROBLEM

1. Class No: 041
2. Test:
   a. New: #
   b. Existing:
3. Practice Time:
   a. Scheduled: N/A
   b. Received: N/A
4. Testing Schedule
   a. Day of the week: Wednesday
   b. Amount of time since last test: One week
5. Prerequisite Skills: A check of the training background of the class revealed that the students came to class having mastered supporting objectives in previous lessons.
6. Test Item: Passing test score is 63. Test questions and objectives will not be available to you for analysis to determine test item quality. You will only have the data in items 1-5 and the information in the following chart to determine test item quality.

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Figure 9-4: Example Problem Sheet (Sheet 1 of 4)

Test Item(s) Missed By Class No.041

	1	2	3	4	5	6	7	8	9	10
STUDENT 1	X		X			X			X	
STUDENT 2					X	X		X		X
STUDENT 3		X				X			X	
STUDENT 4				X	X	X				
STUDENT 5			X				X	X		X
STUDENT 6						X				
STUDENT 7	X	X		X		X				
STUDENT 8		X			X			X	X	
STUDENT 9			X			X	X			X
STUDENT 10	X		X			X	X			

Test Item(s)	Objective Supported
1, 2, 3	1.1
4, 5	1.2
6, 7, 8	1.3
9	1.4
10	1.5

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Figure 9-4: Example Problem Sheet (Sheet 2 of 4)

7. Instruction: N/A

a. Data:

From this instructor's previous class on same test as Class No. _

	1	2	3	4	5	6	7	8	9	10
STUDENT 1		X		X		X				X
STUDENT 2	X				X				X	
STUDENT 3			X			X	X	X		
STUDENT 4						X			X	
STUDENT 5			X			X				X
STUDENT 6		X					X		X	
STUDENT 7					X	X				
STUDENT 8			X			X	X	X		
STUDENT 9		X				X				X
STUDENT 10			X				X			

From another instructor's class on the same test.

	1	2	3	4	5	6	7	8	9	10
STUDENT 1				X			X	X		
STUDENT 2		X			X			X		X
STUDENT 3	X		X			X				
STUDENT 4			X	X		X			X	X
STUDENT 5										
STUDENT 6	X	X				X				
STUDENT 7			X		X			X		X
STUDENT 8						X	X			
STUDENT 9		X	X		X	X			X	X
STUDENT 10						X	X			

Figure 9-4: Example Problem Sheet (Sheet 3 of 4)

b. Probable Cause(s) Put a check mark beside the probable cause(s) of the poor group performance of class No. 041.

1. Incorrect Answer Key: _____
2. Insufficient Practice: _____
3. Poor Test Scheduling: _____
4. Lack of Prerequisite Skills: _____
5. Poor Test Items: _____
6. Poor Instruction: _____

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Figure 9-4: Example Problem Sheet (Sheet 4 of 4)

JOB SHEETS

Job sheets (Fig. 9-5) direct the students in the step-by-step performance of a practical task they will encounter in their job assignment. Job sheets provide a means for students to apply the knowledge they obtain during instruction through the use of technical documentation in performing the task just as they would on the job. The job sheet is made up of six sections: introduction, equipment, references, safety precautions, job steps, and self-test questions. Let us look at each of the sections of the job sheet.

Introduction

The introduction section of the job sheet clearly and concisely describes the purpose of the job sheet and explains what benefits students can expect.

Equipment

The equipment section of the job sheet provides a complete listing of all the equipment the students need to accomplish the job.

References

The references section lists all publications students need to perform the job step portion. Each reference is identified by title, number, volume, and part, etc., as applicable.

Safety Precautions

The safety precautions section states safety precautions that apply to the overall job.

Job Steps

The job steps section of the job sheet lists step-by-step procedures for performing an operation, maintenance, troubleshooting, or repair of equipment.

Self-Test Questions

Self-test questions provide students with a self-evaluation of their performance or comprehension of each job step.

PLANNING INSPECTION STEPS

A. Introduction

Underwater hull inspection requires a thorough knowledge of the components and conditions peculiar to underwater operations. This job sheet will allow you to practice the step-by-step procedures required to conduct underwater hull inspections. A major benefit of this exercise is that you will have the opportunity to make the same decisions that will be required to perform this task in your duty assignment.

B. Equipment

The following equipment is required:

1. Open-circuit SCUBA outfit
2. 12” rule
3. Tending lines
4. Hull inspection report
5. Underwater lights (night dives)
6. Chem-lite; one per buddy team (night dives)

C. References

1. NAVSHIPS Technical Manual and Underwater Work Techniques Manual, Volume 2
2. Underwater Ship Husbandry Manuals, S0600-AA-010 series
3. U.S. Navy Diving Manual, Volume 1

D. Safety Precautions

Review TTO procedures in the Safety/Hazard Awareness Notice.

E. Job Steps

The following job steps apply:

1. At Diving Supervisor’s direction, dress in open-circuit SCUBA following safety checklist in the Underwater Work Techniques Manual Vol. 2, page 3-2.
2. Before entering the water, review safety checklists in the Underwater Work Techniques Manual, Vol. 2, page 3-3 and page 4-5.
3. At Diving Supervisor’s direction, make proper water entry.
4. At Diving Supervisor’s direction, descend on craft and make an underwater inspection of the craft’s hull.
5. Upon surfacing, sound off, “Maximum Depth, Bottom Time.” Failure to report this information will result in a failing grade for this job sheet.
6. At Diving Supervisor’s direction, make proper water exit.
7. Await further instructions from Diving Supervisor.
8. Complete an underwater hull inspection report (one per buddy team).

F. Self Test Questions

Note: None.

Figure 9-5: Example Job Sheet.

ASSIGNMENT SHEETS

Assignment sheets are designed to direct the study or homework efforts of students (Fig. 9-6). Assignment sheets simplify the students' search for relevant data and direct their efforts to the proper source. The sheets may direct students to information contained in various manuals, reference documents, or, in some cases, other instruction sheets. Each assignment sheet is divided into four sections: the introduction, the topic learning objectives, the study assignment, and the study questions.

Introduction

The introduction section of the assignment sheet provides information on the purpose of the topic.

Topic Learning Objectives

The next section of the assignment sheet lists the topic learning objectives, which are identical to the objectives in the corresponding lesson plan.

Study Assignment

The study assignment section of the assignment sheet tells the students what they must do to complete their assignment. If the assignment requires students to read the reference material, it identifies the paragraph, page, figure, and diagram numbers. If it requires some other activity, it gives students directions for completing the activity.

Study Questions

The final section of the assignment sheet provides study questions to help students comprehend their assignment and check their ability to apply the information learned in the lesson.

GENERAL, PHYSICAL, FUNCTIONAL, AND INTERFACE DESCRIPTION OF THE AN/BRR-6

INTRODUCTION

This lesson will show how the AN/BRR-6 operates and its effect on the system as a whole.

TOPIC LEARNING OBJECTIVES

Upon successful completion of this topic, you will be able to:

1. State the functions of the AN/BRR-6.
2. State that the AN/BRR-6's major functional areas, including the function of each to support normal operations.
   a. Towed Buoy TB-17/BRR-6 (Bangor) or Towed Buoy TB-18A/BRR-6 (Kings Bay)
   b. Receiver Group OR-197/BRR-6
   c. Special Purpose Electrical Cable Assembly CX-13053/BRR-6
   d. Buoy Cradle MT-4905/BRR-6
   e. Reeling Machine RL-275/BRR-6
   f. Sensor Group OA-8906/BRR-6
   g. Buoy Door-Sensing Switch
   h. Buoy Control Indicator C-0256A/BRR-6
   i. Antenna Control Indicator C-10257/BRR-6
   j. Buoy Depth Control Indicator C-10258A/BRR-6
   k. Relay Assembly RE-1115/BRR-6
   l. Interconnecting Box J-3461/BRR-6
   m. Towed Array Control Indicator Panel
3. Define the abbreviations and terms used with the AN/BRR-6 to support all operations and preventive maintenance.
4. State the AN/BRR-6's major functional areas, including the function of each to support normal operations.
5. State the security requirements for the AN/BRR-6 to support all operations and preventive maintenance.

Figure 9-6: Example Assignment Sheet (Sheet 1 of 3)

6. Describe the following major and associated components of the AN/BRR-6 that support all operations and preventive maintenance, including names, nomenclature, physical appearance, reference designators, locations, and construction features.
   a. Towed Buoy TB-17/BRR-6 (Bangor) or Towed Buoy TB-18A BRR6(Kings Bay)
   b. Receiver Group OR-197/BRR-6
   c. Special Purpose Electrical Cable Assembly CX-13053/BRR-6
   d. Buoy Cradle MT-4905/BRR-6
   e. Reeling Machine RL-275/BRR-6
   f. Sensor Group OA-8906/BRR-6
   g. Buoy Door-Sensing Switch
   h. Buoy Control Indicator C-10256A/BRR-6
   i. Antenna Control Indicator C-10257/BRR-6
   j. Buoy Depth Control Indicator C-10258A/BRR-6
   k. Relay Assembly RE-1115/BRR-6
   l. Interconnecting Box J-3461/BRR-6
   m. Towed Array Control Indicator Panel
7. Describe the controls and indicators directly associated with the AN/BRR-6 that support all operations and preventive maintenance, including names, reference designators, positions, conditions, colors, locations, and functions.
8. Describe how the AN/BRR-6 works (functional operation) to support all operations and preventive maintenance; include signal flow, sequential operation, and indications.
   a. Towed Buoy TB-17/BRR-6 (Bangor) or Towed Buoy TB-18A/BRR-6 (Kings Bay)
   b. Receiver Group OR-197/BRR-6
   c. Special Purpose Electrical Cable Assembly CX-13053/BRR-6
   d. Buoy Cradle MT-4905/BRR-6
   e. Reeling Machine RL-275/BRR-6
   f. Sensor Group OA-8906/BRR-6
   g. Buoy Door Sensing Switch
   h. Buoy Control Indicator C-10256A/BRR-6
   i. Antenna Control Indicator C-10257/BRR-6
   j. Buoy Depth Control Indicator C-10258A/BRR-6
   k. Relay Assembly RE-I115/BRR-6
   l. Interconnecting Box J-3461/BRR-6
   m. Towed Array Control Indicator Panel
9. Describe the functional interface between the AN/BRR-6 and related external equipments to support all operations and preventive maintenance.
   a. Power sources
   b. Input signals
   c. Output signals

Figure 9-6: Example Assignment Sheet (Sheet 2 of 3)

STUDY ASSIGNMENT

1. Study EE125-FA-MMF-010/E110-BRR-6, FOMM Technical Manual Support Volume for Radio Receiving Set AN/BRR-6, Volume 1, glossary; tables 1-1 and 2-1 through 2-7; paragraphs 1-1, 1-2, 1-2.1 through 1-2.12, and 1-3 through 1-6; and figures 2-1 through 2-8, 5-1, and 5-3.

2. Study NAVSEA S9SSB-X9-SSM-900/(U)726V6P3B13 (SSM V76P3B13), Habitability, Ship Handling, and Emergency Systems Operating Instructions, 01637-11, paragraph 1-1.

STUDY QUESTIONS

1. How many units comprise the BRR-6?
2. What is the frequency range of the BRR-6?
3. What is the maximum speed allowable for towing the buoys?
4. What is the maximum speed for launching a buoy?
5. Why or why not is it good practice to stream the buoyant cable and fly a buoy at the same time?
6. How many buoys are associated with each BRR-6?
7. What is the minimum depth for launching a buoy?
8. How much cable does each cable have?
9. What does FOMM mean?
10. Which units of the BRR-6 are located in the IRR?
11. Which units of the BRR-6 are located in the Command and Control Center?
12. How many antennas are associated with the Towed Buoy?
13. What is the purpose of the Depth and Destruct Canister? Where is it located?
14. Which unit controls all the buoy's electronics?
15. How close to the surface must the buoy be before Unit 10 can take over depth control?
16. How does Unit 9 (Towed Buoy Antenna Control Unit) communicate with the buoy's electronics?
17. Where are the tow cable cutters located?
18. Where does the BRR-6 receive its 115 vac 60 Hz power from?
19. Do the navigation center signals go through the AIS cabinet in the IRR?

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Figure 9-6: Example Assignment Sheet (Sheet 3 of 3)

INSTRUCTIONAL MEDIA MATERIAL

Some Navy instructors think of Instructional Media Material (IMM) as being synonymous with video tapes. Others think IMM is an instructor crutch to relieve the burden of teaching, and still others consider IMM to be sources of entertainment. Just what is IMM? It is any device or piece of media equipment that is used to help students understand and learn. More specifically, IMM is a specially prepared transparency, illustration, video tape/DVD, computer-based, flash animation or MPEG movie, slide presentation, or exhibit that will assist students in understanding and expedite their learning. Showing is often easier than telling; as a picture is worth a thousand words. As discussed in an earlier chapter, using the sense of sight in conjunction with hearing creates more effective instruction and greater retention of information by the students.

PURPOSES OF INSTRUCTIONAL MEDIA MATERIAL

The most important purpose of IMM is to increase students' understanding. Other important purposes are to increase students' retention, interest, motivation, and to provide uniformity and standardization in training.

IMM INCREASES STUDENT UNDERSTANDING

It is possible and quite probable for a group of students to form entirely different ideas about the same thing as a result of a verbal description. Although you might describe in detail a piece of navigation equipment, such as a sextant, unless the students have seen one, they may develop a completely wrong idea about it. To form a more complete understanding, students need to see the sextant or a model of it to supplement your description.

Students may have problems understanding the proper relationships of the various parts of an object from a verbal explanation only. In the case of the sextant, you would have difficulty making students understand the functions and relationships of the parts without the use of a working model, cutaway, or series of charts. IMM brings subjects into perspective, produces accurate interpretations, and aids in the understanding of relationships.

IMM INCREASES STUDENT INTEREST AND MOTIVATION

IMM is far more effective in attracting attention and creating interest than a verbal description given without the use of an aid. Use IMM that will capture your students’ attention and continue to hold their attention as the lesson progresses.

Students may not be attracted by a description of the various types of small arms, but their curiosity will be aroused immediately by the display of a rifle, pistol, shotgun, or carbine.

Whenever possible, focus the attention and concentration of the entire group on the specific part you are teaching about. Students' minds tend to concentrate on the thing upon which their eyes are focused (sense of sight).

The satisfaction of a job well done is a feeling familiar to everyone. A similar reaction occurs in a training situation when students feel the instruction is of definite value. Students achieve a sense of personal satisfaction from the learning and feel motivated to learn more. You can achieve motivation early in a course of instruction by using IMM. The continued use of IMM to make the instruction concrete and meaningful will sustain student interest and motivation.

IMM INCREASES STUDENT RETENTION

Most students forget what they hear in a relatively short time and have difficulty recalling the information accurately. On the other hand, things they see make a more lasting impression and help them to recall the object or process more accurately later. Students can recall the mental images created by pictures and models more easily because of their increased interest at the time of reception. Many students have a greater interest in the realistic and concrete than in the symbolic and abstract. Average students will easily forget your verbal explanation of how an internal combustion engine operates. However, an actual engine, a model, or a video tape shown along with your verbal explanation will make a fixed impression on students that is easier to recall.

IMM uses the multiple-sense approach to learning to increase retention. The following information supports the importance of using the sense of sight in learning:

Students will Retain
10% of what they read
20% of what they hear
30% of what they see
50% of what they see and hear

IMM INCREASES UNIFORMITY OF TRAINING

In classroom situations in which the instructor uses no aids, learning depends on the presentation method. While some instructors may express themselves fluently, others may be somewhat inarticulate although they know their subject well. The use of standardized training aids makes the presentations more uniform and aids students in the learning process.

IMM CHARACTERISTICS

All IMM must have certain characteristics to be effective and to support the purposes for using them. Course developers provide IMM for established courses. Individual instructors or training sites should not develop their own IMM without the approval of the Curriculum Control Authority (CCA). However, as a classroom instructor, you must know what characteristics IMM should have. You can then recognize the shortcomings of IMM and recommend changes through the proper chain of command as necessary. All IMM should be accurate, simple, visible, necessary, and appropriate.

ACCURATE

First and foremost, visual aids must accurately depict the instructional intent. Use of outdated or incorrect visuals defeats the purpose of displaying IMM. You cannot adequately explain away inaccuracies--students remember what they see more than what they hear. If your IMM is not accurate, none of the other characteristics of the IMM will matter.

SIMPLE

The simplest version that will do the job is best. Visual aids that contain unnecessary data confuse students and may arouse their curiosity in a direction contrary to the one intended. When visuals of complex systems are required to explain the complex relationships with other components, it is desirable that a series of ever-more-complex graphics be used so that each is a relatively simple addition to a previously seen version of the graphic. Thus; even at the end state, with the complete, complex graphic displayed; the students have never been overwhelmed by the complexity of the system.

VISIBLE

The IMM must be visible for all students from all areas in the training environment. Text and graphics must be large enough so they are visible from the farthest point in the classroom.

APPROPRIATE

The IMM must support specific learning objectives. It must meet one or more of the purposes for using IMM. Do not use IMM as a time filler just because it is available.

USE OF IMM

When you are going to use IMM, you must plan in advance exactly how it is going to fit into your lesson plan. The techniques discussed in this section provide clear-cut guidelines for using instructional media materials before, during, and after the lesson is presented.

BEFORE THE LESSON

Refer to your lesson plan to determine exactly what IMM you need to support each topic. Obtain the IMM you need and then preview each one you will use to ensure it is complete, readable, and in a useable condition. Organize the IMM in its proper sequence. Make sure all needed supporting equipment is available and working. Make proper preparations for the use of IMM so that you can detect possible problems and make alternate plans if required.

DURING THE LESSON

Display the IMM in a timely manner at the point called for in your lesson plan. Direct the students' attention to specific portions of the IMM either verbally or by using a pointer when necessary. After using it to support your lesson, remove it from sight. Use the IMM as naturally as possible. One of the greatest distractions in the classroom is an instructor who fumbles around with the visual aids.

AFTER THE LESSON

You have a responsibility to your fellow staff members to return all IMM to the proper storage area in an orderly, organized condition. If you find missing, defaced, or broken items, inform the proper persons to initiate action to correct any discrepancies.

INSTRUCTIONAL TECHNIQUES

The instructional techniques you employ in the use of IMM can greatly add to or distract from their effectiveness. This section provides suggestions on instructional techniques to consider when using various forms of IMM.

COMPUTER-AIDED INSTRUCTION/SMART BOARD

An interactive digital projection screen is connected to the instructor's computer, possible via a classroom's Local Area Network (LAN), and is used to project computer-based IMM. Guidelines for using the interactive digital projection screen include the following:

- Before class, orient the interactive digital projection screen to provide touch screen control and to provide optimum resolution for program hot spots and buttons.
- Touch the screen to advance slides.
- Face the students, not the screen, as much as possible.
- Do not stand in the way of the projection.
- Save your comments on the interactive digital projection screen in electronic file format for later reference or use.

INTERACTIVE COURSEWARE (ICW)

Interactive courseware can be used in classrooms, Learning Resource Centers, laboratories, or anywhere computers are available. Generally, they are self-paced, learner-controlled lessons. Techniques for using ICWs include:

- Introduce the courseware.
- Explain/demonstrate how to use it.
- Assist students as needed.
- Debrief and answer students' questions when finished.

EXHIBITS

Exhibits are another commonly used form of IMM. Exhibits may be mock-ups, models, pictures, or actual equipment used for demonstration purposes. Follow these general guidelines when using exhibits:

- If possible, let the learners touch and explore three-dimensional exhibits-but not while you are discussing them!
- Make models and pictures large enough for learners to see details.
- Clearly label all visual displays, for example, posters.
- Keep exhibits accessible or on display at all times unless there is a reason for not doing so.

VIDEO, DVD, MOVIE, OR ANIMATION

Videos, DVDs, movies, and animation present action and can recreate real or imagined situations. This includes movies, and moving images presented as computer-based movies or qanimations. Videos/ DVDs are training tools used to portray an actual situation. The film of the USS Franklin, which has been around since 1945, is still shown to make a vivid point about the importance of all-hands damage control training. Follow these guidelines when using video, DVD, movie, or animation:

- Preview the video, DVD, movie, or animation to identify logical breaking points to pause the video for discussion.
- Develop questions to have learners answer during the pauses and afterward.
- Make sure room lighting allows for easy viewing.
- Introduce the video, DVD, movie, or animation and direct learners to key points.
- Pause the video, DVD, movie, or animation for discussion and commentary.
- Summarize and reiterate key points afterwards.

VISUAL AIDS PANEL

Visual Aids Panels (VAPs) are probably the most frequently used visual training aids. You may use them at any time during a lesson to display terms, definitions, examples, problems, drawings, or diagrams. It is also a great medium to use for brainstorming discussions. On some models, the content of a VAP can be converted to digital images, which can then be saved and printed. Guidelines for using the VAP include the following:

- Write large, clear, and brief text.
- Erase information you are not using.
- Rewrite as you organize material, especially if using the VAP for a brainstorming activity.
- Work from the top of the board down, but avoid writing at the very bottom of the board.
- Face the class whenever possible.
- Check with learners from time to time to be sure they can see and understand what you are writing.
- Present content in an organized flow.

EASEL CHART

An easel chart is a blank paper pad on a portable stand. It is used to record and show text or graphics. When using an easel chart:

- Write legibly and abbreviate if necessary.
- Tear off pages and hang them on the walls of the classroom to improve retention.
- Refer back to them as appropriate in future lessons.

TRANSPARENCIES

Transparencies are acetate sheets of text and/or graphics used for projection on an overhead projector. When showing transparencies using an overhead projector remember to:

- Focus the projection.
- Position the projection head 90 degrees to the screen to prevent a keystone image (wider at top).
- Face the learners while talking, not the screen.
- Make sure all learners can see the screen.
- Use a blank page to gradually reveal each point on the transparency.
- Use on//off control to avoid flashing a blank screen when changing transparencies.
- Turn the projector off when finished.

DOCUMENT CAMERA

The document camera is a video camera that projects and magnifies parts of documents, graphics, and real objects. For example, suppose you are teaching learners how to complete a form. Projecting the form using the overhead projector may be ineffective if the text is too small for learners to see. With the document camera, you can zoom in on pertinent text, magnify it, and project the magnification so that learners can see what you are talking about. Guidelines for using the document camera include the following:

- Use the zoom button to enlarge details of a document, graphic, or object.
- Use it to make parts of a demonstration visible when details are small.

SUMMARY

To be an effective instructor, you must be familiar with the materials required to teach the course of instruction. You must use the approved lesson plan and personalize it to cover all discussion points exactly as you intend. Use instruction sheets to reinforce your lesson presentations and to provide students with the learning opportunities provided by these materials. When using instructional media materials, prepare the materials in advance, practice your use of the materials, and follow proper techniques when using these materials in the learning environment. The proper use of all course materials will greatly enhance your effectiveness as an instructor.

The effective use of IMM is not limited to any one phase of the instructing-learning process. You can use transparencies, visual aids panels, and computer-aided instruction to add interest as well as to supplement verbal explanations. Videos/DVDs make discussions more realistic and interesting. Exhibits and document cameras enhance demonstrations. Remember, IMM gives meaning to the instruction, but they cannot take the place of effective instruction.

CHAPTER 10

INSTRUCTOR EVALUATION

INTRODUCTION

Evaluation of Navy instructors and curriculum for the purpose of improving the quality of training is an ongoing process. As an instructor, you should welcome every opportunity to be evaluated by others. Through this evaluation process, you will receive feedback on your strengths as well as those areas in which you may need improvement.

Personnel considered to be SMEs in the area of instruction conduct evaluations to ensure the subject matter qualifications of the instructor. Trained instructor evaluators from the command conduct evaluations to ensure the instructor uses the most effective techniques to accomplish training.

Two types of instructor evaluations are conducted: scheduled and unscheduled. Each method of evaluation has its advantages and disadvantages. A scheduled evaluation allows the instructor to prepare for the evaluation. It may also allow the instructor time to prepare a "show" that is not typical of usual performance. Remember, evaluation is for the purpose of improving the training provided, so you should not change your teaching style just because you are being evaluated. An unscheduled evaluation permits the evaluator to observe the instructor in a normal mode, which can result in a more realistic appraisal of the instruction. The drawback to an unscheduled evaluation is that it may cause an inexperienced instructor to feel threatened and thus to fail to perform as well as usual. Whether the evaluation is scheduled or unscheduled, you should never switch from your usual performance for the benefit of the evaluator.

PREPARING FOR EVALUATION

In preparing to teach, always ensure that your instructional materials are ready, that you have prepared yourself for the lesson, that the classroom, laboratory or training environment is prepared, and that all training equipment is available and in working order. Following these steps each time you instruct will prevent you from having to interrupt the lesson because you are not properly prepared.

Always be prepared for an evaluation, because you are always being evaluated when you instruct--by your students. Remember, your students will get their opportunity to tell others about your instruction too, both formally and informally.

Always view the Navy's formal evaluation process as an opportunity to gather information that will help you become more effective as an instructor. You first need to know how the official evaluation process works and what evaluators will look for during your evaluation. This knowledge will help you refine your instructional techniques. It will also build your confidence because you will know what is expected of you. A preliminary meeting with your evaluator may help aid both of you as you prepare for the evaluation. Answer any questions they may have, and provide them with any materials they may need to conduct the evaluation. Be sure to ask any questions you have as well. Knowing and understanding the process should help you remain calm during your evaluation.

EVALUATION CHECKLISTS

Evaluators use four separate checklists in evaluating instruction. These are: Classroom Instructor Evaluation Checklist, Facilitation Evaluation Checklist, Blended Learning Instructor Evaluation Checklist, and Laboratory Instructor Evaluation Checklist. Let us look more closely at each of these checklists.

Classroom Instructor Evaluation Checklist. The Classroom Instructor Evaluation Checklist is divided into four major categories:

- Introduction
- Presentation
- Instructor-Student Interaction
- Summary

Facilitation Evaluation Checklist. Classroom Facilitation Evaluation checklist is divided into four major categories:

- Critical Skills
- Facilitation Skills
- Co-Facilitation Skills
- Improvement Section

Blended Learning Instructor Evaluation Checklist. Blended Learning Instructor Evaluation checklist is divided into four major categories:

- Pre-Checklist
- Facilitation
- Database and Electronic Jacket Operation
- Learning Environment

Laboratory Instructor Evaluation Checklist. The Laboratory Instructor Evaluation Checklist is divided into three major categories:

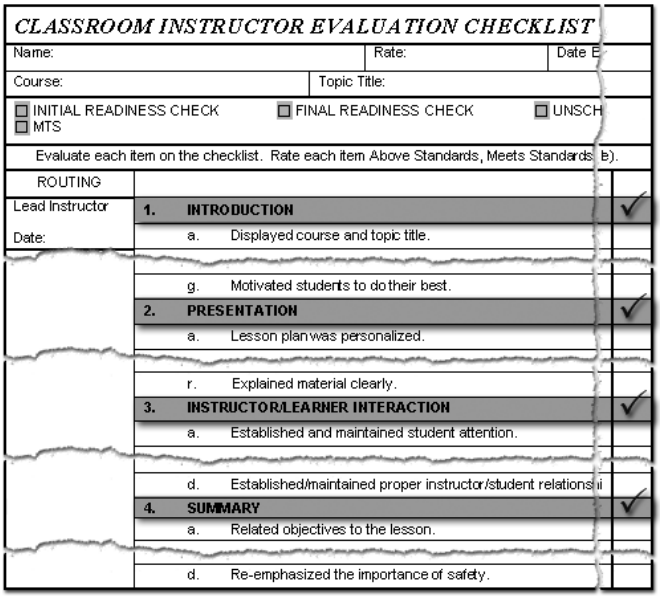
- Instructor Performance
- Student Performance
- Facilities

NOTE: Evaluators pay close attention to student safety and safe instructional practices in the laboratory.

CLASSROOM INSTRUCTOR EVALUATION FACTORS

Familiarity with classroom evaluation factors will greatly benefit you in presenting your lessons. The following information presents those factors the evaluator will use to judge your performance, and how you should conduct your instruction to meet those criterion.

SAMPLE EVALUATION CHECKLIST



CLASSROOM INSTRUCTOR EVALUATION CHECKLIST

Name:	Rate:	Date E
Course:	Topic Title:	

☐ INITIAL READINESS CHECK ☐ FINAL READINESS CHECK ☐ UNSCH
☐ MTS

Evaluate each item on the checklist. Rate each item Above Standards, Meets Standards e).

ROUTING		
Lead Instructor	1. **INTRODUCTION**	✓
Date:	a. Displayed course and topic title.	
	g. Motivated students to do their best.	
	2. **PRESENTATION**	✓
	a. Lesson plan was personalized.	
	r. Explained material clearly.	
	3. **INSTRUCTOR/LEARNER INTERACTION**	✓
	a. Established and maintained student attention.	
	d. Established/maintained proper instructor/student relationsi	
	4. **SUMMARY**	✓
	a. Related objectives to the lesson.	
	d. Re-emphasized the importance of safety.	

INTRODUCTION

The introduction sets the stage for the lesson. You must present it in an interesting and motivating manner to prepare the students to learn. The following information presents those factors the evaluator will use to judge your performance, and how you should conduct your instruction to meet that criterion:

Display Course Name and Topic Title

- Write this information on the board, or display it in some other manner.

Introduce Yourself

- If you are meeting with the students for the first time, provide background information about yourself to establish credibility with the students.
- Present the introduction in an interesting manner.
- Provide personal experiences that enhance the lesson and are directly related to the topic and/or objectives. One personal experience is generally adequate for the introduction.

Explain How the Material Fits Into the Overall Course

- Explain the importance of the lesson material not only to the course but also to the students' future jobs in the Fleet. This requires you to be knowledgeable of material that has been previously covered in the course and what will be covered in future lessons.

Explain the Importance of the Objectives

- Explain how each objective applies to what the students are about to learn and determines what the students must be able to do by the end of the lesson and by the end of their training course.
- Help students understand what they may need to do in order to accomplish each objective.
- Check with the students to determine their degree of understanding of the objectives.

Emphasize the Importance of Safety

- Address safety at the beginning of each lesson, where applicable.

Explain the Importance of Satisfactory Performance

- Stress to the students how important it is for them to achieve the objectives. Make the explanation on a positive note rather than stressing possible negative consequences.

Motivate Students to Do Their Best

- Motivate the students to take pride in their work and to do their best.
- Tell the students to ask questions and to get involved.
- Make the students feel at ease about asking questions when they do not understand something.
- Inform students how they will be able to use the information and benefit from it.

PRESENTATION

The evaluation of your presentation examines how well you are prepared to teach and how well you deliver the material. While personal characteristics will vary between instructors, everyone can use several tools of the trade to enhance their effectiveness of the lesson presentations. The evaluator will judge your presentation based on the following factors:

Personalize the Lesson Plan

- Personalize every lesson. Simply highlighting the existing material is not enough.
  - Make sure you have the approval of your course supervisor or some other command-designated authority for your personalization.

Prepare the Classroom and the Course Materials

- Make sure the classroom is physically ready for the students to receive proper training. This includes checking that seating arrangements are adequate, training equipment is in good working condition and available, materials such as transparencies, slides, and charts are accurate and ready for presentation.

Ensure Technical Accuracy

- Ensure the technical accuracy of the information you present. Only an evaluator who is a SME in the area of instruction will complete this category.

Cover Major Discussion Points

- Follow the teaching points as approved in the lesson plan.
- Do not omit or skip material.

Do Not Read From the Lesson Plan

- When you must read an important point, also teach it for emphasis.
- Use the lesson plan as a guide, not as a book to be read to the students. Excessive reading from a lesson plan may indicate a lack of preparation or confusion with the subject matter.

Transition and Chain Material Effectively

- Use transition statements that allow you to move through the lesson smoothly. Transitions signal to the students that you are progressing to a new point.
- Chain material (that is, tie it together) in a meaningful manner. Link material previously taught with the present material, and/or link the present material with what will be taught later.

Use Questioning Techniques Effectively

- Use questions to get students involved in the lesson.
- Phrase questions clearly and concisely.
- Use several different types of questions and questioning techniques during your presentation.
- Ask questions that promote thought and discussion.
- Ask questions that are not too simple or too complex.

- Allow adequate time for students to respond, and make sure you allow them to complete their response.
- Do not answer your own questions.
- Emphasize the correct answer once it is given.
- Give complete and accurate answers to questions asked by the students.
- Maintain psychological safety in the classroom. Never embarrass a student who gives an incorrect answer. That discourages further participation not just from that student but from others too.

When asking questions, make sure they accomplish your purpose for asking them. There are many excellent reasons for using questions. They involve the students in the learning process and provide feedback on student comprehension of the subject matter. They also allow you to resolve areas of confusion and determine student accomplishment of learning objectives. Properly used, questioning techniques are one of the most powerful tools available to you as an instructor.

Use Training Aids Effectively

- Effectively use current technology, transparencies, illustrations, video/DVD, computers, animations, movies, slide presentations, and the like, to receive the full benefit from them.
- Make the training aid visible to all students.

Maintain Proper Eye Contact

- Maintain eye contact with students to hold their attention and to gather nonverbal feedback from them.
- Avoid excessive reading from the lesson plan or talking to the board. As a general rule, you should talk only when looking at the students.

Display Enthusiasm

- Show a positive and enthusiastic attitude toward the subject.
- Use enthusiasm to maintain student interest.

Use Gestures Effectively

- Use gestures that are natural and appropriate to the lesson.
- Use gestures to stress a point.

Avoid Distracting Mannerisms

- Avoid distracting behaviors, such as playing with a marker or pointer, sticking your hands in your pockets, or using gestures excessively.

Maintain A Positive, Professional Attitude

- Show a sincere concern for student comprehension. Never display cynicism, intimidate students, or use profanity, off-color remarks or disparaging remarks.
- Project professionalism by presenting a smart, concise, and meaningful presentation.

Use Time Effectively

- Start and end your class and any breaks your class takes on time. This shows students you respect their time and expect them to do the same.
- Stay on time throughout the lesson. That shows you are well prepared.
- Follow the instructional timeline established in the approved curriculum.
- Monitor students to effectively manage their progress within the course time constraints.

Use Communication Skills Effectively

- Make sure your voice is reasonably pleasant (quality), easily understood (intelligibility), and expresses differences in meaning (variety).
- Quality includes not only the sound of the voice, but the feelings projected when you speak.
- Intelligibility refers to clear articulation, correct pronunciation, and the use of correct grammar.
- Variety includes variations in the rate, volume, force, and pitch of your speech.

Maintain Flexibility

- Be open to discussions that enhance the lesson but do not lose sight of the lesson.
- Offer to meet students outside the classroom to discuss their thoughts when too much time is being spent in areas not related to the lesson.

Use Personal Experiences and Examples

- Use personal experiences that are related to the subject to make the learning more interesting.
- Use examples throughout the lesson.

Explain Material Clearly

- Explain the material at a level the students can understand.
- If students appear to be confused, then you should explain the material in a different manner.

INSTRUCTOR-STUDENT INTERACTION

This area deals with your effectiveness in keeping the students involved in the learning process. It also has to do with your ability to manage the instructor-student interactions. To improve your interaction with your students you should strive to:

- Establish and maintain student attention.
- Encourage student participation.
- Check for student comprehension.
- Establish and maintain proper instructor-student relationships.
- Stress the importance of each individual student while remaining clearly in control of the whole class.

SUMMARY

The lesson summary is used to recap the major dicussion points of the lesson and to ensure that your students understand the subject matter you have presented. To effectively summarize a lesson you should:

Summarize Learning Objectives

- Since the objectives are what your students are trying to accomplish, restate or paraphrase the objectives and discuss their relationship to the lesson material.

Summarize the Lesson Properly

- Summarize the material in the lesson at least once to ensure student understanding. In some cases, you may need to summarize more than once.
- When or how often the summary is conducted is not the issue; rather, did you summarize and was the summary effective?

- When summarizing at the end of a lesson, use the major teaching points and objectives as an outline for the summary.
- Use summaries to maintain continuity within a lesson or to emphasize areas of importance.

Check Student Understanding

- Ask questions to help determine if the students understand the material.
- Ensure questions require students to respond at the learning level required by the objectives.
- Ask thought-provoking questions related to the objective(s).

Stress Safety

- Stress safety in the introduction, presentation, and summary whenever safety is a factor in a lesson.

CLASSROOM FACILITATION EVALUATION FACTORS

When facilitating, you will still need to follow the previously discussed classroom factors. However, when you are facilitating, you may also have to co-facilitate exercises and activities in the classroom. The following information presents those factors the evaluator will use to judge your performance, and how you should conduct your facilitation in order to meet evaluation criterion.

CLASSROOM FACILITATION EVALUATION CHECKLIST

CRITICAL SKILLS

Cover the Lesson Content

- While not using your lesson plan as a script, guide the discussion to meet the objectives.
- You should have a firm grasp of the lesson content and the background information pertaining to it.
- The information you present should be technically accurate and provide references for the students.

FACILITATION SKILLS

Arrange the Room Well and Limit Room Movement

- Students should have good access to each other and be able to see you and each other well.
- Your movement should be purposeful and natural.
- Close the gap between you and the students as necessary.

Practice Active Listening Skills

- Students should not be interrupted unless practicing inappropriate behavior.
- Once students give input, the instructor should paraphrase, repeat, or summarize as appropriate.

Field Student Questions Properly

- The instructor should practice redirecting questions back to the class whenever possible.
- Students should not have fear of censure unless they display inappropriate behavior.

Brief and Debrief Exercises and Activities

- The purpose of exercises should be clearly explained before they start.
- The time frame and steps should be clearly defined, and you should check for student understanding.
- Throughout the exercise, guidance should be given to the students as necessary.
- Time checks and reminders are also necessary to ensure the students are meeting the objectives in the specified time frame.

Work Closely with Your Co-Instructor

- You and your co-instructor should both remain fully engaged throughout the training.
- You should each provide physical support with training aids, both to students and each other.
- Never diminish your co-instructor's credibility in any way.
- Responsibility for the learning outcomes should be shared equally.
- Transitions between co-instructors should be smooth.

Strive to Improvement

- An Individual Development Plan (IDP) is written based upon what went well and what needs to be improved.

BLENDED LEARNING INSTRUCTOR EVALUATION FACTORS

Instructing blended learning environments requires skills not normally used in traditional classroom settings. You must have working knowledge of the software and firmware that you and your

learners will be using. The Blended Learning Instructor Evaluation Checklist is divided into four major categories: Pre-Checklist, Facilitation, Database and Electronic Jacket Operation, and Learning Environment. Let us consider each category more closely.

BLENDED LEARNING INSTRUCTOR EVALUATION CHECKLIST

PRE-CHECKLIST

This pre-checklist should be used to ensure you are ready to train in a blended learning environment and to prepare for your blended learning instructor evaluation.

Ensure the topic, title, and name of the instructor are properly displayed:

- Students should have a basic knowledge of what it is they are about to learn.

Ensure your certification records are current:

- Software may require special certifications. If these certifications are not up to date, you may not be able to facilitate a blended learning class.

Ensure software is fully operational:

- In a blended learning environment, the biggest distracter is when the software will not work properly.
- You should operationally test the software each day before class begins.

Organize the environment properly:

- Particularly when using video or audio equipment, you want to ensure all of the students have equal access to the monitor, microphone or camera, depending on the environment.
- Pre-checklists should be used to ensure the instructor is ready to train that portion of the course.

FACILITATION

Facilitating a blended learning event requires knowledge of more than what your students are doing. You must also know what is happening around your learners.

Monitor the learner management software:

- Ensure all the workstations are working properly and are connected to the main server.
- If using a secure network, ensure each learner has the proper clearance level to access the system.
- Ensure each learner has a password to access the network.

Use and respond to electronic feedback and alerts:

- Since your students are communicating and learning through the terminal or monitor, you need to be especially mindful of any problems, concerns, or other feedback they display.
- Documenting feedback via electronic methods will ensure future issues can be avoided and class efficiency may increase.

Provide active or passive intervention:

- Ensure your students are progressing through the assignment in an appropriate period of time.
- Provide assistance to students who are experiencing difficulties which may prevent them from completing the assignment.

Monitor the scheduled environment time:

- You may have to be mindful of the time, especially if you are working with patches or links that have been scheduled specifically for your class.
- Each module is set on a schedule in order to keep the curriculum flowing and to meet the objectives in the specified course time.

Administer examinations, performance tests, and/or proficiency advancements:

- Testing should be done in blended learning environments the same way it is done in a traditional classroom environments.
- Students should know the purpose of the examination and the time frame in which it is to be complete.
- You should be available for questions and review after completion.

DATABASE AND ELECTRONIC TRAINING JACKET OPERATION

- Training is usually recorded in a database or electronic training jacket.
    - Input your students' skill completion into their training recording medium.

- Add positive, negative, and neutral comments to ensure maximum feedback for them.

LEARNING ENVIRONMENT

- Document the operational status of training aids.
- Document operational status of environmental conditions.
- Ensure all safety requirements are observed.

LABORATORY EVALUATION FACTORS

As with classroom evaluation factors, you must be familiar with the evaluation factors used to evaluate laboratory instruction. Some of these factors are very similar to those used in the classroom. Others are specific to laboratory instruction. Safety is frequently of greater concern in the laboratory than in the classroom. You must ensure that safety is stressed and safety procedures adhered to. The Laboratory Evaluation Checklist is used to evaluate the instructor, the students, and the facilities.

PERSONALIZE THE LESSON PLAN

- Your lesson plan personalization must be current and complete.
- Use your lesson plan to ensure that you cover all objectives and major teaching points.

INSTRUCTOR PERFORMANCE

The Laboratory Instructor Evaluation Checklist contains the following factors concerning instructor performance.

Make Work Spaces/Stations Ready for Class. Prior to the start of the laboratory session you should ensure that:

- Each work station is fully equipped.
- Equipment, tools, and material are ready for use.
- Instructional materials are available and in usable condition.
- The laboratory area is clean and free of safety hazards.

Explain the Objectives

- Ensure students understand the objectives and all safety related considerations.
- Relate the objectives to the job sheet(s).
- Tell the students if the laboratory session is a test.
- In addition to explaining the objectives, you may want to provide partially finished or completed projects for the students to examine.

Review Safety/Sanitation Procedures.

At the beginning of the lab you should review the following procedures as appropriate:

- Training Time Out. (TTO)
- Personnel and equipment safety procedures.
- Sanitation and hazardous waste disposal.
- If the laboratory extends beyond one training day, you should review the appropriate procedures at the beginning of each day.

Review Instructional Materials

- Ensure the students know what instructional materials are available and how to use them.
- Thoroughly explain the job sheet(s).

Relate Classroom Instruction to Laboratory Performance

- Explain to your students how the information presented in the classroom relates to the laboratory application.
- When conducting a demonstration, make sure all the students can see the demonstration.
- Emphasize safety at the appropriate points of the demonstration.

Issue Tools and Materials

- If tools and/or materials must be issued, ensure that you explain the procedures for issue and turn-in.
- Keep work areas free from unnecessary clutter with tools or materials.

Emphasize Safety

- Explain safety precautions and closely monitor students to ensure compliance with safety procedures.
- You must always follow safety procedures and may want to demonstrate the procedures for the students.

Assist Students as Necessary

- Provide an environment for your students to learn by doing. Assist them as necessary, but do not do their work for them.
- Depending upon the type of training, it may be appropriate to use more capable or experienced students to assist other students. However, you must be particularly watchful to ensure that proper procedures are being followed. It would not be appropriate to have students aid other students when safety is involved.

Recognize Individual Student Differences

- Do not compare any student's performance with that of other students.
- Check for student understanding of the assignment.
- Provide assistance only as required.
- Maintain patience with students that are experiencing difficulty.

Provide Related Instruction When Needed

- You should provide instruction when it is needed in order for the students to accomplish the objectives.

Check Student Progress and Understanding

- Monitor students to ensure they are progressing through the assignment.
- Ensure that the students are using the job sheet(s) and related instructional materials correctly.

Ask Thought-Provoking Questions

- Use thought provoking questions to cause the students to think about what they are doing and why they are doing it.
- Use questions to check for student understanding.
- Also, questions may be effective in helping students who are experiencing difficulties.

Review the Laboratory Session

- Conduct a review of the training session by emphasizing the objectives and how they were accomplished.

Manage Time Effectively

- Ensure your students are progressing through the assignment in an appropriate period of time.
- Provide assistance to students who are experiencing difficulties which may prevent them from completing the assignment on time.

STUDENT PERFORMANCE

In addition to evaluating your performance, students are observed because their performance provides important information on the quality and safety of the training. The following factors are used for evaluation in this area:

STUDENTS APPEAR TO UNDERSTAND THE ASSIGNMENT

- Students should be able to independently start the assignment after you have provided the necessary instructions.
- Students should be able to complete the assignment correctly.
- Students should be able to complete the assignment without frequently having to ask questions or request your assistance.

STUDENTS CORRECTLY USE OF INSTRUCTIONAL MATERIAL

- You should ensure that the students are correctly using all of the instructional materials provided.

STUDENTS SEEK ASSISTANCE WHEN NEEDED

- Your students should be encouraged to request your assistance when it is required.
- Monitor your students to ensure they are progressing through the assignment without difficulty.

STUDENTS OBSERVE SAFETY/SANITARY PRECAUTIONS

- Students should observe all applicable precautions. Monitor your students to ensure they follow the prescribed procedures.

STUDENTS PARTICIPATE IN THE CRITIQUE/REVIEW

- Encourage student participation. Ask them questions and invite them to ask questions. You may use the redirected questioning technique to encourage student participation.

FACILITIES

Safety is the number one concern in the training environment. The final section of The Laboratory Evaluation Checklist is for help examining the facilities. The condition of the training facilities is vitally important to safety, quality of life, and student learning. Always check the facilities prior to use and ensure that they are ready. You should:

- Ensure that the lighting and ventilation are adequate.
- Maintain and prepare equipment and tools for the training session.
- Ensure that safety precautions are properly posted.
- Ensure that all equipment safety devices are in place and in good condition.
- Report and ensure correction of any unsafe condition prior to conducting training in the facility.

SUMMARY

Instructor evaluation is an important aspect of the Navy training program. Along with evaluation of curriculum and all other elements of the overall program, instructor evaluation contributes significantly to the improvement of training.

You will be evaluated in the performance of your duties as an instructor. You may also be involved in the evaluation of others. In both situations, use these opportunities to learn new ways of making your instruction, and that of your peers, more efficient and effective.