MILITARY MANPOWER TRAINING REPORT FOR FY 1974

Department of Defense

March 1973

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The Military Manpower Training Report of the Secretary of Defense is submitted to the Congress annually. It specifically supports the Department of Defense request for authorization of average military student training loads for each component, active and reserve, of each Service. It recommends the average student load for each category of individual training and education and includes justification for, and explanation of, the average student loads recommended.

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ERRATA SHEET

Military Manpower Training Report for FY 1974

Corrected Numbers are Double Underlined

1. Item: Due to the errors itemized below, the second, seventh and eighth lines of the summary table on page 4 should be changed to read:

	Recruit	Specialized	Professional	Flight	Officer Acquisition	Total
Navy	17,000	43,700	8,800	2,100	4,300	75,800
Navy Reserve	1,000	4,600	1,600	0	8,100	15,200
USMC Reserve	1,000	1,600	100	0	3,000	5,600

2. Item: Naval Academy load should be 4,300 rather than 4,200.
Changes: Table on page 33, fourth line, should be changed to read:

	FY 72	FY 73	FY 74	FY 75	FY 76
USNA	4.3	4.3	4.3	4.3	4.3

3. Item: Marine Corps Initial Specialized Training load should be increased by 244 Reserve manyears (220 in FY 72) to allow for the Platoon Leaders Class (PLC).
Changes: (a) First table on page 17, second and fourth lines, should be changed to read:

	Army	Navy	Marine Corps	Air Force	DOD
Reserve	3,443	4,520	1,517	1,502	10,982
Total	30,494	48,151	12,133	33,172	123,950

(b) Second table on page 17, third and fifth lines, should be changed to read:

	FY 72	FY 73	FY 74	FY 75	FY 76
Marine Corps	14,410	12,915	11,602	11,769	12,112
DOD	117,300	118,543	109,070	113,501	114,280

(c) Table on page 20, third line, should be changed to read:

	Army	Navy	Marine Corps	Air Force	DOD
Training Load	15,910	23,169	7,945	26,239	73,263

4. Item: Navy professional training Active load should be decreased by 1,575 Health Professions Scholarship Program Reservists, who should be included in the Navy professional training Reserve load.
Changes: Table on page 34, first, second, and fourth lines should be changed to read:

	Army	Navy	Marine Corps	Air Force	DOD
Active Duty	10,078	8,793	2,297	7,770	28,938
Reserve	505	1,581	19	59	2,164
Total	10,681	10,374	2,316	7,915	31,286

5. Item: DOD Advanced Enlisted Specialized Training load was added incorrectly.
Changes: Table on page 22 - replace 35,795 with 35,807

FY 1974
MILITARY MANPOWER TRAINING REPORT

Table of Contents

I

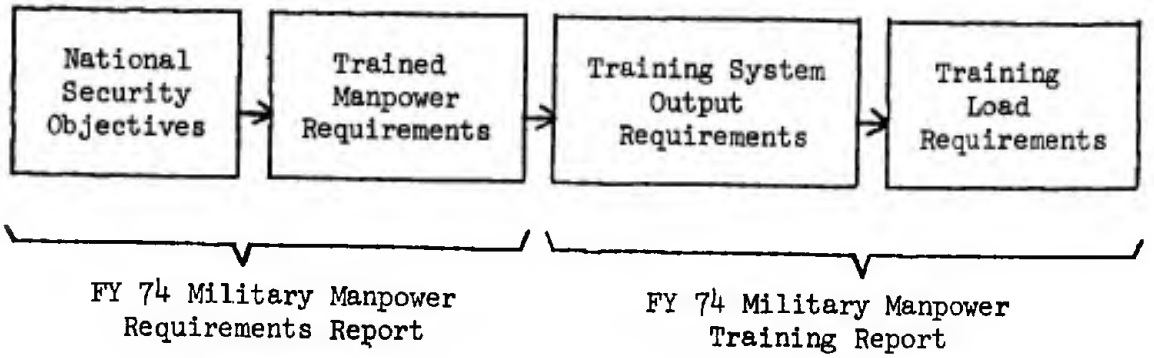
INTRODUCTION

The Military Manpower Training Report of the Secretary of Defense is submitted to the Congress in accordance with Public Law 92-436, which states:

> "Beginning with the fiscal year ending June 30, 1973, the Secretary of Defense shall submit to the Congress a written report not later than March 1 of each fiscal year recommending the average student load for each category of training for each component of the Armed Forces for the next three fiscal years and shall include in such report justification for and explanation of the average student loads recommended."

In compliance with the law, this report presents the recommended military student training loads for the Department of Defense for fiscal years 1974 through 1976. These recommendations are consistent with the fiscal year 1974 President's Budget submitted to the Congress on January 29, 1973.

Training requirements derive ultimately from basic national security objectives. This report, together with a companion report, the FY 74 Military Manpower Requirements Report, describes the progression from national security objectives to training load requirements. The Military Manpower Requirements Report makes the link between the threat, the forces, and the trained manpower required to man the forces. This report takes the trained manpower requirements described in the Manpower Requirements Report as a starting point, and describes how these requirements relate to the demand for people to be supplied by the military training system, and, further, how this training demand translates into student load requirements. The relationship of the two reports is illustrated graphically below:



It is important to emphasize that this report, in order to reflect DOD training as rationally and logically as possible, differs in structure from past budget justifications furnished to Congress. Past efforts have focused on explaining how and why money is to be spent to the Appropriations Committees. This report, on the other hand, discusses how many and why people are to be trained and educated.

In the past, each year's budget justification has contained training loads as part of the justification required by the Appropriations Committees' review of the entire Defense budget. Thus, justification has always been organizationally oriented -- programs are justified by those Services who conduct the programs and who, therefore, must obtain all the necessary funds to carry out the programs.

Since each Service cannot justify the training loads for personnel from the other Services, training loads in this report for each Service will always contain only that Service's personnel. For example, Navy personnel undergoing specialized training conducted by the Air Force are categorized in Navy specialized training, since these individuals are being trained to fill a Navy requirement.

An important consideration relative to this report is that it treats a critical year in transition. In FY 74, the Armed Forces are moving from an era when shortfalls in manpower requirements could be filled by the Selective Service System, to one of solely voluntary enlistments. Because of this, allowances must be made for the uncertainties that exist as we try to meet our quality manpower requirements in the first draft-free year since 1949.

The report is organized into sections describing each major category of training. Preceding these specific training sections is a section which describes the general training methodology and introduces definitions and concepts to be used throughout the report.

Recruit Training includes all basic initial enlisted training for all Services for both the active and reserve components. In all Services, it represents an introduction of the new enlisted man or woman into military life. In the Army and Marine Corps, recruits are also taught common military skills, such as the fundamentals of individual weapons and combat skills.

Specialized Training provides both officer and enlisted military personnel with the skills and knowledge needed to perform specific jobs. This includes training programs such as the Army Infantry School. Also included is technical training extending from cooking and clerical skills to radio communications and jet engine repair.

Officer Training Structure describes the various officer training programs that each Service conducts, and includes: academic training, general military training, and technical training of its officer corps from pre-commissioning through the highest level of officer professional school. This chapter pulls together the officer portions of all the other chapters in order to reflect a comprehensive view of the total officer training system.

Officer Acquisition Training includes training programs through which officers are procured. The purpose of this training is to provide the needed quantity of qualified officer personnel required to perform the future service missions. It includes the Service Military Academies, the Reserve officer training programs, Officer Candidate Schools, and Enlisted Commissioning Programs.

Professional Training includes military education, graduate education, degree completion education and professional development courses not leading to a degree. This training is accomplished at both military and civilian institutions, and includes: Senior Service Schools, Staff Colleges, advanced degree programs, DOD schools like the Defense Systems Management School, and professional medical training.

Flight Training provides the basic undergraduate flying skills for pilots, navigators and naval flight officers. The flight training program culminates in an officer receiving "wings" and being categorized as a "rated" officer. The Army will continue to train a substantial number of warrant officers as helicopter pilots, and for the first time, female pilots will be trained by the Navy. These programs do not include the major formal advanced combat training programs (Combat Crew Training - Air Force, Combat Readiness Training - Navy/Marine Corps, Readiness Training - Army). These programs are beyond the scope of this report. However, because of efficiencies of joint use of equipment and facilities, some related skills such as Army enlisted aviation and Air Force navigator/bombardier, electronic warfare and survival courses are included.

The following table shows the recommended training loads in fiscal year 1974 for each Service component for each type of training required by P.L. 92-436. The table summarizes detailed tables contained in the text.

Recommended Average Student Loads for FY 74 a/

DOD Component	Recruit	Specialized	Professional	Flight	Officer Acquisition b/	Total
Army	48,900	24,300	10,100	1,800	4,100	89,200
Navy	17,000	43,700	10,400	2,100	4,200	77,300
Marine Corps	14,000	10,700	2,300	1,100	0	28,000
Air Force	9,300	28,900	7,800	5,000	4,200	55,100
Army National Guard	16,000	2,800	100	200	0	19,100
Army Reserve	10,800	3,500	600	100	45,000 c/	59,900
Navy Reserve	1,000	4,600	100	0	8,100 c/	13,700
USMC Reserve	1,000	1,300	100	0	3,000 c/	5,300
Air Force National Guard	1,300	2,900	100	400	0	4,600
Air Force Reserve	500	1,600	100	300	22,000 c/	24,300

a/ Each number in this table is contained in a more detailed table in the text.

b/ Officer Acquisition numbers are enrollments rather than average loads. These programs produce active duty military officers and include the Service Academies (under active components) and ROTC programs (under Reserve components). Training loads for the Navy Reserve Officer Candidate program (ROC and AVROC) and the Marine Corps Platoon Leaders Candidate program (PLC) are included in the Reserve component.

Officers are produced in other programs, but are included in categories other than "Officer Acquisition" in the DOD budget, the DOD accounting system, and consequently, in the preceding table. For information, these programs are categorized below. Refer to the text for a description of each program.

FY 74 Officer Producing Programs not in Officer Acquisition Training Loads

	In Specialized Training	In Professional Training
Army	Officer Candidate School (OCS)	Medical Officer Acquisition Program
Navy	Officer Candidate School (OCS)	Medical Officer Acquisition Program Enlisted Commissioning Program (NESEP)
Marine Corps	Officer Candidate School (OCS)	Enlisted Commissioning Programs
Air Force	School of Military Science - Officer (SMSO)	Medical Officer Acquisition Program Enlisted Commissioning Program

c/ The non-Academy portion of these enrollments is not military personnel, but civilian students.

NOTE: Numbers in table are rounded up to the nearest hundred; therefore, components may not add to totals.

II

THE TRAINING METHODOLOGY

All discussions of training needs reflected in this paper reflect a similar approach. In order to provide a framework to understand this approach, the following brief discussion of the general training methodology is provided.

Requirements

All training is accomplished to satisfy a requirement, or need, for personnel with certain types and levels of skills. This requirement can be established in several ways. The Services have, over the years, established detailed and scientific methods of determining the manpower needed to man and support the forces. The Military Manpower Requirements Report to the Congress goes into this process in great detail and provides rationale for total Defense manpower. For example, the enlisted manpower requirements for each Service provide the basic requirement for trained enlisted personnel. The subset of those requirements that represent the number of radar technicians needed in the force provides the basic need for that skill. This process is continued for all skills and skill levels for each Service, for both officer and enlisted personnel.

Inventory Projection

Against the requirements identified above, the available current assets of each skill or skill level must be measured. Estimates are made of how many trained personnel will be available 6 months, 12 months, 2 years, 5 years into the future. Resignations, end of commitments, reenlistments, promotions, deaths, etc., are estimated. These estimates are based on the best historical information available and are tempered by judgment of how future personnel policies, economics, national mood, etc., will affect the probabilities that a man or woman will remain in the Service. A comparison, then, of requirements and inventory projections over time, establishes whether a shortage or surplus exists in each identifiable training area by month and year.

Training Load Adjustments

Except for the introduction of new weapons or the phase-out of old weapons, on-going training programs are adjusted to reflect the need for more or fewer students, or for differing levels of skills. Constant reviews of the need, and constant estimates of the supply result in a dynamic process of fine-tuning the number of students going through the training establishment. At the beginning of a fiscal year, best estimates of these needs are made for the purpose of proposing a budget to the Congress. The DOD's objective at that time is to make best estimates of the next year's needs for trained manpower. The uncertainties of predicting what people will do in the future, plus the added uncertainties of the transition to a no-draft environment argue for reasonable flexibility for future adjustments in specific training loads.

Attrition

Given a desired training output of a given skill or skill level, an additional estimate must be made of how many people must be entered into training so as to assure the desired number of graduates (or output) available to go to the units in need. Attrition through training programs varies from nearly zero to as high as 25-30%. For example, approximately 6% of new recruits are lost before the end of recruit training. Some of these people turn out to be unsuited mentally, physically, or medically for military life and are discharged, while others may become disenchanted and go absent without leave. Most officer professional schools have essentially no attrition. Only a few officers fail to remain in the program, perhaps due to academic failure or illness. Pilot training, however, is an example of higher attrition rates. Fear of flying, unsatisfactory motor skills, inability to meet the high academic requirements, crashes, etc., all contribute to an attrition rate of 25-30%. A discussion of steps to lower this attrition is contained in the chapter on Flight Training.

Based on these attrition estimates by course and type of individual, it is possible to determine the number of personnel that must be entered into the program to assure the desired training output.

Average Training (Student) Load

Resources spent on training are a function of the number of students receiving training at any point in time. Facilities must be constructed to accommodate the "average number of students" in training. Instructors must be trained and retrained at the training establishment in sufficient numbers to provide instruction for the "load" of students. Students and Trainees, over and above the structure spaces of the Services, must be programmed and paid to compensate for productive time lost while in training (see the Military Manpower Requirements Report, Chapter VIII). Military pay must be budgeted for these personnel. Training loads are determined by the following factors:

1. Length of each training course;

2. The number of graduates of each course (output); and

3. The number of inputs to each course required to obtain the desired output (obtained from the estimate of attrition discussed above).

Since attrition does not always happen uniformly over the length of a training program, determining training loads becomes a complex estimating problem. For example, a higher percentage of student pilots "flunk" out of

pilot training in the first few weeks of training, as those students who have a fear of flying, get airsick, or who just can't satisfactorily coordinate their motor reflexes rapidly determine they would rather be ground or ship officers. In the Air Force, approximately 6% of ROTC graduates are lost in the 6 week T-41 phase, 13% are lost in the 20 week T-37 phase and 5% are lost in the 26 week T-38 phase. Similarly, most basic recruits found unfit for military service are eliminated in the first 5 weeks of the Army 8 week basic recruit training program.

If attrition occurred uniformly throughout the training program, the average training load would be a simple calculation. The load for a single course would be just the sum of the number of students starting the course and the number of students successfully completing, divided by two. If the course were exactly a year long, then the load would also represent the average load for the year. Since most courses run less than a year in length, the individual course load is multiplied by the training length (in fractions of a year). The sum of all training loads for all courses represent the Service average training load in training. In the real world, the formula is more complex. The Services use computer simulations that take into account the estimated attrition by month, week or even day if necessary. In the programs, attrition is represented by a complex function that takes into account the time-phases during which the attrition occurs, whether it is concentrated more heavily in one or more parts of the training program or spread evenly throughout the program.

Most of the specialized, professional and flight training programs are managed as described above. These programs are long, expensive and more predictable. Students in training at the beginning of the fiscal year, as well as those still in training at the end of the year are accounted for and included in the training load calculations. Recruit training and officer acquisition training provide different problems. Even though requirements are established by time period, new volunteers often do not cooperate. As explained under recruit training, enlistments are heavily seasonal in nature. They may not be available exactly when they are wanted. In the current transition period between draft and no-draft, the ability to predict arrivals is even more uncertain. As a result, training loads for initial active duty training programs are generally based on predicted enlistments rather than time-phased need. These programs are short and relatively inexpensive, and program adjustments can more readily be made over short time periods. Therefore, explicit planning assumptions by the Services are based on enlistment patterns, translated into training loads. As long as national social patterns of school terms and holidays remain as they are now, accession patterns will be characterized as highly seasonal.

Forecasting and Smoothing

As mentioned above, the Defense training programs are dynamic. There is on-going training at all times. Two major efforts are made to keep this process under control and to minimize turbulence. The first effort is a

forecast of training loads in the future. When courses are short, such as the Air Force 6 week basic recruit training program, forecasting does not have to be done far in the future or to the same degree of accuracy. However, in the case of long lead time programs such as pilot training, nuclear submarine training, or graduate education, attempts are made to estimate loads as far as five years hence. If we could very accurately estimate future requirements for each skill, very accurately estimate the attrition in each course of instruction, and very accurately estimate the number of volunteers that will be recruited, it would be possible to "set in concrete" training plans before each fiscal year. In the real world this just doesn't happen. People don't behave as programmed. Adjustments are inevitable. Requirements change, people change, laws change, the social and economic environment and the United States changes; so must our training programs. By forecasting the training need as well as possible, projecting as far as possible into the future, and then constantly reviewing and adjusting the input and loads, the Military Services are able to fine-tune, on a continuing basis, the entire training establishment. The second effort is smoothing: peaks and valleys in the programs are smoothed to the maximum extent possible to reduce expensive under or over utilization of training resources. A shortage in one class may be made up in the next 3 or 4 classes. Likewise, an overage (where fewer than expected students washed out) is compensated for by reducing future inputs into several future classes. The perfect program is not achievable, but the DOD makes use of every modern management and scientific technique available to determine the right training loads for each category of training.

III

RECRUIT TRAINING

Description

All enlisted personnel undergo recruit training upon initial entry into military service. This training introduces the recruit to life in the military, and includes: physical conditioning; instruction in non-specialized military skills; basic combat techniques, social conduct, military rules, discipline, and hygenic practices expected; and centralized administrative processing and aptitude testing.

Training Load

The training load represents the manyear (average) equivalent of persons receiving training. For example, if 12,000 persons each undergo 6 months of training during 1 year, the training load is 6,000. If 12,000 persons each undergo 1 month of training during 1 year, the training load is 1,000.

The training loads in recruit training for FY 72-76 are summarized below. The inputs and course lengths are discussed later in this chapter.

Total Recruit Training Loads
(Manpower in Thousands)

	FY 72	FY 73	FY 74	FY 75	FY 76
Army	80	84	76	76	76
Navy	18	21	18	17	23
Marine Corps	16	17	15	16	16
Air Force	13	14	11	15	15
TOTAL DOD	127	136	120	124	130

The total training load consists of three component training loads: Active Duty personnel, National Guard personnel, and Reserve personnel. The recruit training loads for each of these components for FY 74 are shown below:

FY 74 Recruit Training Loads
(Load in Thousands)

Manpower Component	Army	Navy	Marine Corps	Air Force	Total DOD
Active Duty	49	17	14	9	89
Guard	16	0	0	1	17
Reserve	11	1	1	1	14
	76	18	15	11	120

Determination of Training Load

As mentioned earlier, one of the two determinants of recruit training load is the total number of people input into the recruit training establishment. Recruit training input will be discussed in two parts: (1) Active Duty, and (2) Reserve Components (i.e., National Guard and Reserve).

Active Duty Input

The requirement for active duty enlistments with no prior military service is a function of projected enlisted training strength needs, current enlisted training strength, current enlisted student strength, projected enlisted separations and other enlisted losses (e.g., deaths, desertions, commissioning, warrants, etc.), and projected return from civilian life of personnel with prior service. Trained strength consists of structure spaces (i.e., jobs which require a specific grade and skill) and individual "pipeline" spaces. For a thorough discussion of the determination of military manpower requirements, refer to the FY 74 Defense Military Manpower Requirements Report. The projected trained strength requirement is compared with the predicted trained strength inventory to forecast future skill and strength imbalances. This comparison determines the current training plan. Future shortages which are not expected to be satisfied by prior service reenlistees or persons currently in skill training courses, determine the planned training output. However, not all persons entering the military training establishment will successfully complete the course of instruction. Thus, total input requirements are customarily increased to compensate for expected attrition.

The FY 74 requirement for non-prior service enlistments is shown below:

FY 74 Non-prior Service Enlistments
(Enlisted Manpower in Thousands)

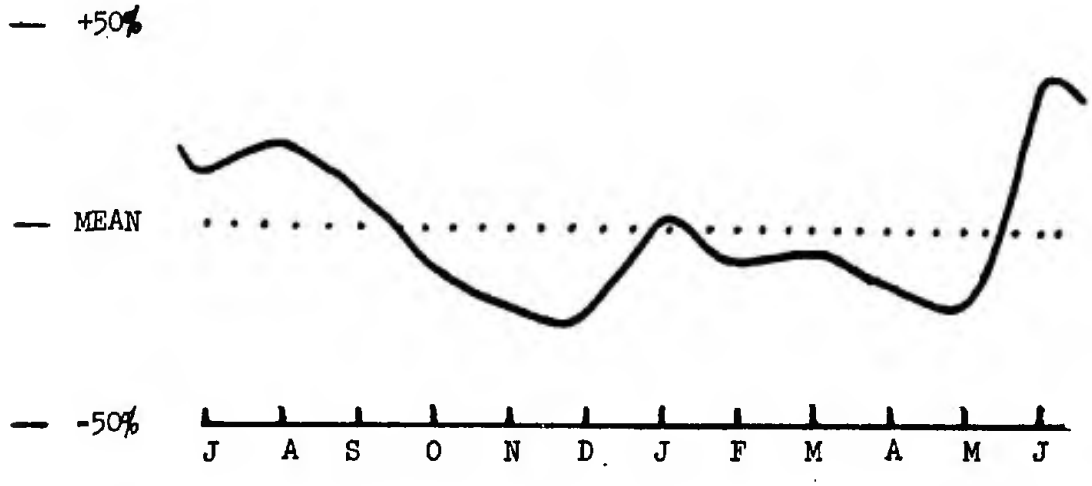
	Army	Navy	Marine Corps	Air Force	Total
Trained Strength - End FY 73	637	444	154	555	1,790
Plus: Trainee Strength - End FY 73	66	59	24	18	167
Equals: FY 74 Beginning Strength	703	503	178	573	1,957
Minus: Projected FY 74 Losses	273	116	53	96	537
Plus: Prior Service Gains in FY 74	88	14	4	8	114
Equals: Resultant FY 74 End Strength	518	401	129	485	1,534
Plus: FY 74 Non-prior Service Enlistment Requirements	182	92	53	73	403
Less: Projected Recruit Training Attrition	11	5	5	9	30
Equals: FY 74 End Strength Requirement	689	492	177	549	1,907

The smoothing of monthly inputs is a continuing goal to obtain the optimum effective use of staff personnel and facilities. However, the phasing of inputs must at times be varied in order to take advantage of the best recruiting periods for maintaining quality and quantity.

Historically, June through September and January have been the most productive recruiting months. This pattern reflects behavioral patterns which are governed by events associated with the academic calendar. Enlistments increase (1) shortly after high school graduation, (2) when peers return to school in the fall, and (3) after the results of first semester academic work are announced.

The table below illustrates the seasonal variation in monthly "true volunteers"[1/] that entered military service in fiscal years 1971 and 1972.

Seasonal Variation of True Volunteers in FY 71 and FY 72
(Percent Above or Below an Average Month)



In the past the reserve enlistment program (and inductees and "draft" inducted enlistees to a lesser extent) was used to smooth monthly inputs to recruit training. However, being totally dependent upon volunteer accessions in FY 74, DOD must accept most prospective enlistees at the time that they are ready to enter service. Requiring enlistees to enter military service in phase with requirements and on an even-flow basis, may result in the loss of many potential enlistees to other sources of employment. Accepting enlistees as they become available will require a training structure capable of accommodating peak surges of enlistments. Such a structure will result in some under-utilization during periods of low enlistments.

1/ A "true volunteer" is an enlistee or voluntary draftee whose lottery number indicates he would not have been drafted.

Reserve Component Input

Persons entering the Guard and Reserve forces without active duty experience require the same recruit training as active duty enlistees, and for the same reasons. While in recruit training, Guard and Reserve trainees are identical to active duty trainees. In the past, many volunteers for the Guard and Reserve were "draft" motivated. This "draft" pressure resulted in a waiting line and allowed the Services to delay Guard and Reserve personnel entrance into training, thus helping to smooth the monthly recruit training input, with little or no adverse impact. This procedure is now changing, and although Guard and Reserve enlistments show less seasonality than active duty enlistments, the waiting line has been significantly reduced or eliminated. Thus, this smoothing technique can no longer be used as extensively as in the past.

Course Length

Enlisted training loads depend on the skills required of the enlisted personnel by each Service. Enlisted personnel are provided those skills in recruit training and in specialized training which is discussed in the following chapter. Thus, recruit training course lengths are determined by how much training is to be provided during the recruit training phase and how much is to be deferred to specialized training. The four Services maintain differing recruit training philosophies depending on their missions, their needs for skilled individuals, and the locations of their recruit and specialized training facilities.

Recruit training in all Services covers four areas: (1) indoctrination into Service life, (2) instruction in social relations, military rules and hygiene, (3) some processing and testing and (4) fundamental military-related training such as physical fitness and self-defense. Two additional areas comprise the remainder of recruit training, but vary among Services: (1) military skills needed by the vast majority of Service personnel, and (2) military skills needed by a sufficiently large number of Servicemen that retention of the subjects for a portion of the recruit population in recruit training is warranted. The differences in recruit training subjects thus account for differences in the length of training.

The Air Force accomplishes all recruit training in six weeks. Course content includes indoctrination subjects, but almost no military skills. At completion of recruit training 95 percent of the graduates go to initial specialized training courses. Air Force recruit training thus provides the barest minimum of common training, since (1) there are few basic skills needed by all Air Force recruits, and (2) the initial skill training is best done in specialized, not recruit, training.

Similarly, all Navy recruits undergo 6 weeks of recruit training covering indoctrination subjects. Because Navy enlisted men will nearly all serve on ships, recruits are given one additional week of practical exercise in the types of tasks normally assigned aboard ship or in other operational billets. At the conclusion of the seven week total period, 85% of Navy recruits are sent to "Class A" schools for specialized training. The remaining Navy recruits, who are destined for fleet inputs or other operational duties without formal schooling, are assigned to apprenticeship training. There are four separate apprenticeship programs (Seaman, Fireman, Airman and Constructionman). The training length is 2.6 weeks for the first three programs and 4 weeks for the fourth.

The Army and Marine Corps differ from the Air Force and Navy since all Army and Marine Corps recruits are taught common military skills - for example the fundamentals of individual weapons and other combat skills. Consequently, Army and Marine Corps basic recruit training takes 10 to 13 weeks respectively. Four to seven weeks of this time is consumed by combat instruction not provided in the Air Force or Navy.

The Army additionally provides 10 weeks of advanced individual training for 60% of its recruits. This training provides new recruits with training and experience in Army weapons and in other skills considered necessary for a large fraction of the Service.

The content of courses is indicated below:

Content of Recruit Training Courses (Weeks)

	Recruit Training						
	Indoctrination Physical Training, Admin.	+ Basic Skills	= Total Basic Recruit Training	+ Advanced Recruit Training	= Total Recruit Training	Percent Going to Specialized Training
Army	7	3 (e.g., Individual weapons, & battle skills)	10 a/	60% 10 (e.g., high density occupations-infantry, armor)	20	0%
				31% 0 (e.g., low density occupations-missile maintenance, avonics repairmen)	10	100% b/
				9% 0 (OJT, civilian acquired skills)	10	0%
Navy	7	1 (Seamanship)	8 a/	85% 0	8	100%
				15% 2.6-4 (Apprenticeship Training)	10.6-12	0%
Marine Corps	6	4-6 (e.g., Individual weapon & combat skills 1 (Field Tng)	11-13 a/		11-13	71%
Air Force	6	0	6	0	6	95%

a/ Training time is 8 weeks in the Army; 7 weeks in the Navy and 11 weeks in the Marine Corps. The remaining time includes processing and remedial/recycling training to ensure that graduates meet Service designated minimum standards of proficiency prior to completion of recruit training.

b/ Distribution is to Specialized, Professional, and Flight Training.

Based on new enlistments of active duty, Guard and Reserve personnel and course length, the training load in recruit training can be computed as shown below.

FY 74 Recruit Training Load Computations

	Army	Navy	Marine Corps	Air Force
Basic Recruit Training				
Input				
Active	183,200	102,600[e]	53,000	73,400
Guard	54,800	0	0	10,000
Reserve	36,500	7,000	3,900	4,000
Total Input	274,500[a]	109,600[b]	56,900	87,400
Course Length (Weeks)	10	8	13[c]	6
Training Load	48,600	16,600	14,700	11,000
Output	263,800[f]	98,900	52,000	81,000
Advanced Recruit Training				
Input (% of above Output)	158,300(60%)	15,000(15%)	0(0%)[d]	0(0%)[d]
Course Length (Weeks)	10[a]	2.6-4		
Training Load	27,100	1,400		
Output	154,800	14,500		
Total Recruit Training Load	75,700	18,000	14,700	11,000

a/ Army training time is 8 weeks; 10 weeks includes total processing and training time. Processing time includes staytime for new Army enlistees in the Armed Forces Entrance and Examining Stations (AFEES) which the Army operates for all Services.

b/ Navy programmed instruction is 7 weeks; 1 extra week is used for planning to account for processing, remedial training, illness, and other set-back causes.

c/ Marine Corps programmed instruction is 11 weeks. Currently the average time to completion is 13 weeks including travel, processing and remedial training.

d/ All Marine Corps and Air Force recruit training graduates go directly to units or Specialized Training.

e/ Includes numbers on board July 1, 1973, who are part of the recruit student load.

f/ Distribution of output is 60% to Recruit Training in Army Training Centers, 31% to initial MOS training in the Army Service Schools and 9% to MOS training in units or with civilian acquired skills.

There are two pressures on recruit training course length that serve to regulate it. New recruits must be paid as soon as they enter service but are unproductive until they have completed training and are assigned to a unit. This exerts an economic pressure to minimize training time so the trainees can enter the structure. Countering this influence are the problems caused by inadequately training recruits. Such men can be a drain on their unit in three ways:

1. Through inexperience with military life and regulations they can cause disciplinary problems.

2. They are less able to accomplish their assigned jobs.

3. They require training from more experienced unit members, thus degrading the total productivity of the people assigned to the unit. Unit readiness is also impaired.

IV

SPECIALIZED TRAINING

Description

Specialized training provides military personnel with specific skills and knowledge needed to perform specific jobs. Each Service has established a job structure that allows it to carry out its assigned missions. Each position within that structure has been analyzed to determine the skills necessary to ensure that each job is done properly and efficiently. Specialized training is given every year to the number of individuals necessary to ensure that these skill requirements are met.

Specialized training is provided for both officers and enlisted personnel. Students in specialized training may be active duty personnel, reservists, or National Guard personnel. The FY 74 specialized training loads (total officer and enlisted) for each component of each Service are shown below:

FY 74 Total Specialized Training Loads a/

	Army	Navy	Marine Corps	Air Force	DOD
Manpower Component					
Active Duty	24,268	43,631	10,616	28,804	107,319
Reserve	3,443	4,520	1,273	1,502	10,738
National Guard	2,783	0	0	2,866	5,649
Total	30,494	48,151	11,889	33,172	123,706

a/ Loads include each Service's personnel undergoing specialized training regardless of location.

Enlisted Specialized Training

The enlisted training loads in specialized training are shown below:

Enlisted Specialized Training Loads a/

	FY 72	FY 73	FY 74	FY 75	FY 76
Army b/	26,430	25,774	21,990	21,990	21,990
Navy	44,771	46,575	44,434	44,404	44,104
Marine Corps	14,190	12,671	11,358	11,525	11,868
Air Force	31,689	33,279	31,044	35,338	36,074
DOD	117,080	118,299	108,826	113,257	114,036

a/ Loads include each Service's enlisted personnel undergoing specialized training regardless of loaction.

b/ 60% of the output from basic recruit training remain at Army Training Centers to receive additional training for high density, low-skill positions. These individuals are included in Army recruit training loads.

Skills taught in enlisted Specialized training include not only technical skills such as electronics technician and nuclear reactor specialist, but also more routine skills such as cook, clerk/typist, and truck driver. With the exception of a small number of people who enter the Service with civilian acquired skills who can be used with little or no additional training, enlisted men must receive initial specialized training to be productive.

Note, too, that DOD generally recruits the least skilled segment of the population. In FY 72, 89% of all volunteers were under 21 years old. The unemployment rate for this group -- an indicator of the skills possessed by these individuals -- was twice that of the nation's 21-35 year old population.

The attached table (page 19) shows total FY 74 requirements for skilled enlisted personnel in various occupational areas.[1/] Each occupational group includes individuals with similar types of skills. The differences between the Services' mix of requirements by occupational area reflects the different types of jobs needed to fulfill the different missions of each corresponding to each occupational group.

During his career, an enlisted man may receive one of many types and levels of specialized training. However, the most important distinction is between initial specialized training and advanced specialized training.

Initial Specialized Training

Initial specialized training is given to new enlisted men directly after recruit training. (There are a relatively small number of enlisted men who return to initial specialized training from units.) The number of recruits going into initial specialized training depends on:

1. the number of career fields requiring specialized skills,

2. projected billet vacancies in those career fields, and,

3. the extent of recruit training.

The Navy and Air Force send a large proportion of their recruits to initial specialized training because of the many technical jobs in those Services and because their recruit training is considerably shorter than the Army and Marine Corps. Conversely, the Army and Marine Corps send a smaller proportion of their recruits to initial specialized training because many of those recruits will be placed in less technical jobs, and because the additional time spent in recruit training allows many recruits to become productive in their jobs without specialized training.

1/ The table shows the manpower needed to fill each Service's trained personnel billets. The way in which these overall manpower requirements translate into specialized training requirements is the subject of the remainder of the chapter.

FY 74 Enlisted Skill Requirements

(Enlisted Manpower in 000s)

	TOTAL	OCCUPATIONAL AREA 0 Infantry Gun Crew and Seamanship Specialists	OCCUPATIONAL AREA 1 Electronic Equipment Repairman	OCCUPATIONAL AREA 2 Communications and Intelligence Specialists	OCCUPATIONAL AREA 3 Medical and Dental Specialists	OCCUPATIONAL AREA 4 Other Technical and Allied Specialists	OCCUPATIONAL AREA 5 Administrative Specialists and Clerks	OCCUPATIONAL AREA 6 Electrical/ Mechanical Equipment Repairman	OCCUPATIONAL AREA 7 Craftmen	OCCUPATIONAL AREA 8 Service and Supply Handlers
Enlisted Manpower Requirements a/										
Army	629.0	146.4	82.4	22.1	39.3	27.7	134.5	83.3	15.7	77.6
(%)	(100%)	(23.3%)	(23.3%)	(13.1%)	(3.5%)	(6.3%)	(21.4%)	(13.2%)	(2.5%)	(12.3%)
Navy	476.6	24.3	58.6	58.1	35.7	10.0	35.7	188.7	14.8	50.0
(%)	(100%)	(5.1%)	(12.3%)	(12.2%)	(7.5%)	(2.1%)	(7.5%)	(39.6%)	(3.1%)	(10.5%)
Marine Corps	154.0	45.0	14.0	17.0	0.0	2.0	30.0	21.0	3.0	22.0
(%)	(100%)	(29.0%)	(9.0%)	(11.0%)	(0.0%)	(2.0%)	(19.0%)	(14.0%)	(2.0%)	(14.0%)
Air Force	494.1	0.0	66.3	44.7	25.6	10.2	110.9	120.0	45.4	71.0
(%)	(100%)	(0.0%)	(13.4%)	(9.0%)	(5.2%)	(2.1%)	(22.4%)	(24.3%)	(9.2%)	(14.4%)
DOD	1,753.7	215.7	221.3	141.9	100.6	49.9	311.1	413.0	78.9	220.6
(%)	(100%)	(12.3%)	(12.6%)	(8.1%)	(5.7%)	(2.8%)	(17.7%)	(23.6%)	(4.5%)	(12.6%)
Number of Enlisted Specialized Training Courses										
Army	468	37	111	40	25	53	50	80	47	25
Navy	1,267	85	406	91	6	50	98	250	272	9
Marine Corps	133	16	30	9	0	2	28	21	10	17
Air Force	3,211	0	1,687	164	89	69	261	690	191	100
DOD	5,079	138	2,234	304	120	174	437	1,001	520	151

a/ Percentages are of the total requirements for trained personnel for each Service.
b/ Includes AIT/CBT training courses given at Army Training Centers.

Unlike the civilian sector, the military does not utilize a lateral transfer of personnel at different levels from external sources. Thus, requirements imposed on the initial specialized training system are generated from losses occurring at all levels of the occupational hierarchy. A vacancy in a billet requiring only initial specialized training may be created by the departure of a man who must undergo advanced specialized training to fill another vacancy created by the loss of a more highly skilled individual.

To illustrate this progression, suppose that an individual currently performing a job requiring two levels of training is lost to the service. His loss imposes a direct requirement on the specialized training system to train a man in the inventory who already has one level of training. The man with one level of training must then be replaced, which imposes an indirect requirement to give a new recruit the first level of training. Thus, in this case, one loss caused a total requirement of two: one direct requirement and one indirect requirement. In general, one loss can cause one or many derived training requirements.

An example is in the field of Army avionics. There are five separate basic avionics skills provided by the Army specialized training establishment. For instance, a recruit can depart from basic training for 23 weeks of specialized training, after which he is designated an Avionics and Communications Equipment Repairman (Military Occupational Specialty (MOS) 35L). Later in his career, after gaining experience and proficiency, if he is selected the same man can come back for an additional 19 weeks of training to become an Avionics Equipment Maintenance Supervisor (MOS 35)). Conversely, if an Avionics Supervisor is lost to the Army, he must be replaced by further training a person out of the group who have already had the prerequisite basic avionics skill training. If the replacement happens to be an Avionics and Communications Equipment Repairman, a new recruit must be trained in the MOS 35L course to in turn replace him.

The table below shows FY 74 input of recruits to initial specialized training, the average time necessary to train them and the consequent initial specialized training load.

FY 74 Initial Enlisted Specialized Training Loads a/

	Army	Navy	Marine Corps	Air Force	DOD
Recruit Input	75,764	70,800	37,719	83,484	267,767
Average Time in Training (weeks)	10.5	11.9	10.3	15.0	12.2
Training Load	15,910	23,169b/	7,701	26,239c/	73,019
Attrition	9,092	2,800	3,772	4,170	19,834
Trained Recruit Output	66,672	68,000	33,947	79,314	247,933

a/ Loads include each Service's enlisted personnel undergoing initial specialized training regardless of location.

b/ The training load of personnel reporting directly from Recruit Training is 19,770. The load shown includes students having only apprenticeship training returning from the fleet.

c/ Load of personnel from recruit training is 22,759. The remainder is due to students returning from units for initial specialized training and OCS students.

Advanced Enlisted Specialized Training

As an enlisted man gains experience, he becomes more proficient at his job and he will reach a stage where more training in his field is required for his career progression. More importantly, his Service will have forecast that future losses will occur in advanced positions within his career field, and that he must be sent for additional specialized training so that he will be able to occupy an advanced position when losses occur.

Advanced specialized training planning is severely complicated by a number of factors:

1. Future losses must be forecast. Thus, there must be some "give" in the system to allow for uncertainties in loss rates in each career field and skill level within the field.

2. Not all young enlisted men will choose to accept advanced specialized training, for it generally requires an additional Service obligation.

3. Many young enlisted men will be unavailable for additional training because they are deployed overseas or on ships. Training for these men must be delayed since too much movement becomes prohibitively expensive.

4. Some enlisted men cannot be spared from their current jobs for further training. This requires that each career field have some "extra" people authorized so that necessary jobs in units can be filled while the "extra" people are being trained to fill job openings to be caused by future losses. (See the Military Manpower Requirements Report for FY 74 for a discussion of "Structure" and "Individuals". "Individuals" include the trainees and students needed in order for units in the structure to have the authorized number of people physically on-hand.)

5. Training centers have limited flexibility to respond to changes in training loads. Consequently, all the above constraints must also be matched with training course capacity. Thus, in months when course size is low, additional trainees may be added sooner than necessary; when course size is high, some trainees must be deferred beyond the time at which their training should occur.

6. Not all men with the prerequisite training at lower levels have the experience or capability necessary to work in positions requiring advanced training. For example, in order to become a Rotary Wing Technical Instructor (MOS 67W), an Army enlisted man needs at least a year of experience in the field as a helicopter mechanic.

An additional requirement on the advanced specialized training system occurs with the introduction of new weapon systems. New weapon systems generally require persons with new or modified specialized skills to operate and maintain them. These skills must be acquired in specialized training courses.

Sometimes new weapon systems are only modifications of existing weapon systems. In this case, transitional training is given until existing courses can be permanently modified. However, totally new weapon systems typically generate a requirement to train men in new skills for which new advanced courses must be designed. If the necessary new skills are basic enough, a new weapon systems can also require new initial specialized training courses.

The table below shows the FY 74 input to advanced specialized training, the time in training and the consequent advanced specialized training load.

FY 74 Advanced Enlisted Specialized Training Loads a/

	Army	Navy	Marine Corps	Air Force	DOD
Input to Advanced Courses	58,107	410,865b/	14,474	54,605	538,051
Average Time in Training (Weeks)	5.2	2.6	12.4	4.5	3.3
Training Load	6,080	21,265	3,657	4,805	35,795
Attrition	6,973	16,436	138	415	23,967
Output	51,134	394,429	14,336	54,190	514,084

a/ Loads include each Service's enlisted personnel undergoing advanced specialized training regardless of location.

b/ Includes fleet schools - input is high because many students attend several short courses, some only a few days in length.

Officer Specialized Training

Specialized training is also necessary for officers performing jobs in which specific skills are needed. However, since officers usually require only generalized technical skills, the distinction between Officer Specialized Training and Officer Professional Training is not always easy to make (The Officer Training Structure section discusses this point in more detail). Thus, the Services vary to some degree in what they include in their specialized training accounts.

The Army includes in specialized training its basic officer course given to officers upon initial entry to active duty. Also included in Army specialized training is the Army's Officer Candidate School (OCS).

In the Navy, specialized training includes an indoctrination course provided for newly commissioned Naval officers. Navy Officer Candidate School is also part of the Navy specialized training establishment.

Students in Marine Corps Officer Candidate School are also part of the Marine Corps specialized training establishment. However, the Marine Corps provides its Officer Basic Course in professional training.

The Air Force has no basic officer course. However, the Air Force version of officer candidate school, the School of Military Science - Officers (SMSO), is part of Air Force specialized training.

Because most officer positions are managerial and require a spectrum of skills that is transferrable across many assignments, officers are trained largely within a particular specialty field during their initial years of service. Officers who choose to make the military a career progress to higher managerial levels with broader courses which augment their on-the-job training and experience. An Army Finance Corps officer, for example, will learn accounting principles and the military pay system in his initial specialized training. If he receives training later in his career, it will probably be less technically oriented and closer in nature to professional training.

Selection of officers for advanced specialized courses is on a competitive basis. The most qualified and experienced officers are provided training ahead of others less capable or experienced. Attendance in specialized training for all officers is dependent on each officer's specific assignment and the requirements of his unit.

The officer training loads in specialized training are shown in the table below:

Total Officer Specialized Training Loads a/

	FY 72	FY 73	FY 74	FY 75	FY 76
Army	8,559	9,330	8,504	8,504	8,504
Navy	4,150	4,117	3,717	3,717	3,717
Marine Corps	402	532	531	533	533
Air Force	1,775	1,879	2,128	2,109	2,109
DOD	14,886	15,858	14,880	14,863	14,863

a/ Loads include each Service's officer personnel undergoing specialized training regardless of location.

V

OFFICER TRAINING STRUCTURE

Introduction

Officer training is fundamentally different from enlisted training because officers, in general, require different types of skills than enlisted men. The nature of the skills required by officers must be understood before the rationale for officer training can be fully appreciated.

This section addresses the officer training establishment as a whole, and relates the various specific types of officer training discussed in separate sections of the report.

Rationale for Officer Training

To be effective, the military, like its counterparts in the civilian economy, must rely on progressive leaders and well-trained professionals. The source of each Service's leaders and professional experts is its officer corps.

The Military Services are no different than any large corporation in terms of requirements for well-educated managerial and professional personnel, who possess both technical and academic knowledge relative to their current job and potential future jobs within the organization. However, unlike the civilian economy, the military operates within a closed manpower system. Whereas a large corporation can hire an experienced individual directly into a job at the policy making level, the military generally trains and promotes from within.

The requirement for progressive training in academic and military subjects is based primarily on current professional and managerial development philosophy which is very similar to that embodied in corporate career development programs in the civilian economy. Because most officers must possess generalized skills (e.g., an officer assigned to a maintenance unit must understand all aspects of the unit's activities, whereas an enlisted man will have a well-defined, specific set of tasks to perform), the determination of requirements for persons with specified training is more difficult than for enlisted personnel (a major exception is pilots and navigators).

The need for educating officers on a continuing basis has grown as the role of the military has become increasingly complex. The officer in past years could properly concentrate on a career which required strictly military know-how. As national security requirements have

become more comprehensive, involving greater interface and knowledge about many factors -- military, political, economic, and technological -- the need for greater versatility and know-how has increased.

Officers today are required not only to be military specialists, but must be able to deal with other aspects of national policy. They must be able to communicate with policy formulators, with economic analysts, with political decision makers, with systems analysts, with sociologists and psychologists and scientists and engineers. They must understand and manage research and development, production and procurement, operations and maintenance.

Officers must also understand the elements of leadership and command, of staff operations and management. They must know our political institutions and the role of the military within such institutions, and must develop the necessary skills for effective performance in scientific, technical and engineering areas.

Types of Officer Training

There are four basic types of officer training: (a) officer acquisition training, (b) officer specialized training, (c) professional development training, and (d) flight training. Each type of training is discussed in detail in separate sections of the report. However, because officers possess broader and more general skills than enlisted men, the distinction between these types of officer training (other than flight) is not as meaningful as the distinction between the various types of enlisted training. For example, the line between officer specialized training and officer professional training is gradual and not always well-defined. For this reason, it is often difficult to compare Service officer specialized and professional programs directly.

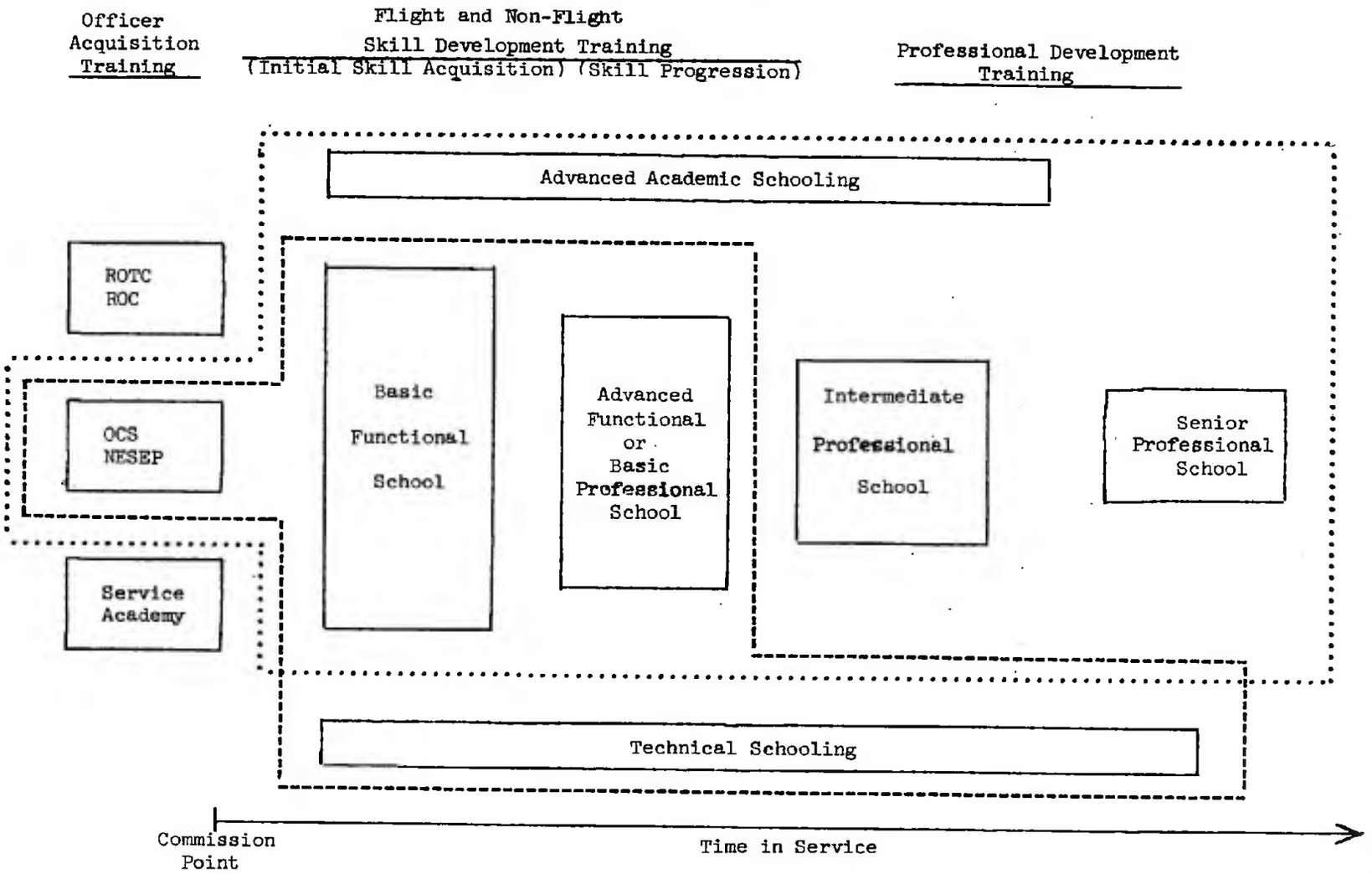
Perhaps a clearer view of the officer training system is given by examining the various training "paths" an officer may follow during his career education and training program. Officer training is composed of academic, military and technical schooling "paths." These paths are not mutually exclusive; an officer may switch from one path to another and back again during his career. The mixture of academic, military, and technical schooling received by an individual varies with the skill requirements of the Service, the career pattern of the individual (e.g., logisticians require different schooling than tacticians) and his personal interests.

The attached chart displays graphically the relationship between the various schooling paths and the four basic types of officer training. The various paths are described in detail below.

Academic Schooling

The Services not only provide military education but also afford opportunities to pursue academic programs in a variety of disciplines and specialties which broaden the officer's capacity to deal with national

OFFICER TRAINING PROGRESSION



Dotted line indicates training contained in Professional Training in accounting system.
Dashed line indicates training contained in Specialized Training in accounting system.

This table represents the combined Service treatment of the various types of training with respect to the accounting system.

security problems. Applicants for full-time programs are screened for academic aptitude and potential capacity to fill assignments requiring higher education. The best qualified may then be selected to pursue graduate work at civilian institutions in fields such as engineering, physical sciences, social sciences, management, operations analysis, and oceanography.

The Services have found that in today's society, officers, like civilian managers and professionals, must have a broad educational foundation upon which specific, technical training is based. Thus, officer acquisition training is combined with undergraduate academic schooling in all programs, except officer candidate school. (Officer candidate school enrollees are normally college graduates.) Undergraduate degree completion programs are provided for selected officers currently in the force who do not hold a bachelors degree.

Academic schooling is characterized by being conceptual or theoretical, rather than technical or vocational, in nature. Advanced academic schooling is provided in civilian institutions nationally noted for the caliber of their graduate programs, and involves courses of instruction leading to advanced degrees. Military institutions providing schooling of equal quality are the Navy Postgraduate School and Air Force Institute of Technology. The student load for advanced degree programs is a function of (a) future specified billet requirements (i.e., a chemistry instructor at one of the Service academies must have an advanced degree in chemistry), and (b) the knowledge that the Services, just like industry, will find their best future policy makers among their better educated manpower. For further discussion of academic schooling, refer to the section on Professional Training.

Military Schooling

Military schooling is a blend of technical and academic subjects. The proportion of technical subjects is very high for training received early in one's career. In successive training, the proportion gradually shifts to more academic subjects. Military schooling differs from technical schooling in that it includes general military subjects such as Code of Conduct, Uniform Code of Military Justice, customs and courtesies, Service organization and administration. In addition, military schooling may include managerial development subjects such as public speaking, effective writing, behavioral sciences, and other subjects peculiar to the skill group of the individual officer.

Military schooling can be divided into groups corresponding to the phases of officer training. The first is officer acquisition training which consists of: (a) training at military installations of military personnel, e.g., Service academies, and officer candidate schools; (b) training at civilian institutions of military personnel, e.g., Navy

Enlisted Scientific Education Program (NESEP); (c) training at military installations of civilian personnel, e.g., Reserve Officers Candidate Program; and (4) training at civilian institutions of civilian personnel, e.g., Reserve Officers Training Corps. Each of these programs is discussed in the section on Officer Acquisition.

The military schooling related to initial skill acquisition training is called basic functional schooling. This schooling is designed to provide transition training of officers from the general military subjects received prior to commissioning to subjects related to their skill group. The Army provides this training in its branch officer basic courses, the Navy provides it to their staff corps officers, and the Marine Corps provides it to all Marines. The Air Force has no basic functional schooling. Skill progression military schooling in the Air Force is provided through advanced functional schooling (called basic professional schooling in the Air Force).

Advanced functional schooling is provided to most officers of a given skill group who remain after their initial tour of obligation. Training is tailored toward skill group (e.g., logistician, tactician, etc.) and general military knowledge necessary to function effectively as a mid-level staff officer. Included here are Army officer branch advanced courses, Navy staff corps and line officer schools, Marine Corps amphibious warfare courses, and Air Force squadron officers school.

Professional development training is provided in two levels of military schools: intermediate and senior. These schools provide generalized training not related to skill groups, but tailored for future mid-level and top-level military policy-making positions. Emphasis is placed on management and resource planning. Selection for attendance at these schools is highly competitive. Training load does not vary directly with the size of the total Service, because the population of those eligible for consideration varies only slightly with force size, and because of the limited capacity of the military school system. More discussion of these schools is provided in the chapter on Professional Training.

Technical Training

This training provides vocational knowledge only. Courses tend to be short, often taken in a temporary duty status. The notable exception is flight training which, because of its length, cost and unique requirements determinants, is treated separately in this report and in the DOD accounting system.

Unlike functional training which is provided to most officers of a broad skill group, technical training is given for specific jobs. Thus, training load is driven by projected vacancies in billets requiring specific technical expertise.

Officer Training Loads

The following table summarizes the officer training loads by type of schooling for each Service for FY 74:

FY 74 Officer Training Loads [a]
(Post-Commissioning Training Only)

	Army	Navy	Marine Corps	Air Force	DOD
Senior Professional Schools	260	197	61	357	875
Intermediate Professional Schools	935	229	124	640	1,928
Advanced Functional Schools	2,770	2,408	261	3,283	8,722
Basic Functional Schools	3,015	1,550	824	0	5,389
Subtotal: Military Schooling	6,980	4,384	1,270	4,280	16,914
Flight Training	984	2,030	1,046 [b]	5,463	9,523
Other Technical Training	3,955	0	435	2,128	6,518
Subtotal: Technical Schooling	4,939	2,030	1,481	7,591	15,690
Graduate Degree Program	2,019	2,227	236	3,141	7,623
Degree Completion Program	1,922	312	203	0	2,437
Subtotal: Academic Schooling	3,941	2,539	439	3,141	10,060
Total Officer Load	15,860	8,955	3,190	15,012	43,015

a/ Loads include each Service's officer personnel undergoing training regardless of location.

b/ Includes training loads in Marine Corps training groups.

VI

OFFICER ACQUISITION TRAINING

Description

The purpose of officer acquisition training is to provide the needed quantity of qualified officer personnel required to perform future Service missions.

This training category includes the Service Academies, Reserve Officers Training Corps (ROTC), Officer Candidate Schools (OCS), Reserve Officers Candidate Program (ROC and AVROC), Platoon Leaders Course (PLC) and various enlisted commissioning programs. Medical officer acquisition programs are discussed separately in the Professional Training Section.

Service Academies

The mission of the Service Academies is to meet a portion of the long-range need for career military officers. Service Academies provide education, training, experience and motivation to each cadet so that he will graduate with the knowledge and the qualities of leadership required of a junior officer. In addition, the Academies provide each cadet the necessary background for continuous development throughout a career of service to his country. Courses include both academic education and military training designed to develop the character and personal attributes essential to an officer. These courses provide a balanced and liberal education in the arts and sciences as well as in military science. The maximum enrollment in each Service Academy is established by law. Therefore, much of the burden of maintaining a steady supply of new officers into the Services falls on the other officer acquisition programs.

ROTC

ROTC is the major source of military officers. It is a long lead-time program conducted while the cadet is attending a civilian college or university. The ROTC program is somewhat different from other officer acquisition programs in that it is the only large program which produces officers for direct entry into the Reserve Components. The Army, Navy and Air Force each have their own ROTC programs, while the Marine Corps relies on Navy ROTC. ROTC, like the Service Academies, is used to provide a stable input of officers for active duty. Scholarships and subsistence allowances authorized by law, along with conventional recruiting and advertising methods, are used to attract cadets. Awards of scholarships are directed toward students who exhibit potential and interest in fields of projected Service need.

There are scholarship and non-scholarship as well as two-year and four-year ROTC programs. The curricula of each program are tailored to

the needs of the individual Services. The Navy, for instance, teaches the basics of ship navigation while the Army teaches the fundamentals of ground combat. All programs include instruction in basic military customs and military history, and each program provides prospective officers with a gradual transition from the civilian environment to the military environment. Each ROTC program offers a series of classes throughout the academic year combined with mandatory summer camps which are designed to give the student real military experience and a first hand view of military life.

Officer Candidate Schools

Each Service, including the Marine Corps, has its own Officer Candidate School. The Air Force school is called the School of Military Science - Officer (SMSO). The curricula of the officer candidate schools reflect an abbreviated version of the ROTC program -- the same basic subjects are covered in a much shorter time (23 weeks for the Army, 19 weeks for the Navy, 12 weeks for the Marine Corps, and 12-15 weeks for the Air Force).

Officer candidate schools are the most flexible officer input source. These schools can be greatly expanded or completely eliminated depending on projected officer needs. Officer candidate schools have always been the "safety valve" of officer acquisition. Although OCS is a relatively short program compared to ROTC or the Service Academies, it nevertheless produces motivated and highly qualified officers.

ROC, AVROC and PLC

The final sources of officers from the civilian sector are the Navy's Reserve Officer Candidate Program (ROC) and Aviation Reserve Officer Candidate Program (AVROC), and the Marine Corps' Platoon Leaders Course (PLC). Each of these programs is similar to the ROTC summer camp program. However, in contract, with the ROTC Program, students do not attend military classes at their own civilian institutions. ROC and AVROC students go to OCS before receiving their commission whereas PLC students are commissioned upon confirmation of their college degree.

Enlisted Commissioning Programs

The Air Force, the Navy, and the Marine Corps each have special enlisted commissioning programs. The purposes of these programs are: (1) to provide a source of officers in specified skills with an expected high rate of retention, (2) to provide an avenue whereby enlisted personnel with proven qualifications can augment the commissioned ranks, and (3) to provide a measure of motivation to the enlisted personnel force. The numbers that progress to commissioned ranks through these sources are relatively small; however, the program is sufficiently flexible to accept expanded input.

Training Loads

The attached table presents the training loads from FY 72 through FY 76 for all forms of officer acquisition training (less medical procurement).

The total size of officer acquisition training loads is a function of future officer needs which in turn are a function of force requirements and replacement needs.

Total force requirements for officers are derived from national military strategy. The way in which national military strategy translates into requirements for officer manpower is the subject of the FY 74 Defense Military Manpower Requirements Report. The need for replacements to sustain the officer force is a function of officer losses which are projected into the future by each Service.

The mix of officers procured from the various commissioning sources has an important impact on the maintenance and operation of an effective officer force. Each of the sources has different constraints and provides personnel with different characteristics. Some of these characteristics and constraints are: flexibility in terms of academic qualifications; stable input -- long lead time; flexible input -- short lead time; high academic quality with comprehensive military indoctrination; and high level of technical skill. These differences, and others, are recognized and exploited in planning officer force procurement.

To be more specific, the Service Academies produce a relatively small number of military officers. Long lead time commissioning sources, such as ROTC, provide a significant input of officers to the initial active duty force -- a large percentage of which within four years will leave active duty and join reserve components. ROTC also directly provides Reserve officers. Officer candidate schools provide the short lead time commissioning source necessary to respond to changes in officer force levels. Finally, enlisted commissioning programs provide a source of officers who possess specific technical skills and who have a proven high rate of retention.

Officer Acquisition Training Programs Enrollment [a]
(000's)

	FY 72	FY 73	FY 74	FY 75	FY 76
Army					
USMA	4.0	4.0	4.1	4.1	4.1
Army ROTC	50.2	41.3	45.0	45.0	45.0
Officer Candidate School	.7	.7	.3	.3	.3
Navy					
USNA	4.2	4.2	4.2	4.2	4.2
Naval ROTC	7.2	8.0	8.1	8.2	8.2
Reserve Officer Candidate	.8	.8	.9	.9	.9
Aviation Reserve Officer Candidate	.9	1.0	1.1	1.1	1.1
Enlisted Commissioning Program [b]	1.2	1.2	1.2	1.2	1.2
Officer Candidate School [c]	.7	.7	.5	.5	.5
Marine Corps					
Platoon Leader Course	2.2	3.0	3.0	3.0	3.0
Enlisted Commissioning Programs [b]	.2	.3	.3	.3	.3
Officer Candidate School [c]	.3	.3	.3	.2	.2
Air Force					
USAFA	4.0	4.2	4.2	4.2	4.2
Air Force ROTC	23.3	21.5	22.0	22.0	22.0
SMSO [c]	.9	.9	.8	.8	.7
Enlisted Commissioning Programs [b]	.7	.7	1.2	1.4	1.4

[a] Excludes medical programs.
[b] Reflects student enrollment for enlisted commissioning programs; student loads for these programs are included in professional training.
[c] Officer Candidate School data are student loads and are included in specialized training.

Note: Totals are not provided due to mixture of enrollment and load data which are dissimilar.

VII

PROFESSIONAL TRAINING

Description

Professional training includes military education, graduate education, degree completion education, professional development courses not leading to a degree and medical training. Professional training is accomplished at both military and civilian institutions.

The purpose of professional training is to provide training and education for career advancement. Whereas specialized training is concerned with specific skill areas, professional training is concerned with broad educational goals in areas such as engineering, business and management, medicine, and military science.

There are professional training programs for both enlisted personnel and for officers; however, enlisted professional training programs are small in comparison to officer programs. Enlisted professional training programs include the NCO Academies (run by each Service under different designations) and various degree completion programs (the Army is an exception: Professional training of NCOs (except civil schooling) is programmed in enlisted specialized training). The NCO Academies train selected senior-grade enlisted personnel in advanced management and staff areas. Enlisted degree completion programs are of two types: commissioning programs and non-commissioning programs. Commissioning programs educate selected enlisted personnel in order that they may become officers, while non-commissioning programs provide the opportunity for other selected enlisted personnel to obtain associate (2-year) or college degrees for their further educational development.

Training Loads

The FY 74 professional training loads are categorized by component below:

FY 74 Professional Training Loads[a/]

	Army	Navy	Marine Corps	Air Force	DOD
Active Duty	10,078	10,368	2,297	7,770	30,513
Reserve	505	6	19	59	589
National Guard	98	0	0	86	184
Total	10,681	10,374	2,316	7,915	31,286

a/ Loads include each Service's personnel undergoing professional training regardless of location.

The following table shows training load figures for fiscal years 1972 through 1976:

Total Professional Training Loads a/

	FY 72	FY 73	FY 74	FY 75	FY 76
Army	11,529	11,081	10,681	10,681	10,681
Navy	6,626	8,075	10,374	10,156	10,156
Marine Corps	1,958	2,112	2,316	2,364	2,380
Air Force	6,903	7,063	7,915	8,102	8,101
DOD	27,016	28,331	31,286	31,303	31,318

a/ Loads include each Service's personnel undergoing professional training regardless of location.

Each type of professional training program is discussed in detail below. The following table lists the relative sizes of the training loads in each professional training program:

FY 74 Professional Training Loads a/

	Army	Navy	Marine Corps	Air Force
Military Education				
Senior & Intermediate Schools	1,195	426	185	999
Other Military Education	1,616	0	1,040	1,086
Graduate Education	1,473	1,532	236	1,962
Enlisted Commissioning Programs	0	1,201	160	1,161
Degree and Associate Degree Completion	1,709	3,413	580	0
Professional Development Courses Not Leading to a Degree	58	200	115	774
Medical Professionals	4,630	3,602	0	1,933
	10,681	10,374	2,316	7,915

a/ Service loads include each Service's personnel undergoing professional training regardless of location.

Military Education

The Services recognize that professional development is a continuous process and that there is a need for continuing education throughout the career of an officer. Education designed to provide officers knowledge in military matters is termed professional military education.

Military education includes senior professional schools or schools which provide broad military education to those personnel of high military rank (normally, Commanders and Captains or Lt. Colonels and Colonels) and intermediate professional schools or schools which provide broad military education to those personnel of middle military rank (normally, Lt. Commanders and Commanders or Majors and Lt. Colonels). Senior professional schools prepare selected senior officers for high-level command and staff duty by developing a sound understanding of military strategy in support of national objectives. Intermediate professional schools prepare selected middle-level officers for field grade command and duty assignments. Each type of school provides officers with the formal military education required of a military leader.

The table on the following page presents the training load figures for specific military institutions under both types of military professional schools.

Graduate Education

The graduate education program benefits both the Services and the individual participating officers. Officers in the program not only help themselves by becoming better educated, but additionally provide increased capability to their organizations.

Graduate education includes all advanced degree programs in the Military Services. Most of these programs are conducted at civilian institutions; however, two military institutions also award advanced degrees: The Navy Postgraduate School and the Air Force Institute of Technology which are discussed below.

The table on page 38 shows the five schools scheduled to receive the greatest number of new enrollees in FY 74 for each Service. The new enrollees at the Navy Postgraduate School and the Air Force Institute of Technology are also shown.

Each military person who undergoes graduate education at the expense (in time or money) of one of the Services incurs an obligation to remain in the military for at least two years for each year he spends out of his parent Service. This ensures that the individual who receives graduate education does not end his service career before the military derives some benefit from his education.

Loads for Professional Military Education (FY 74)

	Sponsor	Army	Navy	Marine Corps	Air Force	Total
Senior Professional Schools						
National War College, Washington, D. C.	Army	30	27	6	35	98
Army War College, Carlisle, Penna.	Army	156	10	5	16	187
Naval War College, Newport, Rhode Island	Navy	17	100	25	16	158
Air War College, Montgomery, Alabama	Air Force	12	10	5	233	260
Industrial College of the Armed Forces, Wash., D. C.	Army	41	39	7	49	136
Allied Schools (Foreign)		4	11	13	10	38
		260	197	61	359	877
Intermediate Professional Schools						
Armed Forces Staff College, Norfolk, Virginia	Navy	125	62	14	80	281
Army Command & General Staff College, Leavenworth, Kansas	Army	739	4	8	14	765
Navy Command & Staff College, Newport, Rhode Island	Navy	37	150	16	14	217
Marine Corps Command & Staff College, Quantico, Virginia	Marine Corps	8	6	77	2	93
Air Force Command & Staff College, Montgomery, Alabama	Air Force	11	7	6	519	543
Allied Schools (Foreign)		15	-	3	11	29
		935	229	124	640	1,928
		1,195	426	185	999	2,805

Graduate Education Program -- FY 74 a/

ARMY	
University of Tampa	123
University of Nebraska	104
University of Alabama	55
Georgia Tech.	49
Tulane University	41

NAVY	
George Washington University	45
Massachusetts Institute of Technology	25
Georgia Tech.	15
University of Michigan	15
Michigan State	10

MARINE CORPS	
George Washington University	7
University of Virginia	6
U.S. International University	6
California State College	4
University of West Florida	4

AIR FORCE	
Texas A&M	33
Arizona State University	32
Florida State University	29
Ohio State University	28
Southern California University	26

	Navy Postgraduate School Monterey, California	Air Force Institute of Technology; Dayton, Ohio
Army	36	4
Navy	776	3
Marine Corps	62	0
Air Force	0	395

a/ The table indicates the number of new enrollees in each school, not the total Service attendance.

Tot
Army 412
Navy 889
Marine [illegible]
AF 543
2,[illegible]

Requirement for Graduate Education

Graduate education for officers is considered a significant contribution to the overall effectiveness of each of the four Services. The size of the graduate education program is based on the following considerations:

1. The need to fill specific billets.

2. The need for a well educated pool of manpower from which the military can find its enlightened leaders and policy makers of the future.

3. The need to sustain the morale and hence the job satisfaction and retention of better officers.

4. The need to build each Service and its image as an organization with a satisfactory career progression.

5. The need for military officers to keep abreast of developments in the civilian sector, and, likewise, the need for civilians to interact and learn from the military officers who represent them.

The first consideration, the need to fill specific billets, is extremely important. There are certain jobs in the military that require an individual with a graduate degree. These "specified requirement" billets require an incumbent with specific expertise. Only officers who are receiving graduate education to fill a "specified requirement" billet are fully funded. Other officers in the graduate education program must pay for their education.

Billets which require specific graduate degrees are validated at the time they are authorized and are repeatedly evaluated thereafter. Validation is conducted against established criteria for each subspecialty area. An example of such a billet is a faculty position at one of the three Service Academies. Another example of a billet requiring a graduate degree would be the Chief Scientist for each Service.

The number of students trained to fill "specified requirement" billets depends on the total number of billets to be filled and on the losses from the existing inventory of graduate educated personnel. Since graduate education is almost always a year or more in length, losses must be projected well into the future to ensure that replacements will be ready to man vacancies when they occur.

The remaining four considerations upon which the graduate education program is based are less quantifiable than the first; however, they are considered important ancillary benefits of the program. Officers attending

graduate schools are given a broader perspective on which to base decisions they must make. They are also able to comprehend the implications of seniors' decisions. In many cases, they are provided intensive views of pertinent historical matters and an understanding of national policies. Others are schooled in obtaining adequate analytic background for decision making, and in the bases for tactical versus strategic tradeoffs, both operational and economic. Such professional development is basic to effective utilization of senior officers and is an essential contribution to the development of the well rounded military officer.

Officers attending graduate schools are also doing so because they desire personal fulfillment through higher education. One of the goals of the graduate education program is to make the military a place where quality officers can find such fulfillment and by doing so remain in the service and better contribute to its objectives. In the volunteer service environment the military must provide for the aspirations and expectations of the officer corps who see industry and government organizations providing advanced educational opportunities for their employees, and who essentially demand equal consideration. To improve retention of our better officers and to stimulate procurement of high quality officers, an adequate graduate education program is required. We need to maintain the military as an enlightened profession perceived as an acceptable career for people possessing high qualities and aspirations.

Finally, the stimulation of participating in a degree program in civilian universities is beneficial to society as a whole, as well as to the individual and his Service. The exchange of ideas and philosophies is necessary in a democratic society. The informal associations established in the classroom create understanding and channels of communication which endure as the officer and the civilian executive progress to positions of higher responsibility and authority. Such channels are required if we are to avoid an insulated officer corps, divorced from civilian society, and with only the most parochial point of view.

The table below shows the number of FY 74 graduate education billets by Service.

Graduate Education Billets (FY 74)

	Army	Navy	Marine Corps	Air Force	DOD
Science-Engineering	2,597	3,155	260	4,664	10,676
Business-Management	2,094	1,880	200	5,683	9,857
Humanities-Social Sciences	2,225	625	55	1,407	4,312
Total	6,916	5,660	515	11,754	24,845

Selection of Graduate Education Schools

Selection of specific institutions for the fully funded graduate degree program is based upon the quality of instruction, the curriculum content offered by the institution, and the institutions' willingness to accommodate Service students. Each graduate student is placed in a civilian institution offering a high quality program which will be challenging, compatible with his academic background, and in which he will have a reasonable probability of success.

Graduate courses are established at the Air Force Institute of Technology (AFIT) and at the Naval Postgraduate School to meet specific skill requirements which cannot be met at civilian institutions. For example, in the Air Force, some courses require discussion of classified information by military personnel who have had recent experience in the field. Other courses interface with laboratories located on Wright-Patterson AFB, Ohio, where the AFIT schools are located. Another consideration is whether the particular course is available "off-the-shelf" at civilian institutions. If the course must be tailored to meet Air Force needs, consideration is given to the additional cost of adding it at one of the military schools versus contracting for it at a civilian institution.

The Naval Postgraduate School also has degree granting authority. It provides refresher training primarily in mathematics and physics to accommodate the period of absence from the academic environment and to provide a transitional period from the operational to academic routine. It offers prerequisite courses not included in the undergraduate program before a specific officer undertakes his graduate level specialty. Courses conducted at the Naval Postgraduate School are designed specifically to accommodate the Navy's needs. Subspecialty sponsors have a direct input into curriculum design. Graduates of these curricula are assigned into billets within the subspecialty sponsors' organization. Thesis research is generally directed into areas of Navy interests. Theory applications are generally demonstrated in Navy type equipment and system. As in the Air Force, the physical security available allows students to study and use classified material far more readily than could be provided in a civilian institution. The mission of the Naval Postgraduate School allows greater latitude in tailoring student courses and student course loads to accommodate the requirements of the officer student.

Degree Completion Education

The degree completion education program provides selected military personnel with the opportunity to earn a college or associate degree. The program benefits the Services in at least three important ways: (1) it provides career retention and recruiting incentives to outstanding personnel, (2) it increases the professional proficiency of these individuals, and (3) it improves the general educational level of Service personnel.

The degree completion program is for both officers and enlisted personnel. As explained earlier, enlisted personnel may be in one or two categories: either involved in getting a college degree as part of a Service commissioning program, or involved in getting a college degree for individual educational advancement. However, officers are also involved in degree completion education. Officer input to this program consists primarily of officers commissioned through Officer Candidate Schools during the Vietnam buildup who do not have a college degree and are considered to have outstanding career potential. The degree completion programs take place primarily at civilian institutions. However, the Naval Postgraduate School also enrolls a few individuals working toward receiving undergraduate degrees.

Professional Education Courses Not Leading to a Degree

Short course training provides the Military Services with the capability to train to meet skill requirements within a minimum period of time. This training provides personnel with skills in a wide variety of scientific, administrative, and social science fields. Only limited use of civilian institutions has been made to date. For example, there is a short course conducted at the University of Rochester in the business management field.

Such short course training programs are selected to meet the educational needs of the Services. Personnel selected require job-oriented skills and training in management concepts and techniques. All short course training loads are based on requirements determined by each Service.

Professional Medical Training

Medical training is a special area of professional training sponsored by all Military Services with the exception of the Marine Corps, which obtains its medical personnel from the Navy. Basic professional degree granting training is sponsored for the procurement and development of physicians, dentists, nurses, health care administrators, medical allied scientists, optometrists, and other allied health professionals. The service obligations exacted for specific training programs are subject to the provisions of enabling legislation and Department of Defense implementing policy directives which reconcile supply and demand factors for various disciplines.

Also, there are medical professional development courses not leading to a degree. The medical course program is comprised of medical skill training for both officers and enlisted personnel at Service schools. The goal of such programs is to insure that sufficient specialists are available to man the military medical facilities. The following table presents the training load figures for professional medical training.

Professional Medical Training Loads[a]

	FY 72	FY 73	FY 74	FY 75	FY 76
Medical Degree Programs[b]					
Army[c]	1,596	1,554	1,437	1,437	1,437
Navy	1,172	2,073	2,901	2,931	2,931
Air Force[c]	592	548	979	1,179	1,179
Medical Courses Programs					
Army[c]	3,357	3,249	3,193	3,193	3,193
Navy	528	533	701	554	554
Air Force[c]	900	838	954	954	954

a/ Loads include each Service's personnel undergoing professional medical training regardless of location.

b/ Includes courses concurrent with hospital duties.

c/ Does not include enrollment in the Health Professions Scholarship Program established in FY 73 by Public Law 92-426.

VIII

FLIGHT TRAINING

Description

Flight training programs provide basic undergraduate flying skills for pilots, navigators and naval flight officers. These programs, varying in length from 26 to 67 weeks culminate in an officer "graduating" from flight training and receiving his/her[1] wings, and being categorized as a "rated" officer. Flight training includes programs for pilots of all Services (jet, prop, and helicopter), navigators in the Air Force, naval flight officers[2] in the Navy and Marine Corps. Also included is some aviation related training for the Army and navigator/bombardier, electronic warfare and survival training programs for the Air Force. All flight officers are commissioned officers except in the Army, where many helicopter pilots are warrant officers.

Flight Training Loads

The flight training loads by component for FY 74, by Service, are shown below:

FY 74 Flight Training Loads

	Army	Navy	Marine Corps	Air Force	DOD
Active Duty	920	2,030	695	3,603	7,248
Guard	160	0	0	322	482
Reserve	88	0	0	204	292
Other Active Duty[a]	852	0	351	1,334	2,537
Total	2,020	2,030	1,046	5,463	10,559

a/ Flight related programs such as Army enlisted aviation and air traffic control; Air Force specialized and survival training; and Marine Corps advanced training, conducted prior to an individual reporting to his unit.

1/ The Navy has selected the first female military pilot students for training in FY 74.

2/ Hereafter, all navigators and/or naval flight officers will be referred to as navigators.

The training loads for the Services' total flight training programs are shown below:

Total Flight Training Loads

	1972	1973	1974	1975	1976
Army	2,643	2,003	2,020	2,020	2,020
Navy	2,267	1,803	2,030	2,229	2,388
Marine Corps	999	913	1,046	1,052	947
Air Force	6,309	6,185	5,463	4,720	4,718
DOD	12,218	10,904	10,559	10,021	10,073

Flight Officer (Rated) Requirements

Rated Requirements can be divided into two major components -- Core and Supplement.

Core Requirements

The core represents the peacetime requirements for rated officers to do the everyday operation, training, and management of the Services' flying activities. Every core requirement (space or billet) requires a rated officer as an incumbent in order to accomplish the functions of the job. Positions that the Services may fill with a rated incumbent for other reasons, i.e., for career broadening or to increase effective crew ratios are not core requirements. These types of positions may be filled by supplement officers in peacetime, and vacated or filled by non-rated officers in wartime as individual officers are required for a war effort. The core has three sub-categories -- forces, training, and supervision.

Forces

Force officers are those required to man the Services' force aircraft on a crew ratio or similar basis. Crew ratios for wartime are developed by aircraft type, and maximum flying hours and work hours per crew. Given the wartime crew ratios and planned work weeks, peacetime crew ratios are developed against peacetime work weeks and training requirements. The peacetime crew ratios (consistent with budgeted manning levels) determine the force requirements. The difference between peacetime and wartime manning then becomes the surge requirement, a part of the supplement which is discussed below.

Training

Training requirements include the instructor pilots/navigators actually doing the flying training as well as the students receiving advanced flying training. (Since undergraduate training students are not rated until obtaining their wings, they are not included.)

Supervision

The final component of the core is supervision. This includes those officers actually supervising flying and flying-related activities or those performing a limited number of staff jobs that require the expertise of a trained rated officer. In the first case, it would be expected that incumbents would be required to fly regularly in performance of job duties, while the latter group brings certain specialized knowledge to the job. As stated above, the prime criterion for including a job as a rated requirement is that the job duties must require a rated officer to accomplish the job.

Supplement Requirements

During war, training pipelines to and from the theaters of war, combat attrition, and crew augmentation create demands for pilots and navigators that are additional to the core force demand. It takes from one to two years to produce combat capable officers. Helicopter pilots and navigators can be trained in about one year, while pilots of high performance jet fighters require training times of up to two years. There should be enough rated officers in peacetime to be able to fight the most demanding scenario, with prudent risk, until the undergraduate and advanced pilot training programs can be increased to higher production levels. This requires more rated officers than are approved in the core force. The difference between the number of officers required to fight the planning scenario and the number approved in the core equals the supplement. The supplement, therefore, represents the number of extra pilots and navigators carried in peacetime in order to be ready to fight the wars for which we plan logistics and force levels.

In order to assure there are sufficient supplement officers available, the various planning scenarios are examined. In a sustained war, trained officers must be available to provide replacements for combat attrition and rotation policies until new accessions can be trained through expanded undergraduate and advanced training programs. In peacetime planning, the possibility of a sustained war becomes the determining factor for sizing the wartime supplement. (For a more complete discussion of threats and planning scenarios, refer to the Military Manpower Requirements Report for fiscal year 1974.) During peacetime, the officers in this supplement serve in jobs requiring officers of their rank and experience. For example, an average rated officer can expect to spend 4-6 years of his first 20 years in professional advancement outside the flying career field.

The sum of the peacetime core requirements and the wartime supplement determine the Services' requirement for pilots, against which inventories are compared and training rates adjusted. Service requirements for rated officers, by type, are shown in the following table

	1973	1974	1975	1976
Army				
Pilots	17,976	17,608	17,608	17,608
Navy				
Pilots	13,011	12,490	12,595	12,658
Naval Flight Officers	4,020	4,003	3,910	3,875
Marine Corps				
Pilots	4,566	4,615	4,642	4,650
Naval Flight Officers	790	779	787	797
Air Force				
Pilots	31,604	28,973	28,240	27,968
Navigators	14,590	13,926	13,472	13,141
DOD				
Pilots	67,157	63,686	63,085	62,884
Navigators	19,400	18,708	18,169	17,813

Flight Officer (Rated) Inventory Projections

Projecting rated officer inventories into the future must be based on historical experience, current judgment, and some estimates of how the officers will react to their conditions in the future (i.e., pay, morale, civilian economy, civilian airline hiring plans, family satisfaction with the military services, etc.). These estimates, based on the foregoing, are projected for at least five years in the future. Comparisons are then made against the computed requirements as mentioned above, and training rates for the entire five-year period are adjusted. This process is repeated each year so that small changes can be made in training rates based on annual changes in requirements and/or better inventory projections. Because of these uncertainties and the long lead times required to train rated officers, flight training rates represent a constant fine-tuning process aimed at providing the correct number of training rated officers at a point in the future at the least cost and without large and expensive training fluctuations.

Training Rate Adjustments

When a comparison of requirements and inventories results in a shortage or overage of projected rated officers, the training rates are adjusted upward or downward in order to bring the program back into balance. For example, if FY 79 pilot requirements exceed projected inventories by 1,000, an increase in training rates (or output, or production) of pilots of 200 per year starting in FY 75 may be appropriate. Inputs into the training program would start in FY 74 to anticipate the lead time, in order to obtain the first increase in desired output in FY 75. This process would be repeated annually, with annual adjustments made as necessary.

Calculation of Training Loads

Flight training loads represent the average number of students in training at a given time throughout the year. These loads are computed as explained in Chapter II. Attrition estimates vary by the source of the student and for the course and/or training phase being conducted. For example, the Air Force estimates different attrition rates for undergraduate flight students entering the Air Force from the Air Force Academy, ROTC, Officer Training School, Airmen Commissioning Programs, etc. Trends in attrition rates are computed annually to reflect most recent experiences. Although these attrition estimates remain relatively stable over time, they remain estimates. Some pilot training classes may react differently than predicted, resulting in more or fewer graduates than expected. In the cases where output exceeds the estimates, arbitrary "failures" are not instituted to avoid producing more pilots or navigators. To do this would be extremely costly and unjustified. Rather, future inputs are adjusted up or down to compensate for the recent "narrow" misses due to individual differences.

Development of Course Length and Content

The development of a flying training course length and content is accomplished by initially establishing a training standard. This document prescribes the skills, knowledges and level of proficiency required of graduates of any formal flying training course so that they may perform successfully in operational assignments. It establishes the:

1. Overall objectives and the extent of training to be given in a particular course and is the prime qualitative course control document.

2. Basis for developing more detailed course control documents (syllabi, training literature, instructor guides, etc.), and training evaluation instruments (examinations, proficiency checks, evaluation questionnaires, etc.).

IX

TRENDS FOR THE FUTURE

The Military Services are continually striving to improve techniques, provide innovative procedures, develop new technologies and revise their management systems with the view toward reducing costs and increasing the efficiency and effectiveness of training its members.

The Office of the Secretary of Defense monitors and stimulates the various technology advances and innovations initiated by the Services to insure that all the Services benefit from each others experience and improvements in training efficiency and effectiveness, coupled with reductions in costs wherever possible.

Army

The Army's training and doctrinal development activities are being reorganized under one single command--The Training and Doctrine Command (TRADOC). This reorganization will provide for more intensive management of individual training, and will result in the dissemination of workable training ideas throughout the active Army force, as well as Reserve Component units, so as to maintain and upgrade skills of soldiers within units.

In addition to assuming command of individual training and Army schools, TRADOC will absorb the combat development functions formerly belonging to the Combat Development Command (CDC) and the Continental Army Command (CONARC). Some of the 19 previously separate branch-oriented CDC agencies, which are presently collocated with the associated branch schools, will be merged with the schools. Both combat development and training will benefit from the wealth of experience found in the schools' faculties and student bodies. The new organization is charged with distilling this experience into new doctrine, organizational and materiel requirements.

TRADOC also will manage ROTC programs through a structure of four newly established ROTC regional activities at Fort Bragg, N.C.; Fort Riley, Kansas; Fort Knox, Kentucky; and at Fort Lewis, Washington. The reorganization of ROTC management by the Army enhances its capability to supervise and assist the Professors of Military Science on the nation's campuses by reducing the various spans of control, improving responsiveness, and providing continuity between on-campus and off-campus (ROTC summer camp) training activities.

To further join combat developments to training, other existing CDC agencies and activities will be consolidated into three functional combat development centers collocated with key Army educational institutions. They are: the Combined Arms Center at Fort Leavenworth, Kansas; the Administration Center at Fort Benjamin Harrison, Indiana; and the Logistics Center at Fort Lee, Virginia.

A promising technique being implemented by the Army in its training planning process is "task analysis." Task Analysis is a technique of identifying, collating, and analyzing job data. Decisions flowing from the task analysis process affect the operational areas of personnel procurement, classification, training, assignment, promotion and testing, performance evaluation, compensation, and retention. Presently the Army's task analysis efforts are being supported by the Military Occupational Data Bank (MODB). The system is based on large scale surveys, explicit to an occupational field, and detailed analysis of the resultant information. Information from MODB is used in support of the systems engineering of training which provides an orderly process of gathering and analyzing job performance requirements, preparing and conducting training, and evaluating and improving the effectiveness of training. The Army has recently concluded that the Computerized Occupational Data Analysis Program (CODAP) system, developed by the Air Force, would provide significant improvement in the Army's task analysis effort. Use of CODAP by the Army requires modification and expansion of the Army's data base now supporting MODB. This realignment effort, currently underway, is expected to be completed by mid-FY 74.

Navy

The Navy is likewise consolidating its training management at the Navy Training Command at Pensacola, Florida. At the same time, the Navy is developing a systems approach to naval training. The development effort will be spread over five years. Key elements of the new training system include the following:

1. Task and training analysis for writing specific learning objectives which will meet training requirements for jobs, based on an analysis of the actual jobs to be performed. The Navy currently has under advanced development a Navy Occupational Data Bank which is a management information system utilizing a computer for the processing, storing, and retrieving of occupational information. This data bank, together with occupational data to be gathered by the task and training analysis mentioned above, will permit detailed analyses leading to training system improvements. To date, the Occupational Data Bank already contains data for a majority of the 18 aviation ratings (Navy skill groups), and a modified version contains data for 45 other ratings. Also in development is a comprehensive job analysis system. One phase of this development is concerned with the design of a billet evaluation system.

2. Navy course content will be redesigned and re-ordered to meet job requirements as a result of the above task and training analysis. The possibility of developing self-study packages for use on-board duty stations will be taken into consideration. This action should serve to reduce training loads or permit training more personnel without increasing current man-years.

3. Individualizing a course of instruction permits a student to progress through the training at his best learning pace. Experience for courses individualized to date, indicates an average completion time for a student is approximately 1/3 less than for the conventional "lock-step" course. It is anticipated that further savings can be made by providing common training in ratings that have a need for the same subject matter.

4. The Navy is using computer aided instruction at present, and it is anticipated that use of this technology will be expanded as rapidly as funds permit. On the basis of current trials, computer aided instruction appears to offer possibilities for reducing training time and shows promise for allowing greater use of on-the-job training.

5. The gradual application of computer based task inventories to curriculum design, and the expanded use of audio-visual/multi-media instructional packages will also serve to reduce Navy requirements in the health care sciences.

6. The Navy is developing three, one semester college courses to serve as models for a multi-media education process. Development of these courses will result in a systematic approach to instructional design using the latest educational techniques and technology.

Marine Corps

The Marine Corps is exploring a number of different instructional approaches for possible implementation. Several of the methods appear to have significant advantages over the conventional lecture-demonstration-practice pattern of instruction for students possessing an extreme heterogeneity in aptitude and educational background. Among the most promising approaches that may meet Marine Corps requirements are performance-oriented instruction, peer-instruction and self-paced instruction.

Numerous innovative training support systems have been evaluated. Results to date indicate that these systems provide improved learning, both quantitatively and qualitatively. Additionally, it is believed that these systems may eventually reduce instructor and support personnel requirements, as well as reducing the length of training required for given courses. Initial implementation costs are high both in manpower and dollars, but savings should be realized once the systems are installed and operational over a period of time.

The Communication-Electronics School of the Marine Corps evaluated computer-aided-instruction with respect to its application in the technical hands-on electronics training courses. Following the evaluation, an economic analysis was conducted based on the projected utilization of the system in four courses taught at the school. The evaluation and analysis resulted in the determination to implement the system. Current planning calls for the system to become operational during FY 74.

Extensive studies and evaluations of instructional television have been made for use throughout the training establishment. Favorable results have led to the determination that instructional television will be placed in an operational mode Corps-wide during FY 74.

Evaluation has been made on a host of audio-visual training systems and devices. Some that have shown promise in improving the quality of training, and are being used in some schools, include typing training devices to improve typing speed and accuracy; simulators to support instruction in engineer and motor transport repairman training; and simulators to assist in the teaching of basic electronic skills and digital computer fundamentals. Additionally, sound-on-slide audio-visual devices are being used within the formal school environment to aid the learning process.

The Marine Corps Task Analysis Program is an inter-disciplinary program designed to acquire factual data to define individual work action in behavioristic terms, necessary skill attributes, and job/billet requirements.

Task analysis is providing a comprehensive review, analysis and evaluation of the work performed by Marines throughout the Marine Corps. By definition, Task Analysis is the technique of identifying, collecting, collating, and analyzing job data. These data represent answers from job incumbent Marines to the following questions:

1. What does the Marine really do?
2. Why does he perform his job?
3. How does he perform his job?
4. What skill attributes and levels does he require to perform his job?

The methodology of identifying and collecting these functional facts is by personal observation and interview of Marines in their working environment, supplemented with information obtained from printed documents, schools, and data acquired from appropriate experts, and by administration of a task inventory (occupational questionnaire). These collected data are then collated and qualitatively processed through a computer. Computerized Occupational Data Analysis Programs (CODAP 360) have been designed to organize the raw data into meaningful job related categories which provide realistic structuring of the responses into jobs, duties, and tasks. Analysis is then performed on the computer output and all related pertinent information and factors with a view toward improving the functional areas of:

1. Classification
2. Assignment
3. Training
4. Grade Structure

A recapitulation of the results of the task analysis program at the end of fiscal year 1972 indicates that almost 25% of the enlisted occupational fields (9 of 37) had been completed. These efforts resulted in 124 approved recommendations.

Under study at the present time are 13 task analyses. Three special studies in the Recruiting area, the Special Education Program (SEP) officers, the Food Service/Exchange/Club officers area are a departure from the previous strictly enlisted occupational field studies. They are, however, expanding the usefulness of the Task Analysis Program. In each study, commencing with the SEP and the Recruiting studies, there have been included a series of "satisfiers/dissatisfiers" which will be available for detailed evaluation and usefulness in improving Marine Corps personnel management practices.

The fiscal year 1973 planned and current on-going endeavors indicate continued manpower utilization improvements as a direct result of the task analysis program. At the completion of these studies over 70% of the original task analysis goal of all the enlisted occupational fields will be completed.

Air Force

Training improvements currently underway or planned for the immediate future are aimed at producing significant economies in Air Force technical training. The Air Force has established Training Research Applications Branches at five training centers to evaluate instructional equipment and techniques, eliminate nonessential training, and exploit the computer as an instructional and management device. Projects currently under study in the technical training area include the following:

1. A major trend is the increasing application of the Instructional Systems Development (ISD) process, which represents a systems approach to training thus assuring a direct relationship of training to operational requirements.

2. The Advanced Instructional System (AIS) is the top priority research project in the Air Force in the field of technical training. It is being developed during 1973 by the Technical Training Division of the Air Force Human Resources Laboratory at Lowry AFB. AIS will demonstrate the application of computer-based and off-line individually tailored and administered instruction. It is anticipated that in certain specialties and courses AIS is capable of reducing training time in excess of 25%. In order to obtain this capability, however, capital investment for equipment is necessary. Long term savings are dependent upon and can only be achieved through these investments.

3. Programmed Logic for Automated Teaching Operations is the most sophisticated of all present Computer Assisted Instruction systems. The Air Training Command has recently participated in a two-year test and evaluation of the system in the General Vehicle Repairman course at Chanute AFB. Developers of the system hope to achieve a cost of approximately 35¢ per student hour of instruction.

4. The Lincoln Training System currently is being evaluated by Air Training Command in the Electronics Principles course at Keesler AFB. The system uses microfiche technology, including audio and self-contained logic, and is being evaluated for classroom, on-the-job training, skill upgrading, and cross training. The system provided substantial student time savings (25%-37%) in a recent test, and is now being used to evaluate potential benefits of peer instruction.

Research is underway to evaluate audio-visual media to improve training in general, and particularly the training of lower aptitude airmen anticipated in the all-volunteer force. Current studies include single concept films, cassette tapes, closed circuit television, and orientation films. Single concept films are being evaluated by the Air Force in remedial training. These films should enable lower aptitude students to graduate with their class while maintaining acceptable levels of job proficiency. This technique should decrease attrition rates and training costs.

Audio tape cassettes also are being evaluated as a communication medium for lower aptitude students. These students successfully complete resident training but encounter problems with self-study courses. Textbook information is being recorded on cassette tapes. Results to date indicate that students are able to successfully complete their self-study course with the use of tape cassettes.

Evaluation is underway on the feasibility of a closed-circuit television system for basic military training. Presently, students are transported to various training areas for lectures, briefings, and demonstrations. These presentations are made many times to small groups of trainees. With closed-circuit television, this information could be presented to a larger number of trainees at the same time, and recorded for replay to successive classes.

An evaluation of compressed speech tapes with tape-slide lessions also is planned by the Air Force. The normal rate of speech is slower than the rate at which students can absorb the information; thus, increasing the rate of speech electronically will decrease the length of the lessons. Studies have shown that students listening to compressed speech tapes require less time for the lesson, but at the same time comprehend a higher percentage of the material.

Other on-going studies in the technical training field which aim to increase training effectiveness in the Air Force involve improving student motivation through incentive management, reducing the reading difficulty of training materials, developing techniques to identify student academic and administrative problems, and improving the student selection procedures.

In pilot training programs, the Air Force will focus on the tools and methodologies that will enhance the training command's ability to train individuals to a certifiable level of skill at the minimum cost.

The primary tool used to refine and obtain relevant training will be the Instructional System Development process. To date, the academic portion of the Undergraduate Pilot Training program has been "systematized," and the first three steps of the process have been accomplished in the Pilot Instructor Training program. It is planned to complete the process in both training systems. Simulation, in varying levels of fidelity, will play a large part in future pilot training programs. Initially, it is planned to replace most of the current flying instrument training programs with simulator training and using aircraft only for validation of training, thus reducing costs of training. Current planning calls for implementation of these simulators on the first Undergraduate Pilot Training base in 1975, with total system implementation complete by 1978.

The Air Force is actively pursuing a program which will provide more efficient screening of pilot candidates at less cost. Ground-based screening and selection devices and techniques will be validated at the centralized screening facility at Lackland AFB for eventual replacement of the existing screening program. The Air Force goal is to reduce Undergraduate Pilot Training attrition to a level near ten percent.

Another significant trend in pilot training will be the change in role of the instructor pilot as additional validated training technologies are adopted. He will move more towards the manager of training, responsible for the individual advancement and individual need of the student pilot. A step in this direction is the implementation of learning centers at all bases conducting Undergraduate Pilot Training. In highly sophisticated individual study carrels, the student advances at the pace best suited to his individual capability. This individualization of instruction represents the first step in a major trend in the concept of pilot training.

Through the use of the Instructional Systems Development (ISD) process, significant advances in Undergraduate Navigator Training (UNT) and Navigator/Bombardier Training (NBT) have been realized. With the goal of increasing the quality of training while at the same time decreasing cost, flying time has been reduced in the UNT course and eliminated in the NBT program. Programmed applications of ISD, as well as simulators, to the Undergraduate Navigator Training System (UNTS) and the Electronic Warfare Officer Training (EWOT) course will further reduce costs, manpower, and training time. The first simulator for use in the UNTS is programmed for delivery by end of the first quarter of fiscal year 1974 with total delivery completed in the first quarter of fiscal year 1975. The first UNTS class is scheduled to enter training during the last quarter of fiscal year 1974. The Simulator for Electronic Warfare Training will be delivered by the end of fiscal year 1973 and the first class to be trained under a no-fly concept is scheduled for entry by the end of the first quarter of fiscal year 1974. Results to date, and future projections, are most encouraging.

The Air Force occupational task analysis program utilizes hierarchical clustering computer programs (CODAP/IBM 7040) to provide data relating to tasks comprising an airman occupational field, the percentage of airmen performing each of these tasks, the percentage of time they spend on each task, the difficulty of the tasks and a variety of information about job incumbents. This task analysis is useful for:

1. Classifying jobs according to similarity of requisite skills and knowledge.

2. Assigning personnel to jobs for which they are best qualified.

3. Establishing minimum aptitude requirements.

4. Directing training programs relating to specific airman job assignments.

5. Comparing relative effectiveness of OJT and formal training.

6. Identifying job elements influencing job satisfaction.

7. Supporting the Instructional System Development Program.

In the Air Force, 204 occupational fields require occupational analysis. The Air Force program is based on a flexible program that permits analysis of each field at least each four years. Analysis of 51 ladders is completed annually. In addition, during the next fiscal year procedures for analysis of officer utilization fields will be ready for operational implementation. Data from analysis of the officer utilization fields will also be very useful for classification, assignment, and training, and should result in significant reduction in training time and costs.

Cross Service Utilization of Courses

A joint Curricula Review Committee meets periodically to consider the feasibility of inter-service training in various areas of interest. Currently, there are approximately 800 inter-service courses with an annual input of more than 68,000 students, and it is anticipated that this program will increase. Continued officer exchange programs between the Services provide productive interchange of information on training methodology. Also planned are joint programs in such areas as training publications and training aids.