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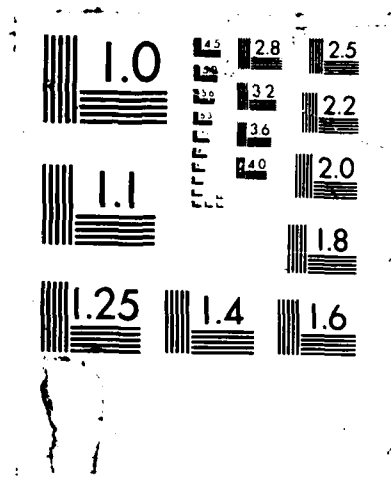
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TRAINING
REPORT
FOR FY 1978**

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**DEPARTMENT OF DEFENSE
MARCH 1977**

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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. <i>Keywords:</i> <i>For fiscal year 1978.</i>					
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MILITARY
MANPOWER
TRAINING
REPORT
FOR FY 1978

And
Report on
Efficiency and Effectiveness
of Military Training

DEPARTMENT OF DEFENSE
March 1977



Prepared by

Office of the Assistant Secretary of Defense
(Manpower and Reserve Affairs)

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EXECUTIVE SUMMARY

The Military Manpower Training Report of the Secretary of Defense is submitted to the Congress in accordance with 10 U.S.C. 138(d)(2), which states:

The Secretary of Defense shall submit to 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 that 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 1978 through 1980. The report specifically supports the Department of Defense request for authorization of average military student training loads for each component, active and reserve, of each Service for Fiscal Year 1978 and Fiscal Year 1979. Requested training loads for these two periods are shown in the following table.

Requested Training Loads, FY 1978 and FY 1979

	<u>FY 1978</u>	<u>FY 1979</u>
<u>Active Components</u>		
Army	77,711	78,450
Navy	60,767	61,287
Marine Corps	24,020	24,701
Air Force	50,356	51,981
<u>Reserve Components</u>		
Army National Guard	16,606	16,109
Army Reserve	11,136	11,553
Naval Reserve	1,065	1,049
Marine Corps Reserve	3,449	3,221
Air National Guard	2,598	2,601
Air Force Reserve	1,186	1,188

Total requested training loads are as follows:

Total Request Training Loads, FY 1978 and FY 1979

	<u>FY 1978</u>	<u>FY 1979</u>
Active Components	212,854	216,419
Reserve Components	<u>36,040</u>	<u>35,721</u>
DoD Total	248,894	252,140

The requested loads are consistent with the President's Budget for FY 1978, as amended, and the Department of Defense request for authorization of military manpower strengths, active and reserve.

Definitions and Explanation of Training Loads

This report discusses the training and education of individuals within the Department of Defense, as opposed to the training of operational mission units or crews. Individual training and education, for purposes of this report, are divided into six categories:

- Recruit Training, given to all enlisted entrants to the Services who have not had previous military service.
- One-Station Unit Training, an Army program which combines Recruit Training and training in certain skills into a single continuous course.
- Officer Acquisition Training, which leads to a commission in one of the Services.
- Specialized Skill Training, needed to prepare military personnel for specific jobs in the Military Services.
- Flight Training, primarily for prospective pilots and navigators before they receive an initial operational assignment.

Professional Development Education, relating to the advanced professional duties of military personnel or in advanced academic disciplines to meet Service requirements.

"Training loads" are the average number of students and trainees participating in formal individual training and education courses during the fiscal year. For a full fiscal year, training loads are the equivalent of student/trainee manyears for these participants, including both those in temporary duty and permanent change of station status.

The requirement for training in a base-line force is derived from the need to replace losses in each skill required in the military force structure. Losses, through separations, promotions and other causes, are projected at various points in the future and compared to the projected inventory of trained personnel. The deficit between the requirement in each skill and the inventory becomes a demand for an output of trained personnel. A phased input of students to the training establishment is then scheduled so that trained personnel, in each skill and skill level, are available at the proper time to replace the losses in those skills. The resulting workload placed on the training establishment is the basis of the training loads addressed in this report.

The training load for each component is the measure of the amount of training required for the members of that component, although some of the training will be done by other Services, in DoD schools, or in some cases by institutions outside the Department of Defense. The training of members of the Reserve Components included in the report is the formal school training provided by the active training establishment to individual members of the Reserve Components while they are on active duty for training; this is primarily training provided to non-prior service personnel entering the Reserve Components.

An Overview of Training Loads

During FY 1978 and FY 1979, total requested DoD training loads will range between approximately 249,000 and 252,000. About 86 percent of these annual loads is composed of training for members of the active forces; the remaining 14 percent

of these loads is training for members of the Reserve Components, while on active duty, conducted by the active training establishment.

The following table displays the percentage of total active force loads and the percentage of total Reserve Component loads attributable to each of the major categories of training in FY 1978.

Percent Distribution of Training Loads, FY 1978

<u>Training Category</u>	<u>Active Forces</u>	<u>Reserve Components</u>
Recruit Training	27%	37%
One-Station Unit Training	3%	9%
Officer Acquisition Training	7%	2%
Specialized Skill Training	55%	51%
Flight Training	2%	1%
Professional Development Education	5%	1%
Total	100%	100%

Note: May not add due to rounding.

It will be noted that the preponderant categories of training, in terms of training loads, are Recruit Training and Specialized Skill Training, both of which, along with One-Station Unit Training, are strongly influenced by the number of enlisted non-prior service accessions to the force. Other types of training -- all of Officer Acquisition Training, for example -- are also driven by the number of new accessions to the force. The following table divides the requested training loads for FY 1978 into two parts: training which is primarily accession-related, and is conducted for the purpose of turning a civilian into a qualified service member with a usable military skill; and other training, which, for the most part, is conducted for the purpose of preparing members in later stages of their military careers for more demanding duties.

Accession-Related Training and Other Training Loads, FY 1978
(Thousands)

	<u>Active Forces</u>	<u>Reserve Components</u>	<u>Total Active & Reserve</u>
<u>Accession-Related Loads</u>			
Recruit	56.6	13.4	69.9
One-Station Unit Training	7.4	3.2	10.6
Officer Acquisition	15.6	0.6	16.2
Initial Skill (Officer & Enlisted) <u>a/</u>	79.5	15.0	94.5
Undergraduate Flight <u>b/</u>	3.9	0.2	4.1
Subtotal	163.0	32.4	195.4
<u>Other Loads</u>			
Other Specialized Skill	38.0	3.2	41.2
Other Flight	0.5	0.1	0.6
Professional Development	11.4	0.4	11.8
Subtotal	49.9	3.7	53.5
Total Loads	212.9	36.0	248.9
<u>Accession-Related Loads as Percent of Total Loads</u>	77%	90%	78*

Note: Numbers may not add due to rounding.

a/ In some cases, includes some training for prior-service personnel or personnel who receive the training at a later stage.

b/ Includes Flight Familiarization Training.

As the table shows, training primarily related to new accessions amounts to about 77 percent of all training programmed for the active forces in FY 1978; only about 23 percent is for subsequent training. The comparable proportions for the Reserve Components are about 90 and 10 percent. The concentration on accession-related training demonstrates the priority the Services place on training intended to produce new Service members who are motivated, amenable to discipline, and capable of productive service as members of military organizations.

Taking a longer view, the following table compares actual training loads in FY 1973 and 1975 with those programmed for FY 1978.

Active and Reserve Training Load Trends by Service,
FY 1973-78
(Thousands)

	<u>FY 1973</u>	<u>FY 1975</u>	<u>FY 1978</u>	<u>Percent Change</u> <u>FY 1973-78</u>
Active Forces				
Army	109	86	78	-28
Navy	77	66	61	-21
Marine Corps	30	26	24	-20
Air Force	59	49	50	-14
Total Active	<u>274</u>	<u>228</u>	<u>213</u>	-22
Reserve Components	25	18	36	+44
Total DoD	<u>299</u>	<u>246</u>	<u>249</u>	-17

Note: Numbers may not add due to rounding.

As the table shows, active force training loads decrease by 22 percent from FY 1973 to 1978. Reserve Component loads increase strongly due to increased non-prior service accession requirements.

The following table compares training loads by the major categories of training. For purposes of comparability, Army One-Station Unit Training, which was not in use in FY 1973 and was used only on a test basis in FY 1975, is allocated to Recruit and Specialized Skill Training in the table.

Active and Reserve Training Load Trends by Training
Category, FY 1973-78
(Thousands)

	<u>FY 1973</u>	<u>FY 1975</u>	<u>FY 1978</u>	<u>Percent Change</u> <u>FY 1973-78</u>
Recruit	94	76	76	-19
Officer Acquisition	20	19	16	-18
Specialized Skill	157	130	140	-11
Flight	9	6	5	-45
Professional				
Development	20	15	12	-37
Total	<u>299</u>	<u>246</u>	<u>249</u>	-17

Note: Numbers may not add due to rounding.

The most notable proportional changes are the reductions in (a) Flight Training, based on refinements of estimates of mobilization requirements for aviators, and of available aviator inventories; and (b) Professional Development Education. These two categories of training, while small in terms of load, are high in cost per unit of load.

Training loads for each of the major categories of training are discussed in detail in Chapters III through VII.

Funding for Individual Training

Funding required to support the training in the training load request for FY 1978 totals approximately \$6.1 billion, of which about 39 percent is made up of pay and allowances for the students undergoing training. The remainder includes pay and allowances of military and civilian personnel in support of training, operations and maintenance costs, and training-related procurement and construction funded in FY 1978. The following table displays total training funding for each Service.

Aggregate Funding of Individual Training by Service, FY 1978 (\$ Millions)

<u>Army</u>	<u>Navy</u>	<u>Marine Corps</u>	<u>Air Force</u>	<u>DoD</u>
2,535	1,549	452	1,600	6,136

The same funding is shown below attributed to each of the major categories of training.

Aggregate Funding of Individual Training
by Training Category, FY 1978
(\$ Millions)

Recruit Training	840
Army One-Station Unit Training	158
Officer Acquisition Training	379
Specialized Skill Training	3,387
Flight Training	939
Professional Development	
Education	431
Total	<u>6,136</u>

Note: Numbers may not add due to rounding.

Manpower for Individual Training

Individual training requires manpower to conduct and support instruction, manage military schools and training centers, maintain training bases and provide support to students, military staff members and their dependents. Chapter IX of this report provides an analysis of military and civilian manpower attributable to the individual training function. Manpower in support of individual training for FY 1978, by the general functions it performs, is shown in the following table.

DoD Manpower in Support of Individual Training, FY 1978
(End Strength, Thousands)

	<u>Military</u>	<u>Civilian</u>	<u>Total</u>
Training and Direct Training Support <u>a/</u>	90.5	19.9	110.4
Base Operating Support	27.3	28.8	56.1
Major Training Headquarters	1.7	1.4	3.1
Total	<u>119.5</u>	<u>50.1</u>	<u>169.6</u>

a/ Includes instructors, instructional support, school/training center administration, student supervision, part of student support.

Manpower in each of these functional areas is being considerably decreased from the levels which prevailed in FY 1975 and 1976. The extent of this reduction is shown in the following table.

Trends in Manpower in Support of Training, FY 1975-78
(Combined Military and Civilian End Strengths, Thousands)

Trends in Manpower in Support of Training, FY 1975-78
(Combined Military and Civilian End Strengths, Thousands)

	<u>FY 1975</u>	<u>FY 1976</u>	<u>FY 1978</u>	<u>Percent Change</u>	
				<u>FY 75-78</u>	<u>FY 76-78</u>
Training and Direct Training Support	128.4	114.0	110.4	-14	- 4
Base Operating Support	74.5	63.3	56.1	-25	-11
Major Training Headquarters	3.3	3.1	3.1	- 6	-
Total	206.2	180.5	169.6	-18	- 6

Over the same period, training workloads -- that is, all students trained or supported by this manpower, including, in addition to DoD military students, foreign students and students from other U.S. departments and agencies -- have increased somewhat, as this table shows.

Trends in Training Workloads, FY 1975-78
(Thousands)

<u>FY 1975</u>	<u>FY 1976</u>	<u>FY 1978</u>	<u>Percent Changes</u>	
			<u>FY 75-78</u>	<u>FY 76-78</u>
250.6	245.6	257.9	+3	+5

These significant decreases in manpower in support of training, when combined with increased training workloads, imply a notable increase in productivity in the Service training establishments.

Other Training Improvements

Efforts continue on a number of fronts to make individual training more efficient and effective. Course lengths are being reduced where this can be done without unacceptable impact on the quality of the graduates. For example, the length of the Navy Recruit Training course has recently been reduced by one week; the Army is continuing to reduce time in training through expansion of the One-Station Unit Training program. The Services are continuing to save flying time and costs and improve training quality through the procurement and use of modern flight simulators.

The Department of Defense is again proposing, as it did last year, to consolidate all Defense undergraduate helicopter pilot training into a single program. This action will result in substantial savings while providing all

Services with helicopter pilots at least as well qualified as those now produced in current programs.

Report on Efficiency and Effectiveness in Training

At the direction of the Senate Armed Services Committee, the Department of Defense undertook a study during the past year of alternative ways to measure efficiency and effectiveness in military training. A report based on this study is appended to this report.

The study effort did not reveal any measure or combination of measures of training efficiency which could be applied to all individual training in the aggregate. Because training courses are so diverse in length, cost, resource requirements, attrition rates, etc., attempts to apply general efficiency criteria to heterogeneous groups of courses or types of training are likely to give misleading results. Efficiency criteria are therefore most useful when applied to single courses or small groups of similar courses, especially when used to identify efficiency trends over a period of time.

Of the efficiency measures considered, cost per graduate appears to be the most valuable. It has a standard measure of output in graduates who have met specified performance standards. By using cost as the input measure, all resources required to produce a graduate are considered. Cost per student manyear is also a useful measure for judging the amount of resources required to support groups of students. A further finding of the study was a heightened awareness that available course-costing data is frequently incomplete and inconsistent; the Office of the Secretary of Defense will work together with the Services to develop a standard costing methodology which will allow the effective use of these efficiency indicators as management tools.

Means of measuring effectiveness are considerably more difficult to state in quantified terms and must rely, to a considerable extent, on subjective judgments. It appears that the best available way to assure that training is effective is through training management systems which provide for courses which match job requirements, set performance-oriented standards for graduation, and provide for feedback from the supervisors of the graduates.

The Necessity for Good Training

The objective of individual training is to provide the operational forces with personnel adequately trained to assume jobs in military units. Without effective training and education programs, the operational forces would be manned with personnel who are less than fully qualified for their jobs. Since the nation cannot predict when or where war may break out or count on an extended period for mobilization, we must have effective individual training to assure that our operational units are capable of carrying out national security missions in peace or war.

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Military Manpower Training Report for FY 1978

I

INTRODUCTION

Training Requirements and Manpower Requirements

Requirements for training and education of military personnel are derived ultimately from basic national security objectives. This Report, the Report of the Secretary of Defense to the Congress on the FY 1978 Budget, and the Defense Manpower Requirements Report, describe the progression from national security objectives to training load requirements. The Report of the Secretary of Defense explains the relationship between the threat and the forces designed to cope with the threat. The Manpower Requirements Report relates these forces to the requirement for trained manpower to man the forces. The Military Manpower Training Report takes as a starting point the requirement for trained military manpower described in the Manpower Requirements Report. It then describes how these requirements relate to the demand placed on the military training establishment to supply this trained manpower, and how this demand leads to the DoD request for military student training load authorizations for each component of the Military Services. The Manpower Requirements Report and this Report are mutually supportive; however, the data in the two reports are not interchangeable or directly comparable. The principal reason for this difference is that the main focus of the Manpower Requirements Report is upon requested strength on the last day of fiscal years (that is, end strength), whereas the main focus of this Military Manpower Training Report is upon requested student loads, a concept more comparable to average strength, or man-years, than to end strength.

Definition of "Individual Training and Education"

This report addresses the "individual training and education" activities of the Department of Defense. These involve the training of individual military members in formal courses conducted by organizations whose predominant mission is training; this training is to be differentiated from training activities conducted by operational units incidental to their primary combat, combat support, or combat service support missions. "Force support training," the training of organized crews and units for the performance of specific missions, generally is not included in the training loads discussed in this report, but is discussed in the Manpower Requirements Report. In certain categories of training, on-the-job training (OJT) in units supplements or substitutes to some extent for all or part of formal course training requirements; OJT is also not included in the training loads discussed in this Report.

The purpose of individual training and education is to give the individual Service member the skills and knowledge that will qualify him or her to perform effectively in subsequent assignments as a member of an operational military organization. "Individual training and education" includes all formal military and technical training and professional education conducted under centralized control, generally under the supervision of a Service training command or similar organization. The trainees and students undergoing the training or education addressed in the report include the following categories of personnel:

1. Active Force: officers, enlisted personnel, and Service Academy cadets and midshipmen.
2. Reserve Components: officers and enlisted members on active duty for training in formal school courses.

Training of some civilian students, prior to their entry into the Services, in such programs as ROTC, is also discussed in the report. However, training loads are properly requested only for training and education of personnel received while they are in active military status.

In general, the training discussed in this report is conducted under Major Defense Program VIII, "Training, Medical and Other General Personnel Activities," as presented in the Defense budget. Exceptions to these general rules are pointed out, where appropriate, in the body of the report.

Personnel undergoing individual training and education are classified, for manpower accounting purposes, as either trainees, students, or cadets, unless they are undergoing training while on temporary duty or temporary additional duty from their unit of assignment, or unless they are being trained while en route to new stations as transients. The term "trainees" is generally used for all enlisted personnel in Recruit Training and Initial Skill Training. "Cadets" (or "midshipmen" in the case of the Naval Academy) are members being educated at one of the Service Academies. All others receiving individual training and education are identified as "students". The distinction is not important for the purposes of this report, and the term "student" will be used where appropriate to describe members of all three classifications as well as temporary duty and transient personnel being trained.

The term "training" generally refers to instruction in military subjects either at a basic level, as in Recruit Training, or in a military or job-related technical specialty, such as pilot training or training in radar repair. "Education" generally refers to study either in more advanced subjects or in military subjects which apply to an entire Service or to the broad mission of national security, as, for example, the curriculum at the National War College. The term "training" will be used in this Report to refer to individual training and education as a whole.

FY 1978 Training Report and the FY 1978 Budget

It is important to emphasize that this Report, while consistent with the Department of Defense Budget for FY 1978, as amended, differs in structure from the budget justification in two major respects. Budget justifications are focused on explaining how, by whom, and why money is to be spent; budgets for training and their justifications, therefore, are prepared by the Service which conducts the training programs and must obtain funds to train personnel from other Services in addition to its own. By contrast, this Report focuses on the training loads of the components of the parent Service whose members are undergoing the training, and deals only in summary with resources and funds required by the Service which conducts the training. For example, Navy personnel

being trained by the Air Force are treated in this Report as part of the Navy training load, since they are being trained to fill Navy requirements. However, in budget documents, funds to conduct training for these students are included in Air Force appropriation requests.

Second, this Report, like the Training Reports since FY 1975, uses standardized categories to describe the Service training and education programs. Budget justifications use the Service terms and categories utilized over the past several years in budget presentations. The major variations between Training Report and budget categories are pointed out in the following sections. A restructuring of the training-related portions of the Five-Year Defense Program has recently been adopted which will largely eliminate these variations in future years.

Definitions of Major Training Categories

The portion of this Report which discusses training loads in detail is organized into five chapters (Chapters III through VII), each of which addresses one of the major categories of training. These major categories are briefly defined below. Each chapter will more fully describe the training category and its sub-categories, the requested training loads, and the training methodology.

Recruit Training includes the basic introductory physical conditioning, military, and indoctrination training given to all new enlisted entrants in each of the Services. One-Station Unit Training (OSUT) is an Army training program which meets the training objectives of both Recruit and Specialized Skill Training in certain skills through a single course for new Service entrants which is conducted by a single training unit. Since it includes elements of two categories of training, it is treated separately in this Report.

The Army, in its Recruit Training budget justification, also includes One-Station Unit Training and advanced training conducted in Army Training Centers which is oriented toward specific skills. The Navy treats Apprenticeship Training in the same way because it is conducted by the recruit training commands. To foster comparability among Service definitions, this Report excludes these types of training from Recruit Training, because they are oriented toward specific skills, and uses the term Recruit Training to represent only the training given to all new enlisted service members (except those trained through OSUT).

Officer Acquisition Training includes all types of education and training leading to a commission in one of the Services, such as the programs of the Service Academies and officer candidate schools.

Service budget justifications carry officer candidate schools in specialized training, and other enlisted commissioning programs and medical officer acquisition programs in professional training. Students not in active military status, such as Reserve Officer Training Corps students, are excluded from requested loads in this Report.

Specialized Skill Training provides officers and enlisted personnel with new or higher levels of skill in military specialties to match specific job requirements.

For purposes of this Report, this category includes Army Advanced Individual Training and Navy Apprenticeship Training; much of the former and all of the latter are carried in budget justifications as part of Recruit Training. Certain flight-related training which normally has been carried in Flight Training for budget purposes, such as training of air traffic controllers and some aircraft mechanics, and survival training in the Air Force, is reported here under Specialized Skill Training. As noted above under Officer Acquisition Training, none of the officer acquisition programs are included in Specialized Skill Training in this Report.

Flight Training provides the individual flying skills needed by pilots, navigators, and naval flight officers to permit them to function effectively upon their assignment to operational mission units. The Service undergraduate flight training programs culminate in an officer, or an Army warrant officer, receiving "wings" and being categorized as a "designated" or "rated" officer.

These undergraduate programs do not include the major formal advanced flight training programs, which have generally not been considered individual training by the Military Services. Some of the training conducted by Service advanced flight training organizations is not individual training and is therefore beyond the scope of this Report. Certain flight-related training, considered as part of Flight Training for budgetary purposes, is carried in this Report under Specialized Skill Training.

Professional Development Education includes educational courses conducted at the higher-level Service schools or at civilian institutions to broaden the outlook and knowledge of senior military personnel or to impart knowledge in advanced academic disciplines to meet Service requirements. Training of this type is required to prepare individuals for progressively more demanding assignments, particularly for higher command and staff positions. Programs include undergraduate and graduate education and other courses not leading to a degree.

All officer acquisition programs are excluded from this category in this Report and instead are included under Officer Acquisition Training. Enlisted leadership training for senior non-commissioned officers is included in Professional Development Education rather than in Specialized Skill Training to recognize its broad professional content. However, Navy leadership training, which is given to all grades of petty officers, is included in Specialized Skill Training, as is the rest of NCO training for more junior personnel conducted by the other Services.

Appendix A contains a table showing the relationships between these Training Report categories and categories used in the budget justification by the Services.

Determining Training Requirements and Training Load

The amount and type of training to be conducted in the Department of Defense is the product of a series of calculations which is described in Appendix B to this Report.

In brief, the process begins with the determination of the requirement for military personnel with specific skills to fill positions in the approved or projected force. The requirement for trained manpower must then be measured against the available inventory of trained personnel projected at various points in the future. This comparison, made for each military skill and skill level, establishes the need for the training of personnel, on a phased basis, to fill current and projected skill shortages. The requirement for the training of personnel on a schedule calculated to maintain the skill inventory becomes the workload of the Service training establishments. It is measured in terms of the

average military training student load, or "training load". The training load for a given period is not only a measure of the amount of training to be accomplished; it is also a basis for establishing the requirement for resources (manpower, funds, materiel and facilities) needed to support the training to be conducted by a Service.

Conceptually, the training load for a given period is the average student strength for the period, and approximates man-years (or, in the case of the three-month Transitional Quarter ending September 30, 1976, "man-quarters"). The total training load is the sum of the loads for all the included individual courses. Training loads for individual courses are determined by the following factors:

1. The length of the training course.
2. The desired number of graduates, or output, of the course.
3. The number of entrants, or inputs, into the course required to obtain the desired output. This, in turn, depends on the pattern of attrition, or failures of entrants to graduate, for the course.

If attrition occurs at a constant rate during a course, the training load is computed by the following formula:

$$\frac{\text{Entrants} + \text{Graduates}}{2} \times \text{Course Length (expressed as a fraction of a year)}$$

This is the basic method for computing the training loads discussed in this report. However, if attrition does not occur at a uniform rate, as is frequently the case, and the rate and phasing can be specified, more complex formulas and computer simulations are used to estimate training loads.

Accuracy in Projecting Training Loads

In accordance with law, training load authorizations must be requested well in advance of the period when the training is actually conducted. This year, for example, load authorizations must be requested for the fiscal year which begins more than a year after the request is submitted -- that is, loads for FY 1979, beginning October 1, 1978, must

be requested in the spring of 1977. This statutory requirement implies the capability to predict future training loads with precision. In actuality, while loads for some long-leadtime programs, such as the Service Academies, can be predicted with considerable accuracy, there are many uncertainties in projecting training loads. Some of the causes of uncertainty are:

1. Unpredictability of individual decisions to enlist or re-enlist; this factor may lead to unanticipated changes in the skill inventory, requiring changes in the composition or size of training loads, or to shifts of portions of the training load from one fiscal period to the following period.
2. Unanticipated changes in force structure, requiring a readjustment of the skill inventory and the mix of courses in the training load.
3. Changes in attrition rates and patterns, causing unprogrammed fluctuations in training rates and loads.

Through forecasting training needs as far as possible into the future and continuous review and adjustment of training inputs and loads, the Services are able to adapt the training system to changing conditions. However, it should be clear that extended projections are subject to error; adjustments are inevitable and, in fact, necessary for good management.

Training Load Request by Component and Category

The tables on the following two pages display in category detail the requested training loads for FY 1978 and FY 1979. The loads for each period are displayed by component and by each of the major categories of training.

Average Military Training Student Loads, Fiscal Year 1978, By Component and Major Training Category

	Recruit Training	Officer Acquisition Training	Specialized Skill Training	Flight Training	Professional Development Education	Total
<u>Active Forces</u>						
Army	23,524 a/	4,443	44,898 a/	759	4,087	77,711
Navy	15,654	5,401	36,434	1,311	1,967	60,767
Marine Corps	11,173	405	11,136	571	735	24,020
Air Force	10,737	5,367	27,915	1,738	4,599	50,356
Sub-Total Loads	61,088 a/	15,616	120,383 a/	4,379	11,388	212,854
<u>Reserve Components</u>						
Army National Guard	7,291 a/	42	9,089 a/	57	127	16,606
Army Reserve	4,733 a/	129	6,099 a/	30	145	11,136
Naval Reserve	335	62	661	-	7	1,065
Marine Corps Reserve	1,964	329	1,161	-	15	3,449
Air National Guard	679	-	1,782	95	42	2,598
Air Force Reserve	362	11	747	31	35	1,186
Sub-Total Loads	15,364 a/	573	19,519 a/	213	371	36,040
DoD Total Loads a/	76,452 a/	16,189	139,902 a/	4,592	11,759	248,894

a/ Army One-Station Unit Training (OSUT) loads are included as follows:

Component	Recruit Training	Specialized Skill Training	OSUT Total
Active Army	4,510	2,867	7,377
Army National Guard	1,626	1,012	2,638
Army Reserve	367	238	605
Total	6,503	4,117	10,620

b/ Officer Acquisition enrollees not in active military status in college ROTC programs and Armed Forces Health Professions Scholarship recipients are excluded from loads shown in the table above.

Average Military Training Student Loads, Fiscal Year 1979, By Component and Major Training Category

	Recruit Training	Officer Acquisition Training	Specialized Skill Training	Flight Training	Professional Development Education	Total
<u>Active Forces</u>						
Army	23,982 a/	4,473	44,962 a/	845	4,188	78,450
Navy	16,130	5,390	36,560	1,319	1,888	61,287
Marine Corps	11,415	420	11,482	638	746	24,701
Air Force	11,261	5,301	28,973	1,908	4,538	51,981
Sub-Total Loads	62,788 a/	15,584	121,977 a/	4,710	11,360	216,419
<u>Reserve Components</u>						
Army National Guard	6,603 a/	42	9,279 a/	58	127	16,109
Army Reserve	4,564 a/	129	6,686 a/	30	144	11,553
Naval Reserve	335	60	647	-	7	1,049
Marine Corps Reserve	1,736	329	1,141	-	15	3,221
Air National Guard	679	-	1,785	95	42	2,601
Air Force Reserve	362	11	749	31	35	1,188
Sub-Total Loads	14,279 a/	571	20,287 a/	214	370	35,721
DoD Total Loads b/	77,067 a/	16,155	142,264 a/	4,924	11,730	252,140

a/ Army One-Station Unit Training (OSUT) loads are included as follows:

Component	Recruit Training	Specialized Skill Training	OSUT Total
Active Army	5,584	3,550	9,134
Army National Guard	2,144	1,335	3,479
Army Reserve	544	353	897
Total	8,272	5,238	13,510

b/ Officer Acquisition enrollees not in active military status in college ROTC programs and Armed Forces Health Professions Scholarship recipients are excluded from loads shown in the table above.

II

TRAINING PATTERNS

General

The development of service members through formal training and education and practical experience follows a generally common pattern. The new service member (or, in the case of some Officer Acquisition Training, the prospective service member) first receives training designed to develop the basic attributes of all members of his or her Service. In most cases, the graduate of the initial training is then taught the skills required for a military job at the lowest skill level. Those service members who do not remain beyond their initial enlistments or obligated terms of service do not, in most cases, receive additional formal training. Those who remain, the career members, will further develop their military knowledge and skills through experience in military jobs, interspersed, as required, with training or education needed to prepare them for more responsible positions. During any part of their terms of service, military personnel are also encouraged, as their military assignments may permit, to improve their educational attainments, to the benefit of themselves and their Services. This combination of job experience, training and education is essential to the development of a military force which is capable of carrying out the national security mission.

Enlisted personnel usually work in relatively specialized skill fields, whereas the duties of officers, particularly of those in the career force, call for broader expertise. For these reasons, the training and education patterns of officers and enlisted personnel differ, and will be discussed separately in the following sections of this chapter.

Officer Training Patterns

Each Service has developed career patterns to prepare its officers to assume progressively higher command and staff responsibilities. These career patterns are composed of operational assignments, during which the officer learns his profession through experience, and periodic individual training and education, which provide the officer with knowledge and skills needed for progressively more demanding subsequent assignments.

Officer training and education can be divided generally into three types. First, each Service maintains a system of professional military education which is progressive in nature. This education is related more to the increasing responsibilities associated with career progression to more senior grades than to the individual's current assignment or specialty. It is primarily the study of officership and the command and staff knowledge required of all professionals. The second type of education and training includes the many specific skill-producing courses that are conducted to enable the officer to perform immediately upon assignment to a specialized or functional area. These courses vary in length from a few days to several months. They present, for the most part, strictly job-oriented training, and are often in the nature of orientation or refresher courses. Third, the Services also provide selected officers with advanced academic education, either in-house or at civilian institutions, to meet specific requirements for officers educated in the technical, scientific, engineering, and managerial fields. Officers also participate in a variety of other educational programs, many on a part-time basis, usually with the student sharing in the cost.

Training and education for career officers, involving one or more of the types of training and education described above, follow the general patterns outlined in the following paragraphs. The patterns vary among the Services to some extent, and not all officers will participate in all of the schooling described. The number of officers participating in schooling becomes progressively smaller, and participation more selective and demanding, as officers move through their careers.

Non-career officers (those who may be expected to serve only an initial tour of active duty) generally receive training only at the entry level. In some cases, they may receive skill-oriented courses such as pilot training, which is lengthy and results in a commensurately longer active duty obligation, or training as maintenance or communications officers.

Initial Skill Training. Upon entry, the young officer's initial training is Service-oriented and intended to prepare him for duties at the lowest operational level -- company, squadron, or ship. The newly commissioned Army officer will attend a basic course conducted by the particular branch of the Army to which he is assigned, such as infantry, armor or artillery. A Navy ensign is usually assigned to school training based on his warfare specialty. The new Marine officer attends the Officer Basic School. A newly commissioned officer in the Air Force may go to Flight Training or training in a technical specialty.

Skill Progression Training. After some operational experience, the career officer requires further schooling to prepare him for service at the next level -- for example, as a unit commander or a headquarters staff officer. In the Army, this entails a return to his branch school for more advanced training. An Air Force officer could be selected for the Squadron Officer School. A Marine Corps officer would normally attend the Amphibious Warfare Course. Navy officers at this stage in their careers may attend a school in a specialty appropriate to their future assignments.

To satisfy Service requirements and as a further step in professional development, some officers are selected for participation in an advanced academic educational program at a civilian institution or one of the two Service technical institutes, the Naval Postgraduate School and the Air Force Institute of Technology.

Intermediate Service Schools. As the officer progresses (between six and 16 years of service, depending on Service criteria) he is ready for the next, or command and staff, level of professional schooling in preparation for assuming higher responsibilities. Attendance is competitive, as not all officers are selected to attend. Each Service has such

a course; the Armed Forces Staff College, a joint school, is also conducted at this level: Each Service has its own emphasis with regard to this schooling because of its pattern of missions; these differences are reflected in the school curricula.

Senior Service Schools. Subsequent to the intermediate years, little technical training is provided. The final level of professional military education is that of the Senior Service Schools -- the war colleges -- for which attendance is highly selective. The Army, Navy, and Air Force each has a war college. In addition, there is the National Defense University, consisting of the National War College and the Industrial College of the Armed Forces. Officers graduating from the Senior Service Schools have the academic foundation required for command and staff positions at the highest level. The different curricula of these schools reflect the differing patterns of missions among the Services.

Enlisted Training Patterns

An individual entering upon an initial enlistment is provided Recruit Training that introduces him or her to military life. Following this indoctrination training, an individual will follow one of three possible avenues:

1. Initial Skill Training, which prepares the enlistee for an initial duty assignment, or
2. Direct duty assignment on the basis of a skill already acquired in civilian life, or
3. Direct assignment to first duty unit for on-the-job training (OJT).

The Army One-Station Unit Training (OSUT) program is something of an exception to these three avenues, since it combines Recruit and Initial Skill Training into a single course, followed by assignment to an operational unit. About 21 percent of Active Army non-prior enlistees will be trained under the OSUT program in FY 1978.

The expected distribution of Active Recruit Training graduates in FY 1978 is as follows:

Disposition of Active Recruit Training Graduates in FY 1978

	<u>Army</u>	<u>Navy a/</u>	<u>Marine Corps</u>	<u>Air Force</u>
To Initial Skill Training	96%	100%	70% b/	91%
To Duty Assignment (Civilian-Acquired Skill)	1%	*	*	1%
To Duty Assignment (On- the-Job Training)	3%	-	30%	8%
	<u>100%</u>	<u>100%</u>	<u>100%</u>	<u>100%</u>

*Less than 1/2 percent.

a/ 30% of Navy Recruit Training graduates attend short "Apprenticeship Training" courses (carried under Initial Skill Training in this report) as a preliminary to further training on the job.

b/ This distribution is facilitated, in part, by the fact that the Marine Corps has the longest Recruit Training course of any Service.

As the table indicates, most enlisted personnel receive formal Initial Skill Training to provide them with a basic military skill. The combination of Recruit Training and Initial Skill Training (or Army One-Station Unit Training) is the foundation of the development of enlisted personnel, because it turns civilians into service members who are qualified to fill positions in military units. This initial training of new enlisted entrants to the Services accounts for about two-thirds of all student loads programmed for FY 1978 and about four-fifths of the loads programmed for enlisted personnel.

Other than for on-the-job training in the work environment, enlisted personnel normally receive no further formal training beyond the training previously described during their initial enlistments. The major exception is Navy training, conducted by fleet training centers, in such shipboard duties as firefighting.

Subsequent to reenlistment, an individual may be selected for attendance at a journeyman level course in his specific occupational area. This training emphasizes the appropriate military applications for the skills being taught. In most

cases, however, enlisted personnel advance in their skill areas through experience gained on the job and without extensive additional formal training. Some enlisted personnel are given the opportunity to attend NCO professional development training programs which prepare them for increased supervisory and leadership responsibilities.

Normally, few enlisted personnel attend regularly programmed specialized courses after mid-career. There are instances, of course, where new equipment or systems are introduced into a Service, and senior level enlisted personnel are formally trained in operation and maintenance techniques. Selected senior enlisted personnel attend schools, such as the Army's Sergeants Major Academy, which are, on the NCO level, similar in purpose to the Intermediate and Senior Service Schools in the officer education system.

III

RECRUIT TRAINING AND ARMY ONE-STATION UNIT TRAINING

General Description

Recruit Training is the basic introductory and indoctrination training given to enlisted personnel of each Service upon their initial entry into military service. Recruit Training provides an orderly transition from civilian to military life, motivation to become a dedicated and productive member of the service, and instruction in the basic skills which are required by all members of the Military Service involved. Training in each of the Services emphasizes discipline, observance of military rules, social conduct, physical conditioning and the building of self-confidence and pride in being a member of the service. Beyond these common objectives, Recruit Training in each Service is designed to meet the particular training requirements of that Service which are a reflection of the Service mission. The graduate of Recruit Training has the basic knowledge and skills required to qualify him or her, after formal or on-the-job training in a particular skill, for service in an operational unit of the parent Service.

The term Recruit Training, as used in this chapter, includes only the basic training described above. It excludes the following types of training which are part of recruit training in Service budgets:

Army: Advanced Individual Training conducted at Army Training Centers

Navy: Apprenticeship Training

The training conducted in these programs is oriented toward specific skills needed in the individual's first duty assignment, as opposed to training required by all new enlisted service members. It is, therefore, treated as part of Specialized Skill Training in this report.

Army One-Station Unit Training (OSUT) is unique in that it combines Recruit Training and Initial Skill Training in certain skills into a single, continuous course conducted by a single training unit. OSUT therefore includes elements of

two major training categories; consequently, it is treated separately at the end of this chapter. OSUT training loads are not included within the Recruit Training loads displayed in this chapter.

Recruit Training Load

- The training loads for FY 1976 through FY 1980 for each component of each Military Service are shown below:

Total Recruit Training Loads, FY 1976-80 a/

<u>Service</u> <u>Component</u>	<u>FY 76</u>	<u>FY TQ</u>	<u>FY 77</u>	<u>FY 78</u>	<u>FY 79</u>	<u>FY 80</u>
<u>Army</u>						
Active	23,611	26,141	21,330	19,014	18,398	16,618
Reserve	1,548	2,125	3,399	4,366	4,020	3,923
Natl Guard	3,864	4,651	4,200	5,665	4,459	3,604
<u>Navy</u>						
Active	17,642	21,006	17,437	15,654	16,130	17,004
Reserve	281	332	348	335	335	335
<u>Marine Corps</u>						
Active	12,350	14,304	11,538	11,173	11,415	11,651
Reserve	1,694	2,360	1,973	1,964	1,736	1,736
<u>Air Force</u>						
Active	9,348	9,692	10,083	10,737	11,261	11,261
Reserve	280	342	362	362	362	362
Natl Guard	475	586	679	679	679	679
<u>DoD</u>						
Active	62,951	71,143	60,388	56,578	57,204	56,534
Res/Gd Tot	<u>8,142</u>	<u>10,396</u>	<u>10,961</u>	<u>13,371</u>	<u>11,591</u>	<u>10,639</u>
DoD Total	71,093	81,539	71,349	69,949	68,795	67,173

- a/ In this table, and all subsequent tables in this report stating yearly training loads for the time span FY 1976 to 1980, FY 1976 and FY TQ data are actual, FY 1977-80 data are estimated.

The changes in Recruit Training loads over the period are the result of changes in numbers of non-prior accessions and in methods of conducting training. The progressive decrease in Active Army loads predominantly reflects the increased use of One-Station Unit Training. The trend in Navy loads reflects a relatively low requirement for non-prior service accessions in FY 1978 and, beginning in that

year, the effect of a reduction in the length of the Navy Recruit Training course. The gradual increase in Active Air Force loads is the product of increasing non-prior service accession requirements.

Recruit Training for Enlisted Men

The following table displays for male Recruit Training the average training loads for each year from FY 1976 to 1979 and, for FY 1978, the number of entrants (input) and number of graduates (output). Data are shown separately for each component of each Service.

Training Inputs, Output, Loads, Recruit Training (Male) FY 1976 - 1979

<u>Service</u>	<u>FY 76</u>	<u>FY 77</u>	<u>FY 78</u>		<u>FY 79</u>	
<u>Component</u>	<u>Load</u>	<u>Load</u>	<u>Input</u>	<u>Output</u>	<u>Load</u>	<u>Load</u>
<u>Army</u>						
Active	21,393	19,314	129,289	113,774	17,065	16,463
Reserve	1,047	2,509	26,439	23,266	3,476	3,115
Guard	3,427	3,825	39,778	35,004	5,290	4,084
<u>Navy</u>						
Active	16,750	16,626	85,882	84,314	14,938	15,414
Reserve	261	305	1,902	1,703	317	317
<u>Marine Corps</u>						
Active	12,079	11,282	44,000	39,176	10,794	11,023
Reserve	1,670	1,937	8,000	7,016	1,928	1,700
<u>Air Force</u>						
Active	8,310	8,772	68,880	64,058	9,019	9,459
Reserve	156	253	2,234	2,011	253	253
Guard	303	509	4,500	4,050	509	509
<u>DoD</u>						
Active	58,532	55,994	328,051	301,322	51,816	52,359
Res/Gd Tot	<u>6,864</u>	<u>9,338</u>	<u>82,853</u>	<u>73,050</u>	<u>11,773</u>	<u>9,978</u>
<u>DoD Total</u>	<u>65,396</u>	<u>65,332</u>	<u>410,904</u>	<u>374,372</u>	<u>63,589</u>	<u>62,337</u>

Recruit Training for Enlisted Women

Each of the Services conducts training for women recruits which is similar in concept to Recruit Training for males.

In the Navy and Air Force, Recruit Training for men and women is collocated, and the syllabi for men and women are much the same. The major difference between the male and female courses is that women recruits generally receive less training in weapons use or other combat-oriented skills. However, the Army provides its women recruits training in weapons use and defensive tactics; the Navy provides its women recruits some small-arms training, and the Air Force plans to do the same beginning in FY 1978. In place of the combat subjects women may receive instruction in subjects which facilitate their transition into military life in a particular Service; in the case of the Marine Corps, the length of training for women is made somewhat shorter.

Training data for women recruits are included in the data for Recruit Training as a whole in the subsequent sections of this chapter. The following table separately displays relevant load data for women's Recruit Training.

Training Inputs, Output, Loads, Recruit Training (Female)
FY 1976 - 1979

<u>Service</u> <u>Component</u>	<u>FY 76</u> <u>Load</u>	<u>FY 77</u> <u>Load</u>	<u>FY 78</u> <u>Input</u>	<u>Output</u>	<u>Load</u>	<u>FY 79</u> <u>Load</u>
<u>Army</u>						
Active	2,218	2,016	14,500	13,050	1,949	1,935
Reserve	501	890	10,500	9,890	890	905
Guard	437	375	3,000	2,724	375	375
<u>Navy</u>						
Active	892	811	4,169	3,845	716	716
Reserve	20	43	106	98	18	18
<u>Marine Corps</u>						
Active	271	256	2,284	1,972	379	392
Reserve	24	36	216	193	36	36
<u>Air Force</u>						
Active	1,038	1,311	13,120	12,202	1,718	1,802
Reserve	124	109	970	873	109	109
Guard	172	170	1,500	1,350	170	170
<u>DoD</u>						
Active	4,419	4,394	34,073	31,069	4,762	4,845
Res/Gd Tot	<u>1,278</u>	<u>1,623</u>	<u>16,292</u>	<u>15,128</u>	<u>1,598</u>	<u>1,613</u>
DoD Total	5,697	6,017	50,365	46,197	6,360	6,458

Rationale for Recruit Training

The underlying philosophy of Recruit Training in each of the Services is that the demands of military service are fundamentally different from those of civilian life. Military service requires a high level of discipline and physical fitness, a homogeneity of outlook, and an ability to live and work as part of a highly structured organization. There are few parallels in civilian society to the demands of military service. Each recruit, therefore, must be transformed into a member of the military team in order to function effectively in the military environment. The attitudes, habits, and basic skills formed in Recruit Training are the foundation of a cohesive military organization. Later training provides the skills and knowledge needed for specific jobs; Recruit Training shapes the civilian entrant into a dedicated member of his or her Military Service with the potential for further development.

The major determinants of Recruit Training loads are the total number of people entering service who must receive Recruit Training (input), the length of the training course, and projected patterns of attrition. Course length and attrition are discussed later in this chapter. The following two sections discuss inputs: first, inputs of active duty personnel, and second, inputs of members of the Reserve Components on active duty for initial training.

Active Duty Input

The annual recruiting objective for active duty enlistees without prior military service is a function of the following factors:

1. The projected requirement for trained enlisted personnel.
2. Current enlisted trained strengths.
3. Number of enlisted personnel currently in training.
4. Projected enlisted losses through separations or other reasons (e.g., desertion, death, acceptance of a commission, etc.).
5. Projected prior-service enlistments -- that is, the return from civilian life of former service members.

"Trained strength" is the number of personnel required to fill "structure" spaces (i.e., positions in military organizations which require specific grades and skills) and

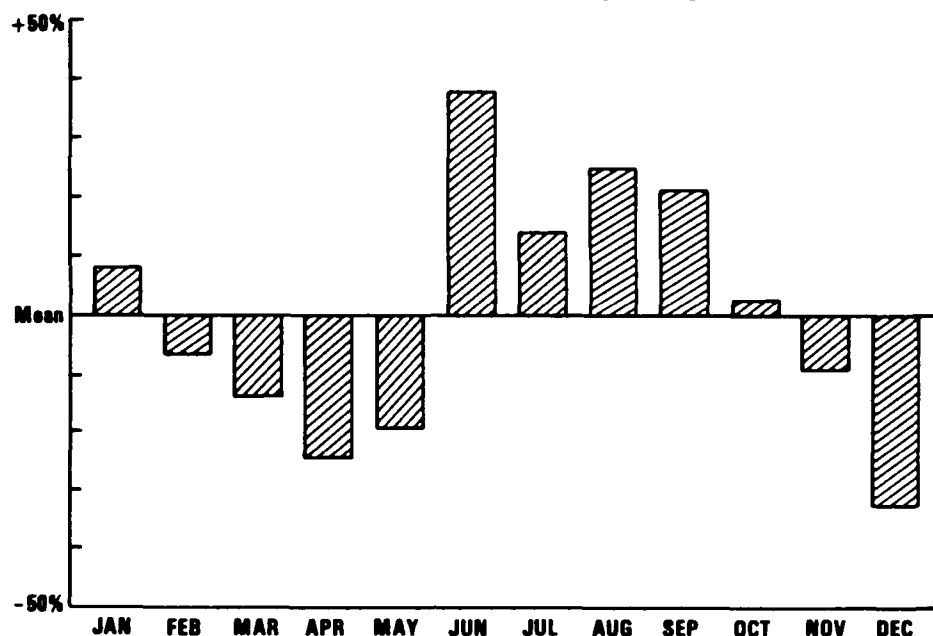
individual "pipeline" spaces, such as transients en route between assignments. The Defense Manpower Requirements Report contains a full discussion of how military manpower requirements are determined. The projected trained strength requirement is compared with the projected trained strength inventory to forecast future skill and strength imbalances. Future shortages which are not expected to be satisfied either by prior-service enlistees or service members currently in skill training courses determine the training output needed to man the force with trained personnel. To determine the necessary input to achieve this output, allowance must be made for course attrition, the number of students entering a course of instruction who fail to complete it. The total input requirement must, therefore, be increased to compensate for expected attrition losses.

The optimal leveling of monthly inputs to obtain the most efficient use of training staff personnel and training facilities is a continuing goal. 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, reflecting behavioral patterns which are related to the civilian 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 the first term academic work are announced.

The graph that follows illustrates the seasonal variations in enlistments during calendar year 1976, which is generally typical of past experience.

SEASONAL VARIATION IN ENLISTMENTS, CALENDAR YEAR 1976
(Percent Above or Below Monthly Average)



The Services must accept most prospective enlistees at the time they are ready to enter service. Requiring enlistees to enter military service in phase with requirements and on an even-flow basis would result in the loss of many potential enlistees to other sources of employment. Accepting enlistees as they become available, however, requires a training structure capable of accommodating peak surges of enlistments. The seasonality of enlistments caused active-force Recruit Training loads to be considerably higher in the Transition Quarter, July-September 1976, than in FY 1976 or 1977, when loads were spread over an entire year rather than concentrated in one high-enlistment quarter.

Reserve Component Input

Persons enlisting in the National Guard and Reserve forces without active duty experience require the same Recruit Training as active duty enlistees, and for the same reasons. Recruit Training loads for the Reserve Components

are based on the same factors as active force loads. Guard and Reserve trainees, while in Recruit Training, are mingled with active duty trainees in units so that their training is identical.

Reserve Component recruits form a significant part of the workload of the active Recruit Training establishment. In FY 1978, 19 percent of DoD Recruit Training loads, and 35 percent of Army's, are attributable to Guard and Reserve trainees.

The planning considerations for Reserve Component personnel are essentially similar to those for the active force; detailed phasing of this training is complicated, however, by the additional consideration of civilian employment or school commitments for these personnel. For this reason, a pool of personnel who have been enlisted but who have not yet been able to attend entry training is normal. It is important that this backlog is kept within a reasonable size.

Course Length and Course Content

Enlisted training loads depend not only upon the numbers of entrants but also on the extent of skills required of entering enlisted personnel by each Service. Enlisted personnel attain those skills in Recruit Training and in Specialized Skill Training, which is discussed in a subsequent chapter. Thus, Recruit Training course lengths are determined in part by how much of the required training is to be provided during the Recruit Training phase and how much is to be deferred to later training. The four Services, because of differences in their missions, take somewhat different approaches in establishing the content and length of their Recruit Training courses.

Recruit Training in each of the Services covers four areas: (1) some processing and testing; (2) introduction into Service life; (3) instruction in military courtesy, discipline, and hygiene; and (4) fundamental military-related training involving physical fitness, military drill, and self-defense. In addition, each Service provides training in military skills which should be possessed by all, or almost all, members of that Service. The degree to which these Service-wide required skills exist differs widely among the Services. This factor accounts for most of the differences in course content and, therefore, course length. The variance in quality of enlistees among

the Services also has a bearing on course length; recruits with lower intelligence and lesser amenability to discipline require a longer training period to achieve training objectives.

The length of the standard Recruit Training course in each Service is shown in the following table:

Recruit Training Course Length FY 1978 (Weeks)

<u>Army</u>	<u>Navy</u>	<u>Marine Corps</u>	<u>Air Force</u>
7	8	11	6

The Air Force accomplishes all Recruit Training in six weeks. Course content concentrates on indoctrination subjects. Relatively little training in Service-wide skills is provided, since there are few common skills needed by all Air Force enlisted personnel.

The Navy Recruit Training course length was reduced from nine to eight weeks in February 1977. In addition to subjects oriented toward indoctrinating recruits to military life, the course includes phases designed to prepare them for conditions in a fleet environment and common shipboard tasks. The Navy must be sure that recruits learn to live, work, and fight in restricted space as they will find on board ship, often close to complex machinery and weapons.

Army and Marine Corps Recruit Training differ from the Air Force and Navy programs because all recruits are given intensive physical conditioning and instruction in basic ground combat skills, including the use of individual weapons. These Services subscribe to the view that all male enlisted personnel must achieve a basic level of qualification in ground combat skills, and their Recruit Training curricula both provide a common core of training in these skills.

The Army conducts a two-week refresher program for prior-service personnel (about 75 percent of prior-service entrants) who require some retraining. The few participants, two to five percent of the total, who do not satisfactorily complete the program are recycled into the third week of the standard course. The Army also has been conducting a two-week Recruit Training program for Reserve Component women enlistees who have civilian-acquired skills which satisfy specific job requirements in their component.

The average length of time spent in recruit status in any of the Services may be longer than the standard course lengths discussed above. Some recruits fall behind their peers because of illness. Others require remedial training. If this cannot be accomplished by additional instructional hours the recruit may be sent to a special training unit or recycled to a following class to repeat a portion of the course.

Two opposing pressures on Recruit Training serve to regulate its length. New recruits must be paid as soon as they enter service but are not productive until they have completed training and are assigned to a unit. This exerts an economic pressure on each Service to minimize training time before the trainees enter the structure. Countering this influence are the problems which could be caused by inadequate Recruit Training. Such recruits could be a drain on their unit in at least three ways:

1. Through inexperience with and lack of motivation for military life and regulations, they could cause disciplinary problems and be more liable to subsequent court-martial action or administrative discharge before the completion of their terms of enlistment.
2. They would be less able to accomplish their assigned jobs; in some assignments, they could be a safety hazard to themselves or others.
3. They would require training and excessive supervision from more experienced unit members, thus degrading the total productivity of the people assigned to the unit and impairing unit readiness.

Considering these penalties and costs of inadequate Recruit Training and the differing training requirements of the Services, current Recruit Training course lengths would not be easy to reduce. The common objective of transforming a civilian into a disciplined service member tends to set a floor under the length of Recruit Training in each of the Services. Relatively few recruits have had much experience with life in a disciplined environment, been separated from their families and friends, or subjected to the stresses imposed by military life. Compensating for these factors takes not only training but also time. A minimum of six weeks in Recruit Training appears necessary to accomplish this objective alone in any of the Services. Greater amounts of time are required for those Services which must provide extensive training in required common skills.

Nonetheless, training time for new enlistees has been reduced in both the Navy and the Army:

- The length of Navy Recruit Training has recently been reduced from nine to eight weeks.

- The Army has achieved savings in training time for new enlistees through the One-Station Unit Training program, which is discussed later in this chapter.

These reductions have been put into effect only after careful analysis of Service requirements and, particularly in the case of the Army, through extensive testing. The importance of Recruit Training to the effectiveness of the force makes it imperative that changes in the length of the training be made only if careful analysis shows that the savings are great enough to overcome any loss in training effectiveness.

Attrition in Recruit Training

A final factor in the computation of loads is the projection of the rate and timing of attrition. Recruits may fail to complete training for medical reasons, inability to absorb the instruction, lack of motivation, disciplinary problems, or a variety of administrative causes, such as discharge for fraudulent enlistment or family hardship. The following table shows projected attrition losses for FY 1978. Recruit Training input figures are shown for comparison.

Recruit Training Input and Attrition Projections, FY 1978 a/
(Active and Reserve Combined)
(Thousands)

	<u>Army</u>	<u>Navy b/</u>	<u>Marine Corps</u>	<u>Air Force</u>
Input	224	92	55	91
Attrition Losses	26	9	6	7
Percent Attrition	11.5	10.0	11.3	7.3

a/ Figures include both active force and Reserve Component members.

b/ Figures reflect a Navy projection of a high "carry-over" from a peak recruit population at end FY 1977.

The timing of attrition varies from case to case. In the case of slow learners or individuals who have difficulty in adjusting to military life, trainees usually are recycled or

given special instruction; those who do not respond adequately may not become attrition losses until late in the course.

Control of Abuse in Recruit Training

During the past year, at the direction of the Secretary of Defense, each of the Services has thoroughly reviewed its Recruit Training policies and practices, particularly with regard to conditions which have led, or could lead, to mistreatment of recruits.

"Recruit abuse," as used here, refers to a variety of improper practices, from assault or extortion to relatively minor offenses such as requiring recruits to perform unauthorized physical exercises. Most abuse cases involve improper conduct by non-commissioned officer supervisors (variously called drill sergeants, drill instructors, etc.), who are in constant contact with the recruits and who are most immediately responsible for each recruit's success or failure in training.

Recruit Training, to achieve its objectives, must be rigorous and demanding. In some cases, however, stress which exceeds that justified by training objectives may be applied. NCO supervisors, who are under considerable stress themselves, may exceed their authority.

In reviewing the conduct of Recruit Training, it was concluded that current Service policies and regulations are generally adequate to minimize the incidence of recruit abuse. Most instances of abuse come about when policies are not adhered to in practice.

The key to preventing recruit abuse is careful selection and training of NCO and officer supervisors and continuing command supervision of the actions of these supervisors. Each of the Services has taken action, as appropriate, to tighten selection, training and control of supervisory personnel in Recruit Training.

The problem of abuse of recruits has recently been noted more in the Marine Corps than in the other Services. The Marine Corps has taken a number of actions to control and prevent recruit abuse. Among other actions, daily scheduled training time has been reduced, officer supervisors have been augmented, and procedures for selecting and training drill instructors have been improved. While these reforms have not been in force long enough to fully assess their effectiveness, it

appears that the potential for recruit abuse in the Marine Corps has been substantially reduced.

Army One-Station Unit Training

The Army's One-Station Unit Training (OSUT) program combines Recruit Training and Initial Skill Training for certain skills into a single continuous course. Consequently, this report treats OSUT separately rather than arbitrarily breaking it into two segments.

OSUT loads for FY 1976 through 1980 are shown in the following table.

<u>OSUT Training Loads, FY 1976-80</u>						
<u>Service</u> <u>Component</u>	<u>FY 76</u>	<u>FY 77</u>	<u>FY 78</u>	<u>FY 79</u>	<u>FY 80</u>	
<u>Army</u>						
Active	1,483	5,831	6,204	7,377	9,134	13,524
Reserve	43	116	247	605	897	1,283
Natl Guard	426	845	1,372	2,638	3,479	4,931
Res/Gd Tot	469	961	1,619	3,243	4,376	6,214
DoD Total	1,952	6,792	7,823	10,620	13,510	19,738

The following table displays OSUT inputs and outputs, as well as loads, for FY 1978.

<u>Training Inputs, Outputs and Loads, OSUT, FY 1978</u>			
<u>Service</u> <u>Component</u>	<u>Inputs</u>	<u>Outputs</u>	<u>Loads</u>
<u>Army</u>			
Active	33,911	28,166	7,377
Reserve	2,761	2,297	605
Natl Guard	12,222	10,125	2,638
Res/Gd Total	14,983	12,422	3,243
DoD Total	48,894	40,588	10,620

OSUT is an expanding program. In FY 1976, less than five percent of Army non-prior service entrants were trained under OSUT. By FY 1978, about 20 percent of Active

Army entrants and 16 percent of Reserve and National Guard entrants will be trained by this method; by 1980, about one-third of all entrants will receive OSUT training.

The chief advantage of OSUT is that it requires less training than the separate Recruit Training and Initial Skill Training courses which it is replacing. The following table shows training time for current and projected OSUT courses:

OSUT Training Time

<u>Skill Area</u>	<u>Training Time (Weeks)</u>
Infantry	12
Artillery	12
Armor	13
Engineer	13
Signal	13
Air Defense	14
Military Police	14

The time required to complete Recruit Training and the Initial Skill Training courses in these skills averages about 16 weeks, including the time required to move the trainee from one training organization to another. The shorter OSUT course lengths thus provide a large savings in trainee manyears and, consequently, in trainee pay, allowances and support costs. These savings are made possible by the recent reduction in the statutory training time a non-prior service enlistee must receive before deployment overseas from four months to 12 weeks. The Army's extensive tests of OSUT indicate that the quality of OSUT graduates is generally as good as the quality of personnel trained under the longer two-course training system.

IV

OFFICER ACQUISITION TRAINING

General Description

Officer Acquisition Training consists of training and education programs leading to a commission in one of the Military Services. These programs fulfill the need both for junior officer entrants into the career force and for non-career junior officers in the force structure. Officer Acquisition Training programs produce officers for both the active forces and the Reserve Components.

For purposes of this report, this category includes Officer Candidate School programs (carried in budgets in specialized training) and Other Enlisted Commissioning Programs and Health Professions Acquisition Programs (carried in budgets in professional training).

Training loads for Officer Acquisition Training are shown in the following table.

Total Officer Acquisition Training Loads, FY 1976-80

<u>Service</u> <u>Component</u>	<u>FY 76</u>	<u>FY 77</u>	<u>FY 78</u>	<u>FY 79</u>	<u>FY 80</u>
<u>Army</u>					
Active	5,219	5,039	4,415	4,443	4,473
Reserve	135	144	128	129	129
Guard	15	7	31	42	42
<u>Navy</u>					
Active	6,468	6,312	5,950	5,401	5,390
Reserve	100	57	62	62	60
<u>USMC</u>					
Active	434	316	371	405	420
Reserve	293	844	327	329	329
<u>Air Force</u>					
Active	5,255	5,049	5,180	5,367	5,301
Reserve	2	2	12	11	11
<u>DoD</u>					
Active	17,376	16,716	15,916	15,616	15,584
Res/Gd Total	<u>545</u>	<u>1,054</u>	<u>560</u>	<u>573</u>	<u>571</u>
<u>DoD Total</u>	<u>17,921</u>	<u>17,770</u>	<u>16,476</u>	<u>16,189</u>	<u>16,155</u>

Excluded ROTC and Health Professions Acquisition Programs

The total loads above do not include three types of Officer Acquisition Training: the Army, Naval, and Air Force Reserve Officers Training Corps (ROTC) programs, the Armed Forces Health Professions Scholarship program, and the program of the Uniformed Services University of the Health Services. ROTC and Health Professions Scholarship students are not in active military status, whereas students who make up the training loads discussed in this report are either members of the active forces or members of the reserve components being trained on active duty by the active establishments. Students at the Uniformed Services University of the Health Sciences, although military members on active duty, are not included in the training loads because they are, by statute, excluded from authorized Service strengths; the program is, in any case, programmed to be terminated prior to FY 1978. Although these three programs are not included in the requested training loads, they are discussed in this chapter to provide a complete account of Officer Acquisition Training. The following tables show the number of participants in these programs in the period FY 1976 through 1979.

Average Enrollees, ROTC Programs, FY 1976-79

<u>Service</u>	<u>FY 1976</u>	<u>FY 1977</u>	<u>FY 1978</u>	<u>FY 1979</u>
Army	45,957	53,295	63,355	68,402
Navy	7,625	8,000	8,000	8,000
Air Force	15,952	14,898	15,487	15,487
DoD Total	69,534	76,193	86,842	91,889

Uniformed University of the Health Sciences
Average Training Loads, FY 1976-79

	<u>FY 1976</u>	<u>FY 1977</u>	<u>FY 1978</u>	<u>FY 1979</u>
Army	-	12	-	-
Navy	-	13	-	-
Air Force	-	12	-	-
DoD Total	-	37	-	-

Health Professions Scholarships, FY 1976-79

Army	1,850	1,850	1,850	1,850
Navy	1,575	1,575	1,575	1,575
Air Force	1,575	1,575	1,575	1,575
DoD Total	5,000	5,000	5,000	5,000

The figures shown above for Health Professions Scholarships are on a "scholarships authorized" basis. The figures are those currently authorized by DoD to each Service from the total of 5,000 authorized scholarships.

Junior ROTC is a program designed to develop leadership qualities, good citizenship, and an understanding of the basic elements of national security among high school students. Despite its name, it is not an officer acquisition program, since it does not result in a commission and its participants have no military obligation whatsoever. Junior ROTC is not included within training loads covered by this report.

Officer Requirements and Structuring the Officer Acquisition Program

Requirements for new officers, like requirements for new enlisted personnel, are a product of the need for officers in the projected force as compared to the projected future inventory

of officers. Properly functioning programs fill the gross requirements for officer entrants for any given year, and provide an even flow of sufficient new officers to each Service to avoid the emergence of unmanageable shortages and overages by age and grade in the future. Each of the Services uses a mix of sources for new officers.

The mix of officer acquisition programs used must recognize the characteristics of each source. Some of the differing characteristics of current programs are stable input, long lead-time; flexible inputs, short lead-time; high academic quality with comprehensive military indoctrination; and high level of technical skill. Additionally, consideration must be given to each program's ability to attract applicants, the quality of the graduates, and their probable retention and attrition. These differences and others must be recognized and exploited in planning officer procurement.

As an illustration of program characteristics, each of the Service Academies presents a long lead-time program which produces a significant proportion of highly trained career military officers -- over 40 percent of Regular Army officers to be commissioned in FY 1978, for example.

ROTC is also a long lead-time program and provides the largest single input of officers to the active duty force, although many of these officers will leave active duty and join the reserve components. In this manner, ROTC provides officers to support the total force, both active and reserve.

Officer Candidate Schools provide the short lead-time commissioning source necessary to respond to immediate surges in officer requirements, since the program can be expanded or reduced in a relatively short period of time.

The off-campus commissioning programs, such as the Navy's Aviation Reserve Officer Candidate (AVROC) program, are long lead-time programs, and provide the student at virtually any four-year college or university the opportunity to earn a commission through summer training but without military responsibilities during the school year. Finally, Other Enlisted Commissioning Programs are long lead-time in nature, and provide a source of officers who possess specific technical skills and who have a proven high rate of retention.

In addition to these reasons for using a variety of sources to satisfy officer requirements, it is also desirable to use different sources to keep the officer corps from being restricted to a narrow segment of the national population and to provide opportunities for highly qualified enlisted personnel.

Officer Acquisition Training may be divided into six separate programs:

- Service Academies
- ROTC
- Officer Candidate Schools
- Off-Campus Commissioning Programs
- Enlisted Commissioning Programs
- Health Professions Acquisition Programs

Service Academies

The mission of each of the Service Academies (United States Military Academy, United States Naval Academy and United States Air Force Academy) is to meet a portion of the long-range requirement for career military officers. They provide instruction and experience to each cadet or midshipman so that he or she graduates with the knowledge and character essential to leadership and with the motivation to become a career officer. Cadets and midshipmen participate in a four-year program of academic studies and training in leadership and other military subjects. Successful completion of the specified academic and military requirements entitles the graduate to a Bachelor of Science degree and a Regular commission in one of the Military Services. Up to one-sixth of Naval Academy graduates in each year may be commissioned in the Marine Corps.

The Service Academies are distinctive among the collegiate institutions of the nation in that their curricula are specifically designed to prepare young men and women for service as professional officers. The total curriculum at each Academy is designed to develop the qualities of character, intellect, and physical competence needed by the officer who may, in the course of a full career, be called upon to perform duties ranging from leading a small combat unit to advising the highest government councils. The programs include the sciences, the humanities, and military and physical training, and form the basis for further professional development or, when required, graduate education.

The maximum enrollment of each of the Service Academies is established by law. This fact establishes stable training loads for the Academies. Training load data for the Service Academies are shown in the following table:

Training Inputs, Output, Loads, Service Academies
FY 1976-79

<u>Service</u> <u>Component</u>	<u>FY 76</u> <u>Load</u>	<u>FY 77</u> <u>Load</u>	<u>Input</u>	<u>FY 78</u> <u>Output</u>	<u>Load</u>	<u>FY 79</u> <u>Load</u>
Army	4,076	4,083	1,473	905	4,111	4,141
Navy	4,267	4,188	1,373	982	4,183	4,183
Air Force	<u>4,229</u>	<u>4,295</u>	<u>1,461</u>	<u>980</u>	<u>4,275</u>	<u>4,295</u>
DoD Total	12,572	12,566	4,307	2,867	12,569	12,619

Three hundred fifty-seven women entered the Service Academies for the first time in June/July 1976 as authorized by Congress in the Defense Appropriation Authorization Act for 1976, Public Law 94-106. One hundred nineteen women accepted appointments to the Military Academy, 81 women to the Naval Academy and 157 women to the Air Force Academy. Women are undergoing virtually the same education and training program as their male counterparts and will satisfy the same requirements for graduation

Each of the Military Departments sponsors an Academy preparatory school. Marine Corps personnel attend the Navy school. The missions of these schools are to provide intensive instruction and guidance, in courses of instruction approximating one academic year, to selected enlisted personnel in preparation for entry to the Service Academies. Students compete for appointments by the Secretaries of the Military Departments and from other sources. The Naval Academy Preparatory School also provides instruction to candidates for the Navy Enlisted Scientific Education Program during the summer months.

The Army carries on an active search for potential cadets within the Army Reserve. Selected personnel then may attend the Preparatory School. These are reflected within the data of the following table.

Training Inputs, Output, Loads,
Academy Preparatory Schools, FY 1976-79

<u>Service</u> <u>Component</u>	<u>FY 76</u> <u>Load</u>	<u>FY 77</u> <u>Load</u>	<u>FY 78</u> <u>Input</u>	<u>Output</u>	<u>Load</u>	<u>FY 79</u> <u>Load</u>
<u>Army</u>						
Active	150	141	170	124	141	141
Reserve	133	125	150	110	125	125
<u>Navy</u>						
Active	246	173	255	178	173	173
<u>USMC</u>						
Active	25	27	50	30	30	30
<u>Air Force</u>						
Active	167	171	290	170	171	171
<u>DoD</u>						
Active	588	512	765	502	515	515
Reserve	<u>133</u>	<u>125</u>	<u>150</u>	<u>110</u>	<u>125</u>	<u>125</u>
DoD Total	721	637	915	612	640	640

ROTC Programs

ROTC is a long lead-time program which is the single largest source of officers for the Armed Forces. Like the Service Academies, ROTC is used to provide a relatively constant input of officers for active duty, but ROTC also provides non-career officers as well as career officers. The program is currently conducted at 356 civilian colleges and universities throughout the nation. The Army, Navy, and Air Force each sponsor an ROTC program; up to one-sixth of the Navy graduates may be commissioned in the Marine Corps. Scholarships and subsistence allowances authorized by law, in addition to conventional recruiting and advertising methods, are used to attract qualified students. Scholarships are awarded to young men and women who exhibit potential ability and interest in fields of projected Service needs.

There are both scholarship and non-scholarship, as well as two-year and four-year, ROTC programs. The curriculum of each program is tailored to the needs of the individual Services. For example, the Navy teaches the basics of ship navigation, while the Army teaches the fundamentals of

ground combat and the Air Force provides some basic instruction in aerospace history and doctrine. Each of the programs includes instruction in leadership, 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 consists of a series of regularly scheduled academic classes throughout the school year combined with mandatory summer camps or cruises which are designed to give the student realistic military experience and a first-hand view of military life.

As noted at the beginning of this chapter, the ROTC program is not included in Service training loads because the students are not in an active military status. The following table provides the numbers of entrants, graduates, and total participants in the three Service programs during FY 1978.

ROTC Programs in FY 1978

<u>Service</u>	<u>Entrants</u>	<u>Graduates</u>	<u>Average Enrollments</u>	<u>Average Number of Scholarship Enrollees</u>
Army	43,966	6,485	63,355	6,391
Navy	2,900	1,390	8,000	5,800
Air Force	<u>7,875</u>	<u>2,830</u>	<u>15,487</u>	<u>4,734</u>
DoD Total	54,741	10,705	86,842	16,925

The Department of Defense is continuing to press for improved efficiency in ROTC programs. During the past year the number of low-production Army ROTC units has been substantially reduced. By working intensively to increase enrollments in all of its units, the Army has reduced the number of units below the DoD viability standard (17 students enrolled in the third year) from 87 units in FY 1976 to 36 in FY 1977. Four Army units are expected to be closed in FY 1977; four Navy units will be closed to new enrollments and phased out by FY 1980.

In the recent past the Air Force had to delay bringing some ROTC graduates onto active duty because of reduced officer accession requirements. This problem has now been resolved by reducing ROTC advanced course enrollments. All Air Force ROTC graduates in the backlog awaiting call to active

duty, except those granted education delays or pending final physical examinations, were brought on active duty by January 1977.

Off-Campus Commissioning Programs

Officer Acquisition Training programs in which college students participate but which are conducted off the college campus are the Navy's Aviation Reserve Officer Candidate (AVROC) program and the Marine Corps Platoon Leaders Class (PLC). These programs provide for enlistment as a Naval or Marine Corps Reservist while the student is still an undergraduate and require participation in summer military training.

Students participating in these programs attend either one or two summer training sessions, depending upon when, during their college career, they were enrolled. The objectives of the programs are to indoctrinate, motivate, and train the enrollees by providing instruction in basic military subjects, leadership, and physical training. In addition, students enrolled in the Aviation Reserve Officer Candidate programs receive limited flight orientation training and attend Navy Officer Candidate courses prior to receiving their commissions. PLC students are commissioned when their college degrees are conferred; the newly commissioned officers then attend the Marine Corps Officer Basic Course.

In conformance with the nature of these programs, the training loads in the following table are based only on the time spent in summer training. Loads, consequently, are low as compared to inputs and outputs.

The Navy Reserve Officer Candidate (ROC) program, for candidates in fields other than aviation, was discontinued at the end of FY 1976. The ROC load for FY 1976 (28) is not included in the following load table; however, this load is included in the summary table on page IV-2.

Training Inputs, Output, Loads,
Off-Campus Commissioning Programs
FY 1976-79

<u>Service</u> <u>Component</u>	<u>FY 76</u> <u>Load</u>	<u>FY 77</u> <u>Load</u>	<u>Input</u>	<u>FY 78</u> <u>Output</u>	<u>Load</u>	<u>FY 79</u> <u>Load</u>
<u>Naval Reserve</u>						
AVROC	72	62	300	210	62	60
<u>USMC Reserve</u>						
PLC	292	326	2,850	2,298	328	328
DoD Total	364	388	3,150	2,508	390	388

Officer Candidate Schools (OCS)

Each of the Military Services operates an Officer Candidate School. The Air Force school is entitled Officer Training School.

Enlisted members can use this route to "rise from the ranks". The existence of OCS programs, and the other enlisted commissioning programs covered in the next section, is therefore a significant advancement incentive to ambitious and promising enlisted personnel.

The Navy, Marine Corps and Air Force offer direct entry into OCS to selected college graduates without previous enlisted service. Some college students in highly specialized academic disciplines, such as engineering and physical sciences, feel that they cannot afford the time required to participate in ROTC; OCS allows a way to a commission for these persons and, as well, for other well-qualified persons who choose to become officers after graduation from college.

OCS training of all Services is open to men and women. The following table shows the lengths of the various courses.

Course Lengths, Officer Candidate Schools

<u>Service</u> <u>Course</u>	<u>Course Length (Weeks)</u>
<u>Army</u>	
OCS (Male and Female Students)	14
<u>Navy</u>	
OCS (Male and Female Students)	16 <u>a/</u>
Aviation OCS	16
<u>Marine Corps</u>	
OCS (Male Students)	12
Women's OCS	8
<u>Air Force</u>	
OTS (Male and Female Students)	12

a/ Presently 19 weeks; scheduled to be reduced to 16 weeks in FY 1978.

Load data for OCS programs are shown in the following table.

Training Inputs, Output, Loads,
Officer Candidate Schools
FY 1976-79

<u>Service</u> <u>Component</u>	<u>FY 76</u> <u>Load</u>	<u>FY 77</u> <u>Load</u>	<u>FY 78</u> <u>Input</u>	<u>Output</u>	<u>Load</u>	<u>FY 79</u> <u>Load</u>
<u>Army</u>						
Active	255	191	810	551	191	191
Reserve	2	3	21	15	4	4
Guard	15	31	265	180	42	42
<u>Navy</u>						
Active	440	585	1,280	1,174	359	395
<u>USMC</u>						
Active	231	114	924	601	148	160
Reserve	1	1	4	3	1	1
<u>Air Force</u>						
Active	155	185	1,733	1,490	379	373
Reserve	2	12	49	43	11	11
<u>DoD</u>						
Active	1,081	1,075	4,747	3,816	1,077	1,119
Res/Gd Total	<u>20</u>	<u>47</u>	<u>339</u>	<u>241</u>	<u>58</u>	<u>58</u>
<u>DoD Total</u>	<u>1,101</u>	<u>1,122</u>	<u>5,086</u>	<u>4,057</u>	<u>1,135</u>	<u>1,177</u>

Other Enlisted Commissioning Programs

The Air Force, Navy, and Marine Corps each have enlisted commissioning programs in addition to Officer Candidate courses. The purposes of these programs are: (1) to provide a source of officers in specific 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 enlisted personnel. The Naval Enlisted Scientific Education Program provides, for enlisted Naval and Marine Corps personnel, up to four years of college education leading to a baccalaureate degree in one of the major areas of engineering or mathematics and a commission in the Regular Navy or Marine Corps. A similar program, the Marine Enlisted Commissioning Education Program, offers a degree program in the liberal arts. Students in the USAF Airman Education and Commissioning Program major in engineering,

computer science, or physical science, with matriculation up to three years; the average academic time spent in the program is about 21 months. In all these enlisted commissioning programs, participants attend the Officer Candidate School of their Service before they are commissioned.

The following table displays load data for these programs. All participants are members of the active forces.

Training Inputs, Output, Loads,
Other Enlisted Commissioning Programs, FY 1976-79

<u>Service</u>	<u>FY 76</u>	<u>FY 77</u>	<u>FY 78</u>			<u>FY 79</u>
	<u>Load</u>	<u>Load</u>	<u>Input</u>	<u>Output</u>	<u>Load</u>	<u>Load</u>
Navy	918	739	371	424	522	522
Marine Corps	178	230	75	74	227	230
Air Force	<u>320</u>	<u>200</u>	<u>200</u>	<u>30</u>	<u>400</u>	<u>400</u>
DoD Total	1,416	1,169	646	528	1,149	1,152

Health Professions Acquisition Programs

This subcategory may be conveniently divided into three parts, the Armed Forces Health Professions Scholarship Program, the Uniformed Services University of the Health Sciences Program, and "other health professions acquisition programs."

The Health Professions Scholarship program was established in 1972 by Public Law 92-426. Participants are selected from among students, or those accepted for enrollment, in recognized health professions schools. Participants are commissioned in grade O1 in the Reserve of their parent Service, but, except for a short period of annual active duty, are not in active status.

They are, therefore, not included within the training loads of their Services. Upon graduation, participants must serve obligated tours of duty, the length of which depends on the length of their participation in the program.

The program is authorized a total of 5,000 scholarships at its current level. Service data for FY 1978 is shown in the following table:

<u>Service</u>	<u>Scholarships</u>	<u>FY 1978 Graduates</u>
Army	1,850	524
Navy	1,575	462
Air Force	<u>1,575</u>	<u>464</u>
DoD Total	5,000	1,450

An additional acquisition program for health professionals, the Uniformed Services University of the Health Sciences, began operation in 1976. However, the Department of Defense proposes to terminate the program prior to the end of FY 1977. Training loads for FY 1977, the only year of operation, are 12 each for Army and Air Force, 13 for Navy.

"Other health professionals acquisition programs" include a variety of programs with the purpose of recruiting required health professionals into the Services through tuition assistance or other aid. Among the included programs are programs for medicine, dentistry, nursing, and other disciplines in the health professions. Some programs offer assistance for full courses of professional training, whereas others are offered only to students in their final year of study. Some included programs support health professional training for active duty Service members, intended to produce high-retention health professionals. Participants in all programs incur an active duty obligation commensurate with the educational support received.

SPECIALIZED SKILL TRAINING

General Description

Specialized Skill Training provides officer and enlisted personnel with skills and knowledge needed to perform specific jobs. Each Service has established a job structure that makes it possible for it to carry out its assigned missions. Each position in each organization within that job structure has been analyzed to determine the skills necessary to insure that each job is done properly and efficiently. The purpose of Specialized Skill Training is to impart these required skills to the proper number of individuals in a phased manner so that each position vacancy in the structure can be filled promptly with a qualified replacement.

Specialized Skill Training, as used in this report, differs from "specialized training" as used in Service budget justifications in the following respects:

Inclusions: Specialized Skill Training includes Army Advanced Individual Training and Navy Apprenticeship Training. Some of the former and all of the latter are carried as part of Recruit Training in budget justifications. Specialized Skill Training also includes some aviation-related ground training carried in the budgets of some Services under Flight Training. In addition, enlisted leadership training below the level of that carried in Professional Development Education is included under Specialized Skill Training; for budget purposes this is generally carried in the operating forces.

Exclusions: All Officer Acquisition Training programs, notably Officer Candidate School.

Army One-Station Unit Training (OSUT), like Specialized Skill Training, provides Army personnel with job-related training in a number of skills. However, since OSUT is conducted as one continuous course which combines Recruit and Specialized Skill Training, it is treated separately in this report (see Chapter III), and OSUT loads are not included in the Specialized Skill Training loads in this chapter.

Specialized Skill Training loads for FY 1976-80 are as shown in the following table:

Total Specialized Skill Training Loads, FY 1976-80

<u>Service</u> <u>Component</u>	<u>FY 76</u>	<u>FY 77</u>	<u>FY 78</u>	<u>FY 79</u>	<u>FY 80</u>
<u>Army</u>					
Active	42,630	45,544	42,031	41,412	39,856
Reserve	3,219	4,673	5,861	6,333	6,077
Natl Guard	6,488	6,865	8,077	7,944	6,962
<u>Navy</u>					
Active	37,117	37,017	36,434	36,560	36,610
Reserve	552	588	661	647	647
<u>USMC</u>					
Active	11,117	10,703	11,136	11,482	11,482
Reserve	588	845	1,141	1,141	1,141
<u>Air Force</u>					
Active	26,531	27,607	27,915	28,973	29,144
Reserve	684	637	747	749	747
Natl Guard	1,085	1,415	1,782	1,785	1,785
<u>DoD</u>					
Active	117,395	120,871	117,516	118,427	117,092
Res/Gd Tot	12,616	15,023	18,269	18,599	17,359
<u>DoD Total</u>	<u>130,011</u>	<u>135,894</u>	<u>135,785</u>	<u>137,026</u>	<u>134,451</u>

As in the other types of training covered in this report, the demand placed on the training establishment for individuals with certain skills is determined by comparing projected requirements for each skill and skill level with the projected future inventory of trained service members.

When anticipated losses are deducted from the current inventory, shortages in various skill areas are revealed. These shortages, except for those which can be satisfied through on-the-job training, or, in a few cases, through lateral entry from civilian life of individuals who already possess an employable skill, create a demand for a phased output of trained replacement personnel. Estimates are made of the portion of students in each training course who will fail to complete the course. These course attrition factors determine the inputs necessary to achieve the desired course outputs. Inputs, outputs, attrition patterns, and course lengths determine the training loads. These factors are discussed for each sub-category of Specialized Skill Training in the remainder of this chapter.

Specialized Skill Training is the most diverse of the major categories of individual training. In the interest of clarity, the full category has been divided into five sub-categories. Two are concerned with initial skill training, one for officers, the other for enlisted personnel; two others cover more advanced training, again divided by officer and enlisted. The last category covers both officer and enlisted training which, for the most part, imparts required knowledge or skills without changing the student's primary skill or skill level.

Initial Skill Training (Enlisted)

Initial Skill Training (Enlisted) includes all formal training normally given immediately after Recruit Training and leading toward the award of a military occupational specialty or rating at the lowest skill level. Successful completion of the training qualifies the enlisted member to take a position in the job structure of the Service and to progress, through job experience, to the journeyman level. Army One-Station Unit Training satisfies this same purpose but, because it combines the skill training with recruit training in a single course, it is treated separately in this report.

The great majority of Service recruits are drawn from the least skilled segment of the population. Most recruits are under age 21 and have little civilian job experience. In addition, some civilian specialties are not in demand in the military job structure, and many of the most important military skills have no civilian counterpart. Consequently, only a small number of people enter the Service with a skill which can be used with little or no additional training, and enlistees must be trained in a skill before they can become productive. Some skills can be acquired through experience and on-the-job training. Most, however, are most effectively and efficiently learned through formal courses. In some situations, on board ship, for example, the opportunity for on-the-job training is often limited.

Load data for Initial Skill Training (Enlisted) are displayed in the following table. The classification of this training is determined by its purpose, rather than by whether entrants attend immediately after Recruit Training. Thus some prior-service students and cross-trainees from other skill areas may be reflected in these data.

Training Inputs, Output, Loads, Initial Skill Training (Enlisted)
FY 1976-79

<u>Service Component</u>	<u>FY 76 Load</u>	<u>FY 77 Load</u>	<u>Input</u>	<u>FY 78 Output</u>	<u>Load</u>	<u>FY 79 Load</u>
<u>Army</u>						
Active	29,992	29,679	149,485	136,103	26,691	25,749
Reserve	2,261	3,183	26,495	24,136	4,213	4,691
Natl Guard	5,572	5,753	43,702	39,799	6,735	6,709
<u>Navy</u>						
Active	21,298	20,760	165,870	163,867	20,203	20,204
Reserve	318	323	3,354	3,284	414	400
<u>USMC</u>						
Active	7,585	7,257	39,478	36,436	7,264	7,585
Reserve	475	742	5,986	5,589	981	981
<u>Air Force</u>						
Active	18,941	19,313	77,882	73,209	19,734	20,796
Reserve	553	530	3,280	3,090	631	633
Natl Guard	770	1,059	5,700	5,355	1,426	1,426
<u>DoD</u>						
Active	77,816	77,009	432,715	409,615	73,892	74,334
Res/Gd Tot	9,949	11,590	88,517	81,253	14,400	14,840
<u>DoD Total</u>	<u>87,765</u>	<u>88,599</u>	<u>521,232</u>	<u>490,868</u>	<u>88,292</u>	<u>89,174</u>

Reflecting the variety of skills required in the four Services, there are a large number of courses for enlisted personnel in Initial Skill Training, as shown in the following table:

Number of Courses, Initial Skill Training (Enlisted), FY 1978

<u>Army</u>	<u>Navy</u>	<u>Marine Corps</u>	<u>Air Force</u>
273	140	219 a/	250

a/ Includes courses conducted by the Navy and other Services programmed for attendance by Marines.

Some of these courses are in highly technical skills, such as nuclear reactor specialist or electronics technician. Others involve less complex, but not less important, skills -- infantryman, cook, clerk-typist, mechanic, and vehicle driver. A sampling of the courses in each Service which will produce the most graduates in FY 1978 is shown below:

Courses Producing Most Graduates, FY 1978

<u>Service</u> <u>Course</u>	<u>No. of</u> <u>Graduates</u>	<u>Length</u> <u>(days)</u>
Army		
Light Weapons Infantryman	23,624	56
Law Enforcement Specialist	7,618	56
Tracked Vehicle Mechanic	6,180	104
Communications Specialist	2,376	88
Navy		
Apprentice Training <u>a/</u>	27,323	16
Aviation Fundamental	21,032	11
Basic Electronics/Electricity	20,989	35
Machinist Mate	4,700	42
Basic Enlisted Submarine	4,510	45
Marine Corps		
Infantry Training School	8,430	44
Basic Administrative Clerk	1,971	25
Basic Electronics/Electrical	1,624	35
Basic Electronics	1,190	122
Field Radio Operator	770	54
Air Force		
Security Specialist	5,876	37
Jet Aircraft Maintenance (1-2 Engine)	4,221	68
Jet Aircraft Maintenance (Over 2 Engines)	3,778	88
Inventory Management Specialist	3,026	44

a/ Apprentice Training is composed of fundamental training in one of four basic skill areas: Seaman, Fireman, Airman, Constructionman. The course length shown is the average for those four skills.

Course lengths vary widely according to the complexity of the subject matter. For example, the Air Force course for avionics aerospace ground equipment specialist is 354 calendar days in length, whereas the course for law enforcement specialist takes only 37 days. Army nuclear power plant operators receive an entire year of training, but motor transport operators and general construction machine operators complete their training in 35 days. Average course lengths are displayed in the following table. The Navy average is low in comparison to the others because it includes a large number of students in short courses related to particular shipboard duties and because of the predominance of the relatively short apprentice courses; in addition, Navy personnel, to a

greater degree than personnel of other Services, receive supplementary formal training during their first enlistments.

Average Course Lengths (Days), Initial Skill
Training (Enlisted), FY 1978

<u>Army</u>	<u>Navy</u>	<u>Marine Corps</u>	<u>Air Force</u>
56	42	69	91

The final determinant of training loads is the anticipated rate of attrition. Attrition rates must be estimated for each course. The rate may be negligible for a reasonably routine course for which students entered in the course have the necessary mental abilities and motivation. Attrition may run much higher, up to one-third of the class entrants, in complex technical subjects, such as the Army Nuclear Weapons Electronic Specialist course. The average anticipated rates for FY 1978 are as shown:

Average Attrition Rates, Initial Skill Training (Enlisted), FY 1978
(Percent)

<u>Army</u>	<u>Navy</u>	<u>Marine Corps</u>	<u>Air Force</u>
9	11	9	6

Skill Progression Training (Enlisted)

This sub-category covers skill training received by enlisted personnel subsequent to Initial Skill Training. Through this training, the student gains the knowledge to perform at a more skilled level or in a supervisory position. Skill Progression Training is most frequently given after the Service member has gained experience through actual work in his specialty. In some cases, however, training in a relatively narrow subject area as an immediate follow-on to Initial Skill Training is included in Skill Progression Training.

Training load data for Skill Progression Training (Enlisted) are shown in the following table:

Training Inputs, Output, Loads, Skill Progression Training
(Enlisted) FY 1976-79

<u>Service</u>	<u>FY 76</u>	<u>FY 77</u>	<u>FY 78</u>		<u>FY 79</u>	
<u>Component</u>	<u>Load</u>	<u>Load</u>	<u>Input</u>	<u>Output</u>	<u>Load</u>	<u>Load</u>
<u>Army</u>						
Active	2,602	3,402	9,691	9,223	2,396	2,722
Reserve	306	530	1,465	1,431	497	427
Natl Guard	188	235	1,212	1,183	396	302
<u>Navy</u>						
Active	9,825	10,010	63,372	62,101	9,916	10,016
Reserve	39	55	475	467	37	37
<u>USMC</u>						
Active	1,203	1,131	5,997	5,810	1,293	1,293
Reserve	45	42	805	805	78	76
<u>Air Force</u>						
Active	6,152	6,443	71,085	69,900	6,397	6,392
Reserve	69	49	759	749	57	57
Natl Guard	228	281	4,981	4,433	281	284
<u>DoD</u>						
Active	19,782	20,986	150,145	147,034	20,002	20,423
Res/Gd Tot	875	1,192	9,697	9,068	1,346	1,185
<u>DoD Total</u>	<u>20,657</u>	<u>22,178</u>	<u>159,842</u>	<u>156,102</u>	<u>21,348</u>	<u>21,608</u>

The requirement for Skill Progression Training arises from the fact that training in a skill at entry level and subsequent experience do not, in many cases, fully qualify a service member to do the more advanced jobs in his field without further formal training. Several factors may contribute, singly or in combination, to a need for additional formal training:

1. The introduction of new equipment.
2. The need to produce a higher degree of skill in a sub-specialty.
3. The need to impart a broader base of knowledge to qualify an individual for a supervisory responsibility.
4. The requirement for refresher training to bring the service member up to date on the latest information and techniques in his skill.

The primary need, as in all other types of training, is to have trained individuals available to replace losses as they occur. Planning future training in this sub-category follows the same general pattern as for Initial Skill Training. Some additional complications, however, are introduced by the fact that members eligible for schooling are frequently serving overseas or on board ship, rather than flowing from the Recruit Training pipeline. This situation frequently requires that personnel receive the training when they are available, preferably between duty assignments, rather than when they might more easily be accommodated for formal school training.

The following table displays statistics in Skill Progression Training in each of the Services for FY 1978.

Skill Progression Training (Enlisted), FY 1978

	<u>Army</u>	<u>Navy</u>	<u>Marine Corps</u>	<u>a/</u> <u>Air Force</u>
Number of Courses	93	1,140	170	1,600
Average Course Lengths (Days)	77	51	75	29
Projected Attrition Rate (Percent)	6	4	4	1

a/ Includes courses conducted by the Navy and other Services programmed for attendance by Marines.

The large number of Navy and Air Force courses is a reflection of the technical nature of these Services and their large number of sub-specialties. Of course, part of the difference is attributable to differing Service approaches to course definition and segmenting.

Initial Skill Training (Officer)

As a general rule, Officer Acquisition Training is oriented toward the broad educational background and general military training which is considered necessary for all officers entering a Service. In consequence, most newly commissioned officers require further training for the specific type of duty they will be performing in their first duty assignment. Initial Skill Training for officers is, therefore, analogous to Initial Skill

Training for enlisted personnel -- both provide the job-oriented training which, added to the military fundamentals learned earlier, prepares the individual for taking a place in the job structure.

Load data for Initial Skill Training (Officer) are displayed in the following table:

Training Inputs, Output, Loads, Initial Skill Training
(Officer), FY 1976-79

<u>Service</u>	<u>FY 76</u>	<u>FY 77</u>		<u>FY 78</u>		<u>FY 79</u>
<u>Component</u>	<u>Load</u>	<u>Load</u>	<u>Input</u>	<u>Output</u>	<u>Load</u>	<u>Load</u>
<u>Army</u>						
Active	1,606	1,713	8,388	8,305	1,974	2,080
Reserve	179	231	1,119	1,108	269	304
Natl Guard	257	290	1,724	1,709	283	283
<u>Navy</u>						
Active	956	1,111	5,000	4,883	1,149	1,148
Reserve	21	27	250	245	27	27
<u>USMC</u>						
Active	1,449	1,398	3,512	3,549	1,513	1,513
Reserve	6	4	10	10	4	4
<u>Air Force</u>						
Active	696	1,002	5,529	5,485	983	1,006
Reserve	16	11	95	96	12	12
Natl Guard	29	32	196	193	32	32
<u>DoD</u>						
Active	4,707	5,224	22,429	22,222	5,619	5,747
Res/Gd Tot	<u>508</u>	<u>595</u>	<u>3,394</u>	<u>3,361</u>	<u>627</u>	<u>662</u>
<u>DoD Total</u>	<u>5,215</u>	<u>5,819</u>	<u>25,823</u>	<u>25,583</u>	<u>6,246</u>	<u>6,409</u>

With minor exceptions, all newly commissioned Army officers attend officer basic courses at their branch schools -- Infantry officers at the Infantry School, Engineer officers at the Engineer School, etc. Most of these courses are 12 weeks in length, and the officer attends before reporting to his first unit of assignment. In addition, certain officers are selected to attend follow-on skill or functional training courses for more specialized assignments.

All submarine and nuclear officers and most Surface Navy officers go to Initial Skill Training. The Navy provides 22 courses for officers in Initial Skill Training, with an average length of 99 days.

All newly commissioned Marine Corps officers attend a basic course (26 weeks in length for male officers, 10 weeks for female officers) for general orientation and training. The Marine Corps is conducting a pilot test of a single basic course for both men and women officers. In addition, Marine officers attend 44 Initial Skill Training courses (some conducted by Navy or other Services), averaging 76 days in length, related to specific officer jobs.

The Air Force conducts 54 Initial Skill Training courses for officers, with an average length of 91 days; about 45 percent of newly commissioned officers attend these courses.

Skill Progression Training (Officer)

Skill Progression Training for officers is, in general, aimed at officers with several years of practical experience and provides them knowledge needed to assume more advanced responsibilities. For example, the Army provides advanced courses which are structured to prepare the students for battalion and brigade duties in addition to command responsibilities at the company and battery level. Data for Skill Progression Training (Officer) are displayed in the following table:

Training Inputs, Output, Loads, Skill Progression Training (Officer), FY 1976-79

<u>Service</u>	<u>FY 76</u>	<u>FY 77</u>	<u>FY 78</u>		<u>FY 79</u>	
<u>Component</u>	<u>Load</u>	<u>Load</u>	<u>Input</u>	<u>Output</u>	<u>Load</u>	<u>Load</u>
<u>Army</u>						
Active	2,315	3,187	11,820	11,710	3,142	3,215
Reserve	119	273	1,849	1,841	336	381
Natl Guard	311	394	2,171	2,156	444	437
<u>Navy</u>						
Active	970	1,021	6,964	6,748	1,050	1,079
Reserve	11	11	183	181	11	11
<u>USMC</u>						
Active	147	148	526	534	152	152
Reserve	6	3	120	120	6	6
<u>Air Force</u>						
Active	539	683	9,874	9,773	649	649
Reserve	28	25	626	616	25	25
Natl Guard	51	35	970	957	35	35
<u>DoD</u>						
Active	3,971	5,039	29,184	28,765	4,993	5,095
Res/Gd Tot	526	741	5,919	5,871	857	895
<u>DoD Total</u>	<u>4,497</u>	<u>5,780</u>	<u>35,103</u>	<u>34,636</u>	<u>5,850</u>	<u>5,990</u>

The Army conducts 12 branch-oriented courses, most of which are 26 weeks in length. The Navy maintains 133 courses, averaging 51 days in length, which cover a variety of specialized duties which are typically performed by officers with several years of service -- for example, destroyer officer course, aviation maintenance officer course, and nuclear propulsion plant course.

Both the Marine Corps and the Air Force conduct broad courses for officers at about the same level as the Army's advanced courses; however, as these are Service-wide and uniform in content, they are carried in Professional Development Education. Within Skill Progression Training, Marine Corps officers attend 77 courses, with an average length of 89 days, on a variety of specialized subjects, some conducted by the Navy or other Services. The Air Force has 550 courses, averaging 19 days in length, for the purpose of training officers in new duties required by their prospective assignments.

Functional Training

Functional Training is an "all other" sub-category covering those types of required training which do not fit neatly into the definitions of the other sub-categories. By and large, Functional Training is in subject areas which cut across the scope of military occupational specialties and provides additional required skills without changing the student's primary speciality or skill level. An example is a Damage Control Course conducted by the Navy. Both officers and enlisted personnel participate in Functional Training. Load data for Functional Training are shown in the following table.

Training Inputs, Output, Loads, Functional Training,
FY 1976-79

<u>Service</u>	<u>FY 76</u>	<u>FY 77</u>	<u>FY 78</u>			<u>FY 79</u>
<u>Component</u>	<u>Load</u>	<u>Load</u>	<u>Input</u>	<u>Output</u>	<u>Load</u>	<u>Load</u>
<u>Army</u>						
Active	6,115	7,563	71,245	69,070	7,828	7,646
Reserve	354	456	6,500	6,346	546	530
Natl Guard	160	193	2,734	2,672	219	213
<u>Navy</u>						
Active	4,068	4,115	353,704	344,344	4,116	4,121
Reserve	163	172	18,538	18,386	172	172
<u>USMC</u>						
Active	733	769	11,334	10,639	914	939
Reserve	56	54	1,608	1,596	72	72
<u>Air Force</u>						
Active	203	166	7,694	7,622	152	130
Reserve	18	22	1,225	1,220	22	22
Natl Guard	7	8	360	358	8	8
<u>DoD</u>						
Active	11,119	12,613	443,977	431,675	13,010	12,836
Res/Gd Tot	758	905	30,965	30,578	1,039	1,017
<u>DoD Total</u>	<u>11,877</u>	<u>13,518</u>	<u>474,942</u>	<u>462,253</u>	<u>14,049</u>	<u>13,853</u>

Army Functional Training includes the airborne, ranger, and special forces qualification courses, some specialized NCO supervision courses, and a number of courses related to specialized equipment (e.g., Manual Cordless Switchboard Repair; 8-inch Atomic Projectile Assembly).

Navy Functional Training differs from that of the other Services because of the very high input to a large number of very short courses (the longest is 12 days, the shortest is one day). Most of the training consists of in-port training for ships' crews, and includes the following types of activity:

1. Shore training for shipboard teams (firefighting, damage control, anti-submarine warfare, etc.).
2. Short basic or refresher courses at fleet training centers in the operation of equipment or systems.
3. Shipboard in-port training assistance.

4. Precommissioning training for newly formed crews of ships under construction.

Marine Corps Functional Training provides skills required for specific jobs but not limited to a primary occupational specialty. Some of the included courses are scuba training, sea duty indoctrination, and drill instruction training.

All Air Force Functional Training is survival training related to various environments: water, arctic, jungle, or tropic.

The following table provides additional statistics on Functional Training.

Courses and Course Lengths, Functional Training, FY 1978

	<u>Army</u>	<u>Navy</u>	<u>Marine Corps</u>	<u>a/ Air Force</u>
Number of courses	477	1,448	246	8
Average Course Length (days)	36	4	25	7

a/ Includes courses conducted by the Navy and other Services programmed for attendance by Marines.

VI

FLIGHT TRAINING

General

Flight Training programs provide basic flying skills required prior to operational assignment of pilots, navigators, and naval flight officers. Most of the training in this category is undergraduate flight training; at the conclusion of this training, a graduate is awarded "wings" and is classified as a "designated" or "rated" officer. Flight Training includes programs for pilots of all Services, navigators in the Air Force, and naval flight officers in the Navy and Marine Corps. Pilot training may be in jet or propeller-driven fixed-wing aircraft, or in helicopters. Some related advanced flight training, such as Army instructor pilot training and Air Force navigator/bombardier and electronic warfare training, is also included in Flight Training. Enlisted programs in aviation-related subjects (for example, in air traffic control) and Air Force survival training have been placed, for purposes of this report, in Specialized Skill Training. Marine Corps enlisted navigator training is included in Flight Training.

Flight Training loads, by Service and component, for Fiscal Years 1976 through 1980 are shown in the following table.

Total Flight Training Loads, FY 1976-80

<u>Service</u> <u>Component</u>	<u>FY 76</u>	<u>FY 77</u>	<u>FY 78</u>	<u>FY 79</u>	<u>FY 80</u>
<u>Army</u>					
Active	709	737	698	759	845
Reserve	10	10	9	30	30
Natl Guard	28	22	26	57	81
<u>Navy</u>					
Active	1,442	1,269	1,305	1,311	1,319
<u>USMC</u>					
Active	563	672	631	571	638
<u>Air Force</u>					
Active	2,068	1,999	1,851	1,738	1,908
Reserve	35	28	29	31	31
Natl Guard	90	96	96	95	95
<u>DoD</u>					
Active	4,782	4,677	4,485	4,379	4,710
Res/Gd Tot	<u>163</u>	<u>156</u>	<u>160</u>	<u>213</u>	<u>237</u>
<u>DoD Total</u>	<u>4,945</u>	<u>4,833</u>	<u>4,645</u>	<u>4,592</u>	<u>5,608</u>

Flight Training loads have been reduced by approximately 40 percent over the period FY 1974 to FY 1978 because of the net effect of the following factors:

- Reductions in aviator requirements in all Services, except for moderate increases in Army aviator requirements associated with the 16-division force objective beginning in FY 1976.

- Restriction of undergraduate flight training for Reserve Component members to the number needed to fill positions in reserve aviation units which cannot be filled through recruitment of experienced aviators leaving active duty -- as, for example, positions in aviation units which are remote from major population centers.

Service forecasts indicate that aviator training rates will rise in the future as aviator overages remaining from the Vietnam peak are dissipated and rates return to sustaining levels needed for meeting currently approved contingency scenarios.

For purposes of clarity, the following discussion of aviation training is divided into four sections, each treating a sub-category of Flight Training.

Flight Familiarization Training

Flight Familiarization Training is a relatively small and economical primary pilot training program which has been conducted by each of the Services and is closely identified with officer acquisition programs. Its purpose is two-fold: (1) as an incentive, to motivate qualified candidates toward aviation careers, and (2) as a screening device, to identify those candidates most likely to be successful in flying. In connection with the latter purpose, early identification of personnel who lack the desire or potential to become aviators lowers the attrition rate in subsequent, more costly, flight training courses.

A limited number of Military Academy cadets and Naval Academy midshipmen participate in Flight Familiarization Training. Air Force Academy cadets who volunteer and are physically qualified receive similar training during their last year at the Academy. Only Air Force ROTC, of the civilian college-based officer acquisition programs, continues to offer this training.

In addition to the training connected with officer acquisition programs, the Air Force conducts a separate 24-day flight screening program for other candidates for Undergraduate Pilot Training. In the other Services this purpose is accomplished during the first phase of Undergraduate Pilot Training.

Data showing the scope of these programs are displayed in the following table. Workload data attributable to students in officer acquisition programs (noted in parentheses) are not additive to total Service loads, since they are either already within other Service loads or are included in participation data for ROTC and similar programs.

Training Inputs, Output, Loads, Flight Familiarization
Program, FY 1977, 78

<u>Service</u> <u>Component</u>	<u>FY 76</u> <u>Load</u>	<u>FY 77</u> <u>Load</u>	<u>Input</u>	<u>FY 78</u> <u>Output</u>	<u>Load</u>	<u>FY 79</u> <u>Load</u>
<u>Army</u>						
All Components	-	-	(52)	(52)	-	-
<u>Navy</u>						
All Components	-	-	(300)	(210)	-	-
<u>Air Force</u>						
Active	11	9	177	154	11	17
Reserve	1	1	6	6	1	1
Natl Guard	3	4	64	61	4	4
USAF Academy and ROTC	-	-	(777)	(746)	-	-
<u>DoD</u>						
Active	11	9	177	154	11	17
Res/Gd Tot	<u>4</u>	<u>5</u>	<u>70</u>	<u>67</u>	<u>5</u>	<u>5</u>
DoD Total	15	14	247	221	16	22

Undergraduate Pilot Training

The purpose of Undergraduate Pilot Training is to qualify students to perform the basic duties and assume the responsibilities of military pilots. Courses include sufficient flying training to allow the student to attain proficiency in the general class of aircraft (jet, prop, or helicopter) he will be flying in future assignments. Training through flying or in flight simulators is augmented by flight-related ground training and, ordinarily, some officer professional development training to prepare the student for the responsibilities of a junior officer. For the Army, which uses a large number of warrant officer pilots, an augmented course serves additionally as a warrant officer candidate school. The Navy also has conducted Navy officer training for aviation officer candidates concurrently with the early phases of flight training.

Training data for FY 1976-79 are displayed in the following table:

Training Inputs, Output, Loads, Undergraduate
Pilot Training, FY 1976-79

<u>Service</u> <u>Component</u>	<u>FY 76</u> <u>Load</u>	<u>FY 77</u> <u>Load</u>	<u>Input</u>	<u>FY 78</u> <u>Output</u>	<u>Load</u>	<u>FY 79</u> <u>Load</u>
<u>Army</u>						
Active	604	567	974	665	599	693
Reserve	1	-	28	24	17	17
Natl Guard	2	-	45	36	28	28
<u>Navy</u>						
Active	1,010	877	1,210	800	840	910
<u>USMC</u>						
Active	424	509	644	382	455	522
<u>Air Force</u>						
Active	1,280	1,097	1,208	1,050	1,034	1,113
Reserve	24	20	24	21	21	21
Natl Guard	69	72	84	71	71	71
<u>DoD</u>						
Active	3,318	3,050	4,036	2,897	2,928	3,238
Res/Gd Tot	96	92	181	152	137	137
<u>DoD Total</u>	<u>3,414</u>	<u>3,142</u>	<u>4,217</u>	<u>3,049</u>	<u>3,065</u>	<u>3,375</u>

In the FY 1977 President's Budget the Department of Defense proposed to consolidate all Defense undergraduate helicopter pilot training into a single program conducted by Army. The conferees on the FY 1977 Defense Appropriations Bill directed that consolidation not proceed pending further study. Since the preliminary results of the study demonstrated that consolidation would save substantial resources without loss of training effectiveness, a proposal for consolidation has been included in the FY 1978 President's Budget. The report of the Defense study is nearing completion, and will be submitted to the Congress by the directed date, April 15, 1977.

Under the consolidation proposal, the Army will conduct all undergraduate helicopter pilot training for the Military Services. The training program will use helicopters exclusively as training aircraft, rather than both fixed and rotary-wing aircraft as in the current Navy course, and rely heavily on training in modern, highly capable flight simulators. It is expected that the final segment of the course will be Service-unique, reflecting Service mission differences and related training needs. The student body will consist

of commissioned officers of all Services and Army warrant officer candidates, for whom the course, which is six weeks longer than the course for commissioned officers, is also a warrant officer candidate school. About 62 percent of the combined Army loads in FY 1978 consists of warrant officer candidates.

The following table shows programmed course length and projected attrition rates for FY 1978 for each type of student.

Course Length and Attrition Rates, Undergraduate
Helicopter Pilot Training, FY 1978

	<u>Commissioned Officers</u>	<u>Army Warrant Officer Candidates</u>
Course Length (weeks)	34	40
Attrition Rate (Percent)	10-11	25

Load data for each Service for undergraduate helicopter pilot training are shown below.

Training Inputs, Output, Loads, Undergraduate
Helicopter Pilot Training, FY 1976-79

<u>Service</u> <u>Component</u>	<u>FY 76</u> <u>Load</u>	<u>FY 77</u> <u>Load</u>	<u>Input</u>	<u>FY 78</u> <u>Output</u>	<u>Load</u>	<u>FY 79</u> <u>Load</u>
<u>Army</u>						
Active	604	567	974	665	599	693
Reserve	1	-	28	24	17	17
Natl Guard	2	-	45	36	28	28
<u>Navy</u>						
Active	205	178	272	195	162	181
<u>USMC</u>						
Active	218	308	419	267	293	313
<u>Air Force</u>						
Active	40	39	54	50	39	36
Reserve	-	1	-	-	-	-
Natl Guard	1	1	-	-	-	-
<u>DoD</u>						
Active	1,067	1,092	1,719	1,177	1,093	1,223
Res/Gd Tot	4	2	73	60	45	45
DoD Total	1,071	1,094	1,792	1,237	1,138	1,268

The Navy has been conducting Undergraduate Pilot Training for all Navy, Marine Corps, and Coast Guard students. The Navy helicopter pilot training program is conducted in both fixed and rotary-wing aircraft. It is proposed that Navy and Marine Corps undergraduate helicopter pilot training beginning in FY 1978 will be conducted by Army, as already noted. Navy and Marine Corps load data for both the current Navy-conducted course and the proposed consolidated course are included in the preceding table.

Navy undergraduate pilot training begins with a common core of basic ground training and primary flight training and then diverges according to whether the student is to be qualified in jet aircraft or propeller aircraft. The basic ground phase, or environmental indoctrination phase, is four weeks in length for officer students and 11 weeks for aviation officer candidates, since this phase also serves as an officer training period for the latter group.

The following table shows course lengths, attrition rates, and aircraft used for training for each phase of the syllabus.

Course Phasing, Navy/Marine Corps
Undergraduate Pilot Training

<u>Course Phase</u>	<u>Course Length (Weeks)</u>	<u>Attrition Rate (Percent)</u>	<u>Type Aircraft</u>
<u>Environmental Indoctrination</u>			
Aviation Officer Candidates	12	10	-
Officers	4	2	-
<u>Primary (all students for jet and prop)</u>	16	16	T-28 <u>a/</u>
<u>Strike Training (Jet)</u>			
Intermediate Jet	19	8	T-2
Advanced Jet	16	4	TA-4
<u>Maritime Training (Prop)</u>			
Intermediate Prop	5	3	T-28
Advanced Prop	15	2	TS-2A <u>b/</u>

a/ Being replaced by the T-34C aircraft.

b/ Being replaced by the T-44 aircraft.

Because of the task requirements which dictate variations in course content, the standard Undergraduate Pilot Training course is as short as 40 weeks for an officer student qualifying in propeller aircraft or as long as 63 weeks for an aviation officer candidate qualifying in jets. Actual course lengths may be longer because of unforeseen circumstances such as major aircraft groundings, fuel shortages, or inclement weather. Attrition rates vary considerably, depending on the source of the student, from 15 percent for Regular Navy officers to 30 percent for aviation officer candidates.

The following table displays load data for Navy and Marine Corps Undergraduate Pilot Training. All participants are in the active force.

Training Inputs, Output, Loads, Navy/Marine Corps
Undergraduate Pilot Training, FY 1976-79

<u>Service</u>	<u>FY 76</u>	<u>FY 77</u>	<u>FY 78</u>			<u>FY 79</u>
	<u>Load</u>	<u>Load</u>	<u>Input</u>	<u>Output</u>	<u>Load</u>	<u>Load</u>
<u>Navy</u>	1,010	877	1,210	800	840	910
Jet	(442)	(437)	(533)	(335)	(434)	(466)
Prop	(363)	(262)	(405)	(270)	(244)	(263)
Helo a/	(205)	(178)	(272)	(195)	(162)	(181)
<u>USMC</u>	424	509	644	382	455	522
Jet	(206)	(201)	(225)	(115)	(162)	(209)
Helo a/	(218)	(308)	(419)	(267)	(293)	(313)

a/ Proposed to be conducted by Army beginning in FY 1978.

The final program of Undergraduate Pilot Training is Air Force training of jet pilots. All Air Force pilots, except helicopter pilots trained in the Army program, are trained in this jet program at the present time. The standard course length is 48.5 weeks. Forecasted attrition for FY 1978 is 13.5 percent, not including that which occurs in the flight screening of the Flight Familiarization Training program. Load data are shown in the following table.

Training Inputs, Output, Loads, Air Force Undergraduate
Jet Pilot Training, FY 1976-79

	<u>FY 76</u>	<u>FY 77</u>	<u>FY 78</u>		<u>FY 79</u>
	<u>Load</u>	<u>Load</u>	<u>Input</u>	<u>Output</u>	<u>Load</u>
Active	1,240	1,058	1,154	1,000	995
Reserve	24	19	24	21	21
Natl Guard	68	71	84	71	71

At the conclusion of Undergraduate Pilot Training, the new pilot is capable of operating an aircraft in such a manner that future training required, in order to accomplish a specific mission, is limited to advanced flight training in aircraft used in operational units and training in the employment of applicable mission weapon systems.

Undergraduate Navigator Training

The Navy has trained its own personnel and Marine Corps personnel to become Naval Flight Officers. The Air Force has trained its own personnel as navigators. The duties of Naval Flight Officers and Air Force navigators are not precisely the same because of mission differences. But at the undergraduate level, they are sufficiently similar that they are referred to collectively in this report as "navigators". (The Army does not train or use navigators.) Some navigator training has recently been consolidated, as is discussed later.

The Naval Flight Officer training program begins with the same ground training phase given to pilots -- four weeks for officers, 12 weeks for aviation officer candidates. This is followed by a basic 24 week phase covering navigation, meteorology, radar systems, and other fundamentals, and including some simulator and in-flight training in practical flight skills. A student then proceeds to one of five advanced phases: radar intercept officer (13 weeks); basic jet navigator (6 weeks); airborne electronic warfare officer (6 weeks); airborne tactical data systems officer (10 weeks); or multi-engine navigator (22 weeks). The overall course syllabus length is 34 to 58 weeks.

The Air Force undergraduate navigator training courses include academic instruction in navigation procedures and equipment and practical simulator and in-flight training involving navigation and other flight crew duties under a variety of mission conditions. Course length in FY 1978 will be 33 weeks, three weeks less than in FY 1974.

The advanced segment of undergraduate navigator training for Naval Flight Officers destined for the anti-submarine warfare community was merged into the Air Force program at Mather Air Force Base in California in the last half of calendar year 1976. This involves Naval Flight Officers destined to become navigators of multi-engine aircraft in

the program already described. This consolidation was worked out by agreement between the Departments of the Navy and Air Force following a study conducted by the Interservice Training Review Organization.

The consolidation also involves the Marine Corps enlisted navigator training program, which provides crewmen for the KC-130 aircraft. As this program does not produce Naval Flight Officers, it is omitted from the next table, although included in Flight Training totals.

Undergraduate Navigator Training provides sufficient skills and knowledge so that further training for the newly rated navigator can be limited to advanced flight training in operational aircraft and training in employment of applicable weapons systems. Training load data for Undergraduate Navigator Training are shown in the following table.

Training Inputs, Output, Loads, Undergraduate
Navigator Training, FY 1976-79

<u>Service</u> <u>Component</u>	<u>FY 76</u> <u>Load</u>	<u>FY 77</u> <u>Load</u>	<u>Input</u>	<u>FY 78</u> <u>Output</u>	<u>Load</u>	<u>FY 79</u> <u>Load</u>
<u>Navy</u>						
Active	432	428	703	460	471	409
<u>USMC a/</u>						
Active	123	100	153	100	94	94
<u>Air Force</u>						
Active	468	394	635	500	379	450
Reserve	5	3	4	4	3	3
Natl Guard	14	16	27	24	16	16
<u>DoD</u>						
Active	1,023	922	1,491	1,060	944	953
Res/Gd Tot	19	19	31	28	19	19
DoD Total	1,042	941	1,522	1,088	963	972

a/ Does not include Marine Corps enlisted navigator loads (22 in both FY 1978 and FY 79) which are included in Flight Training totals.

Other Flight Training

This category covers miscellaneous other types of flight training as described below by Service. Load data for FY 1976-79 are displayed in the following table.

Training Inputs, Output, Loads, Other Flight
Training, FY 1976-79

<u>Service</u> <u>Component</u>	<u>FY 76</u> <u>Load</u>	<u>FY 77</u> <u>Load</u>	<u>Input</u>	<u>FY 78</u> <u>Output</u>	<u>Load</u>	<u>FY 79</u> <u>Load</u>
<u>Army</u>						
Active	105	131	1,557	1,556	160	152
Reserve	9	9	107	107	13	13
Natl Guard	26	26	251	251	29	30
<u>Air Force</u>						
Active	309	351	1,600	1,590	314	328
Reserve	5	5	29	28	6	6
Natl Guard	4	4	21	21	4	4
<u>DoD</u>						
Active	414	482	3,157	3,146	474	480
Res/Gd Tot	<u>44</u>	<u>44</u>	<u>408</u>	<u>407</u>	<u>52</u>	<u>53</u>
DoD Total	458	526	3,565	3,553	526	533

The Army includes in this category courses for instructor pilots and specific pilot qualification courses in various aircraft. Most of the courses are short, in the range of two to seven weeks.

The Navy and Marine Corps do not report training in this category, noting that postgraduate flight training is conducted under operational command auspices. The Air Force Other Flight Training workload is limited largely to instructor courses for pilots and navigators and some specialized courses conducted by the Air Training Command in such fields as electronic warfare. Most Air Force postgraduate flight training is conducted under operational command auspices.

In each of the Services, graduates of undergraduate pilot and undergraduate navigator training receive supplementary training in the specific aircraft they will be flying on operational missions. Emphasis is placed on crew training and performance under conditions which would be encountered in combat. In the Army most of this training is provided as part of normal unit training by the operational unit to which the new pilot is assigned. In the other Services, this additional training is provided by Navy fleet readiness squadrons, Marine combat crew readiness training squadrons, and Air Force combat crew training squadrons. As an exception, centrally-conducted Army advanced flight training

loads are included within Other Flight Training loads. However, most such training is considered "crew and unit training" by the Navy, Marine Corps, and Air Force and is not included in the loads of this report.

Determination of Requirements for Rated Officers

Flight Training rates are developed by comparing projections of future requirements for rated officers with projections of the future status of inventories of rated officers. Due consideration is also given to the need to have sufficient aviators on hand, in appropriate grades, to fill positions in operational units. Requirements for rated officers include both the numbers needed to man the force in peacetime and the additional increment needed initially when war breaks out to man and sustain the force until training output can be expanded. For analytical purposes, aviator requirements are divided into two parts: unit and individuals. Requirements for aviators for each of these categories are computed to meet both (1) peacetime needs and (2) wartime mobilization needs.

Unit requirements represent the number of rated officers needed to carry out operational, management, and training activities for programmed units. Each such authorized position (that is, military space or billet) requires a rated officer as an incumbent in order to carry out the functions of the job, either because the job involves flying duties or requires flying experience. Other positions which may be occupied by rated officers for career broadening or similar purposes, but which do not require rated officer incumbents for accomplishing the duties, are not included. Unit requirements have three subcomponents: force, training, and supervision.

Force requirements are the positions required to man and operate the Services' force aircraft. The number of force positions is a product of established crew ratios, or the number of crews per aircraft, which in turn take into account workload (flying hour) factors and the amount of mission flying and unit flight training which is necessary.

Training positions include the flyers who are conducting formal flight training.

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Training positions include the flyers who are conducting formal flight training.

The supervision component is made up of officer positions entailing actual supervision of flying and flight-related activities and the performance of staff jobs which require the expertise of a rated officer. These positions are subject to continuous scrutiny to assure that rated requirements are valid.

Individual requirements include the transients, students and other individuals needed to make it possible to provide for reasonable manning of positions in units.

The "supplement" is the difference between the total number of rated officers required for approved wartime scenarios and the total number required in peacetime. Supplement requirements are based on two considerations: (1) the demand for rated officers is greater in wartime than in peacetime; upon the beginning of war, training pipelines to and from the theaters of war, combat casualties, and higher crew ratios immediately create additional requirements for rated officers; (2) flight training takes a significant amount of time, that is, requires a long "lead time." There should be enough pilots and navigators planned to be on hand in peacetime to be able to execute approved mobilization contingency scenarios, with prudent risk, until flight training programs can be brought to higher production levels.

The sum of rated peacetime requirements and the supplement for each Service essentially defines each Service's current and projected requirement for rated officers. Other considerations may be significant, such as need for filling requirements for positions for entry-level aviators.

Rated Officer Inventory Projections

Projecting rated officer inventories into the future must be based on historical experience, current judgment, and an appraisal of how the officers will react to conditions in the future (i.e., pay, morale, state of the civilian economy, civilian airline hiring plans, family satisfaction with service life, etc.). These estimates are projected for at least five years in the future. Comparisons of total force inventories of rated officers are then made against the computed total force requirements, and training rates for the entire five-year period are adjusted. This process is

repeated each year so that adjustments can be made in training rates based on changes in requirements and/or updated inventory projections. This continuing process of adjustment is necessary to insure that the correct number of trained rated officers will be available in the future without large and expensive fluctuations in training rates.

Training Rate Adjustments

When a comparison of requirements and inventories discloses a shortage or overage of projected rated officers, training rates are adjusted upward or downward in order to bring the program back into balance. For example, if projected FY 1982 pilot requirements exceed projected inventories by 1,000, an increase in training rates (that is, output or production) of pilots of 250 per year starting in FY 1979 may be appropriate. Inputs into the training program would start in FY 1978 in order to obtain the first increase in desired output in FY 1979. This process would be repeated at least once each year, with adjustments made as necessary to avoid wide fluctuations in loads.

Determination of Training Loads

The process described above, through continuous updating of the comparison between projected rated officer requirements and inventories, leads to a requirement for phased output from the flight training establishment. The desired annual output, considering the anticipated attrition rates and the planned course lengths, as discussed in the preceding sections on the various types of flight training, establishes the size of the input necessary to achieve the target output. Training loads are then calculated, using these factors, to determine the average number of students on hand during the training year. For FY 1978-79, the recommended loads are those displayed previously in this chapter.

VII

PROFESSIONAL DEVELOPMENT EDUCATION

General Description

The purpose of Professional Development Education is to provide training and education to career military personnel to prepare them to perform the increasingly complex tasks which become their responsibilities as they progress in their military careers. Whereas Specialized Skill Training is directed toward specific job skills, Professional Development Education is concerned with broader professional development goals in such subjects as military science, engineering, medicine, and management. Professional Development Education is conducted at both military and civilian institutions. Some enlisted personnel participate in courses included in this category, as, for example, in senior noncommissioned officer leadership courses. However, most of the programs in this category are for the professional development of officers.

For purposes of this report, Professional Development Education excludes officer acquisition programs, which are shown under Officer Acquisition Training. It includes senior enlisted leadership training, usually carried in budget justification documents as specialized training, in recognition of the broad professional content of these courses, as opposed to the narrower skill-oriented training typical of most enlisted training programs.

Training loads for FY 1976-80 are as shown in the following table.

Total Professional Development Loads, FY 1976-80

<u>Service</u> <u>Component</u>	<u>FY 76</u>	<u>FY 77</u>	<u>FY 78</u>	<u>FY 79</u>	<u>FY 80</u>
<u>Army</u>					
Active	4,023	3,271	3,758	4,087	4,188
Reserve	125	93	152	145	144
Natl Guard	94	96	137	127	127
<u>Navy</u>					
Active	2,767	1,846	2,125	1,967	1,888
Reserve	11	4	7	7	7
<u>USMC</u>					
Active	801	424	688	735	746
Reserve	15	56	15	15	15
<u>Air Force</u>					
Active	4,491	3,912	4,390	4,599	4,538
Reserve	32	25	37	35	35
Natl Guard	39	24	42	42	42
<u>DoD</u>					
Active	12,082	9,453	10,961	11,388	11,360
Res/Gd Tot	<u>316</u>	<u>298</u>	<u>390</u>	<u>371</u>	<u>370</u>
DoD Total	12,398	9,751	11,351	11,759	11,722

The total loads in the table show a considerable disparity among the Services in amounts of Professional Development Education. This disparity is more apparent than real, and is related mainly to somewhat different ways of categorizing Service education programs. The Air Force, for example, conducts an Enlisted Leadership Training Course, whereas the Navy does not, although it provides advanced technical training carried under Specialized Skill Training. The Air Force also has higher loads in Health Professions Education; however, as is explained in that section of the chapter, this is more related to the Air Force method of managing and accounting for the education than to a real difference in the programs.

The first three subcategories of Professional Development Education are officer professional military development programs. These programs are at three levels: basic, intermediate, and senior.

Education in the military school system is fundamental to the development of military officers who are fully qualified to perform duties of high responsibility in both war and peace. In most non-military professions, growth in

ability and knowledge is gained through experience. In the military, opportunities for full practice of the profession are limited to wartime, and even those officers with combat experience have not had the opportunity for thorough exercise of the decision skills they would require, for example, in a war in the Middle East. The military school system serves partially to fill this shortfall by educating the military officer in the skills and knowledge needed to perform his duties in a variety of locales and situations, both in peacetime and wartime.

In addition to their regular courses for active force officers, most schools in this category present nonresident courses and short seminars. Large numbers of Reserve Component officers and other military students are provided instruction through correspondence courses.

Basic Officers Professional Schools

The Marine Corps and Air Force conduct basic officer courses for officers with some experience in operational units which are Service-wide in scope and are, therefore, carried in this report under Professional Development Education. The Army and Navy conduct courses which are at a similar level, but which are oriented toward specific skills (e.g., the Navy's Surface Warfare Officers Course) or somewhat broader skills within a specific part of the Service (e.g., the Army's Armor Officer Advanced Course). The Army and Navy courses, because of their specialization, are treated in this report as part of Specialized Skill Training.

The Marine Corps Amphibious Warfare Course is designed to prepare officers in the grade of captain or major for duties in battalion or squadron command or on regimental-level staffs. The course length is 38 weeks. The Air Force Squadron Officer School is an 11-week course designed to prepare selected captains, after completion of some active service experience, for command and staff duties appropriate to their grade.

The training load data for FY 1976-79 associated with these Marine and Air Force courses are displayed in the following table.

Training Inputs, Output, Loads, Basic Officers
Professional Schools, FY 1976-79

<u>Service</u> <u>Component</u>	<u>FY 76</u> <u>Load</u>	<u>FY 77</u> <u>Load</u>	<u>FY 78</u>			<u>FY 79</u> <u>Load</u>
			<u>Input</u>	<u>Output</u>	<u>Load</u>	
<u>USMC</u>						
Active	128	134	171	171	127	127
Reserve	8	8	200	200	8	8
<u>Air Force</u>						
Active	639	558	2,638	2,638	558	558
Reserve	1	2	8	8	2	2
Natl Guard	4	4	21	21	4	4
<u>DoD</u>						
Active	767	692	2,809	2,809	685	685
Res/Gd Tot	<u>13</u>	<u>14</u>	<u>229</u>	<u>229</u>	<u>14</u>	<u>14</u>
DoD Total	780	706	3,038	3,038	699	699

Intermediate Service Schools

Each of the Services maintains a Command and Staff College. In addition, the Navy is executive agent for the Armed Forces Staff College, a joint institution sponsored by the Joint Chiefs of Staff with students from all Services. While there are differences in approach and curriculum based on the requirements of the parent Service, each of the courses is designed to prepare officers for command and staff duties in all echelons of their parent Services and in joint or allied commands. A relatively small number of officers from each Service attends one of the Command and Staff Colleges of the other Services; a few attend Allied schools at the same level. Attendance at the Intermediate Service Schools is on a selective basis.

The following table lists the Command and Staff Colleges and their respective course lengths. In addition to the principal courses, the Service colleges individually conduct various courses for Reserve Component officers and a variety of nonresident courses.

Intermediate Service Schools

<u>Schools</u>	<u>Location</u>	<u>Course Length (Weeks)</u>
Armed Forces Staff College	Norfolk, VA	22
Army Command and General Staff College	Fort Leavenworth, KA	38
College of Naval Command and Staff	Newport, RI	42
Marine Corps Command and Staff College	Quantico, VA	40
Air Command And Staff College	Montgomery, Al	43

Another school in the Intermediate Service Schools category is the Defense Systems Management College at Fort Belvoir, Virginia. This is a joint school which conducts a primary 20-week course in management concepts and methods with the major purpose of preparing selected military officers and DoD civilian personnel for assignments in program or project management.

Load data for military personnel attending Intermediate Service Schools is shown in the following table:

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ASSISTANT SECRETARY OF DEFENSE (MANPOWER AND RESERVE
AFFAIRS) WASHINGTON DC MAR 77**

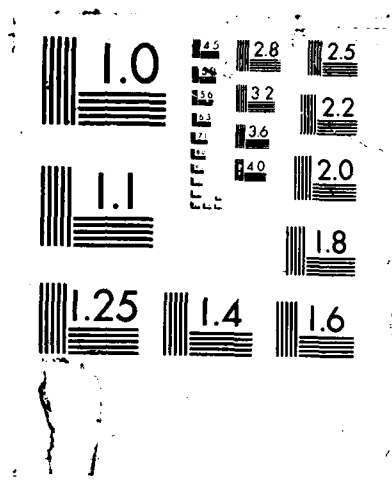
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Training Inputs, Outputs, Loads, Intermediate
Service Schools, FY 1976-79

<u>Service</u> <u>Component</u>	<u>FY 76</u> <u>Load</u>	<u>FY 77</u> <u>Load</u>	<u>FY 78</u>			<u>FY 79</u> <u>Load</u>
			<u>Input</u>	<u>Output</u>	<u>Load</u>	
<u>Army</u>						
Active	1,011	876	2,761	2,749	882	885
Reserve	63	87	1,579	1,565	85	84
Natl Guard	66	97	971	962	85	85
<u>Navy</u>						
Active	169	175	254	246	185	185
Reserve	7	3	72	72	3	3
<u>USMC</u>						
Active	133	141	189	189	141	141
Reserve	6	6	164	164	6	6
<u>Air Force</u>						
Active	550	512	649	649	516	516
Reserve	12	12	131	131	12	12
Natl Guard	12	12	133	133	12	12
<u>DoD</u>						
Active	1,863	1,704	3,853	3,833	1,724	1,727
Res/Gd Tot	<u>166</u>	<u>217</u>	<u>3,050</u>	<u>3,027</u>	<u>203</u>	<u>202</u>
<u>DoD Total</u>	<u>2,029</u>	<u>1,921</u>	<u>6,903</u>	<u>6,860</u>	<u>1,927</u>	<u>1,929</u>

Senior Service Colleges

Each of the Military Departments maintains a Senior Service College, or "War College." In addition, there is the National Defense University, consisting of two joint Senior Service Colleges, the National War College and the Industrial College of the Armed Forces, attended by students from all four Services. Senior Service College attendance is on a highly selective basis; students are chosen by Service selection boards from among the most promising officers in the lieutenant colonel/colonel, commander/captain grades.

The common purpose of the Senior Service Colleges is to prepare students for senior command and staff positions at the highest levels in the national security establishment and the allied command structure. The unifying focus is the study of national goals and national security policy. Each of the Service colleges, while concentrating on the employment of the parent Service in the defense mission, also includes the study of the employment of the forces of other Services.

All of the colleges integrate the study of economic, scientific, political, sociological, and other factors into the consideration of national security problems. The Industrial College, in its approach to national security problems, emphasizes the use and management of national resources. The length of the principal courses at the Senior Service Colleges is ten months. Most colleges also conduct shorter special-purpose seminar-type courses, some particularly for Reserve Component officers.

Load data for the Senior Service Colleges are shown in the following table.

Training Inputs, Outputs, Loads, Senior
Service Colleges, FY 1976-79

<u>Service Component</u>	<u>FY 76 Load</u>	<u>FY 77 Load</u>	<u>FY 78</u>			<u>FY 79 Load</u>
			<u>Input</u>	<u>Output</u>	<u>Load</u>	
<u>Army</u>						
Active	230	258	546	546	256	256
Reserve	59	61	176	176	60	60
Natl Guard	22	33	100	100	35	35
<u>Navy</u>						
Active	159	157	1,583	1,578	147	147
<u>USMC</u>						
Active	48	58	60	60	53	53
Reserve	1	1	29	29	1	1
<u>Air Force</u>						
Active	328	311	344	344	313	313
Reserve	7	9	90	90	9	9
Natl Guard	7	9	91	91	9	9
<u>DoD</u>						
Active	765	784	2,533	2,528	769	769
Res/Gd Tot	<u>96</u>	<u>113</u>	<u>486</u>	<u>486</u>	<u>114</u>	<u>114</u>
DoD Total	861	897	3,019	3,014	883	883

Enlisted Leadership Training

The courses included in this category are intended to provide selected senior enlisted personnel the skills and knowledge needed to assume the responsibilities of the highest non-commissioned officers grades. These courses are the culmination of formal enlisted training and are, for enlisted personnel, analogous to the officer courses discussed in the preceding sections. In addition to such subjects

as methods of leadership, human relations, discipline and training, and the administration and employment of military organizations, the senior non-commissioned officer, in these higher-level schools, is given a broader perspective of the role and functions of his or her Service.

Schools, locations and course lengths are shown below:

<u>Schools</u>	<u>Location</u>	<u>Course Length (Weeks)</u>
Army: Sergeants Major Academy	Fort Bliss, TX	22
Marine Corps: Staff NCO Academy	Quantico, VA	6
Air Force: Senior NCO Academy	Gunter AFB, AL	9

Other enlisted leadership training for more junior non-commissioned officers is carried in Specialized Skill Training. This includes command NCO academies, for example. This is more properly skill related for specific types of specialized leadership responsibilities. The senior enlisted leadership training carried here is more properly thought of as professional military education in a broader sense.

Loads for Enlisted Leadership Training are shown below:

Training Input, Output, Loads, Enlisted Leadership Training, FY 1976-79

<u>Service Component</u>	<u>FY 76 Load</u>	<u>FY 77 Load</u>	<u>FY 78</u>			<u>FY 79 Load</u>
			<u>Input</u>	<u>Output</u>	<u>Load</u>	
<u>Army</u>						
Active	159	178	400	400	176	176
Reserve	3	4	0	0	0	0
Natl Guard	6	7	16	16	7	7
<u>USMC</u>						
Active	66	66	556	551	66	66
<u>Air Force</u>						
Active	199	200	1,153	1,153	200	200
Reserve	2	2	15	15	2	2
Natl Guard	6	6	32	32	6	6
<u>DoD</u>						
Active	424	444	2,109	2,104	442	442
Res/Gd Total	<u>17</u>	<u>19</u>	<u>63</u>	<u>63</u>	<u>15</u>	<u>15</u>
DoD Total	441	463	2,172	2,167	457	457

Graduate Education for Validated Billets

The Department of Defense needs military officers with specialized advanced knowledge, at a level attainable only through graduate education, to perform effectively in certain military jobs. The purpose of the graduate education program in each of the Services is to provide graduate-level education in required disciplines to the numbers of officers required to maintain an inventory of officers qualified to fill these jobs. Under the program described in this section, military officers undergo graduate education on a full-time, fully-funded basis. An active service pay back obligation of three-for-one for the period of schooling is required of all officers entering the program, up to a maximum set by the Services.

The following table displays training load data for these graduate education programs. All participants are members of the Active Forces.

Training Inputs, Output, Loads, Graduate Education
for Validated Billets, FY 1976-79

<u>Service Component</u>	<u>FY 76 Load</u>	<u>FY 77 Load</u>	<u>Input</u>	<u>FY 78 Output</u>	<u>Load</u>	<u>FY 79 Load</u>
<u>Army</u> Active	648	744	517	552	817	804
<u>Navy</u> Active	944	958	481	442	884	800
<u>USMC</u> Active	39	50	40	30	52	55
<u>Air Force</u> Active	<u>1,109</u>	<u>1,075</u>	<u>670</u>	<u>671</u>	<u>1,068</u>	<u>1,000</u>
DoD Total	2,740	2,827	1,708	1,695	2,821	2,659

Officer graduate students attend either a civilian educational institution or one of the two Service institutions, the Naval Postgraduate School or the Air Force Institute of Technology, depending upon where the required education can best be obtained. Curricula in the latter two institutions emphasize military-unique courses, such as in logistics management or intelligence operations, and military applications in all other courses. While these schools are primarily used by the parent Services (including Marine Corps use of the Naval Postgraduate School), they also train some students from other Services. The following table displays programmed FY 1978 student loads for these two schools by the parent Services of the students making up the load.

Graduate Education Loads at Service Institutions, FY 1978

	<u>Army</u>	<u>Navy</u>	<u>Marine Corps</u>	<u>Air Force</u>	<u>Total</u>
Naval Postgraduate School	41	719	44	35	839
Air Force Institute of Technology	18	8	3	420	449

Requirements for graduate-educated officers depend upon the number of "validated billets"--that is, military positions which have been determined to require an incumbent with graduate-level education in the applicable academic discipline. Each Service has established a system, ordinarily culminating in a board of senior officials in the Service headquarters, which examines the duty prerequisites for each billet nominated for validation and determines if the job does, in fact, require an officer with an advanced degree. The number of validated billets in FY 1978 is displayed in the following table:

Validated Billets, FY 1978*

<u>Army</u>	<u>Navy</u>	<u>Marine Corps</u>	<u>Air Force</u>	<u>DoD</u>
5,556	4,800	460	9,110	19,926

*Subject to subsequent review.

Through intensive review of job requirements, the number of validated billets have been reduced by approximately 3,000 positions since FY 1974. As the result of intensive management of all aspects of Service programs, training loads in the fully-funded graduate education program will be 38 percent smaller in FY 1978 than in FY 1973. All aspects of the program will continue to receive close examination and careful management.

Other Degree-Completion Programs

In addition to the programs designed to satisfy validated requirements, there are several programs designed to permit selected individuals an opportunity to work toward associate, baccalaureate or advanced degrees. These programs benefit the Services in several important ways: they increase the technical qualifications of the individuals in the program; they improve the general educational levels of Service

personnel; and they provide career retention and recruiting incentives to outstanding personnel. In addition, whenever possible, personnel in advanced education programs are later used to satisfy validated requirements and hence reduce the required student load in graduate education for validated billets.

The degree-completion programs are managed by the individual Military Departments and each has its own selection criteria. However, in general a person is not selected for a program unless the education will enhance his professional development and be of use to the Military Department. All of the programs require a payback from the individual.

Training Inputs, Output, Loads, Other Degree
Completion Programs, FY 1976-79

<u>Service Component</u>	<u>FY 76</u>	<u>FY 77</u>	<u>FY 78</u>			<u>FY 79</u>
	<u>Load</u>	<u>Load</u>	<u>Input</u>	<u>Output</u>	<u>Load</u>	<u>Load</u>
Army	1,579	1,293	1,323	1,083	1,557	1,610
Navy	828	188	81	85	84	85
USMC	370	221	196	199	285	294
Air Force	103	101	44	26	117	124
DoD Total	2,880	1,803	1,644	1,393	2,043	2,113

The following table displays loads for other degree completion programs divided into loads for graduate degree programs and other degree (baccalaureate or associate) programs. The graduate degree programs are all partially funded with the exception of the fully-funded Law Education Program, authorized by Public Law 93-155 in 1973, which provides legal education to qualify selected officers as military lawyers.

Training Loads, Other Degree
Completion Programs, FY 1978, 79

<u>Service Component</u>	<u>Graduate Degree</u>		<u>Other Degree</u>	
	<u>FY 78</u>	<u>FY 79</u>	<u>FY78</u>	<u>FY 79</u>
Army	624	654	933	956
Navy	35	35	49	50
USMC	35	44	250	250
Air Force	117	124	-	-
DoD Total	811	857	1,232	1,256

Other Full-Time Education (Non-Degree Programs)

Short-course training provides the Military Services with needed skills in a wide variety of scientific, administrative and other fields. These programs are selected to train personnel in job-oriented skills which can best be acquired through abbreviated courses. Accounting, traffic management and aviation safety are examples of skills involved. Some of this included training is conducted in DoD schools, the remainder in civilian institutions.

The following table displays load data for this category;

Training Inputs, Output, Other Full-Time Non-Degree Education, FY 1976-79

<u>Service</u> <u>Component</u>	<u>FY 76</u> <u>Load</u>	<u>FY 77</u> <u>Load</u>	<u>FY 78</u> <u>Input</u>	<u>Output</u>	<u>Load</u>	<u>FY 79</u> <u>Load</u>
<u>Army</u>						
Active	15	31	960	960	31	31
<u>Navy</u>						
Active	445	390	2,741	2,709	422	425
Reserve	4	4	111	111	4	4
<u>Air Force</u>						
Active	469	493	5,826	5,834	527	527
Reserve	10	12	232	232	10	10
Natl Guard	10	11	222	222	11	11
<u>DoD</u>						
Active	929	914	9,527	9,503	980	983
Res/Gd Tot	<u>24</u>	<u>27</u>	<u>565</u>	<u>565</u>	<u>25</u>	<u>25</u>
DoD Total	953	941	10,092	10,068	1,005	1,008

Health Professions Education

This subcategory is made up of a wide variety of courses for personnel of all health professions -- physicians, dentists, nurses, medical administrators, etc. The majority of the courses offered are conducted in military facilities, and vary in length from a few days to a full year. Some training is conducted at civilian medical institutions, including, in the case of the Army, some advanced degree programs. The purpose of Health Professionals Education is

to expand the skills of military medical personnel and to provide them timely information on the latest techniques in their fields. Educational programs connected with the acquisition of health professionals is carried in this report under Officer Acquisition Training.

The following table shows load data for Health Professions Education.

Training Inputs, Output, Loads, Health Professions
Education, FY 1976-79

<u>Service</u> <u>Component</u>	<u>FY 76</u> <u>Load</u>	<u>FY 77</u> <u>Load</u>	<u>FY 78</u>			<u>FY 79</u> <u>Load</u>
			<u>Input</u>	<u>Output</u>	<u>Load</u>	
<u>Army</u>						
Active	381	378	8,907	8,907	368	426
<u>Navy</u>						
Active	182	206	194	194	194	194
<u>Air Force</u>						
Active	<u>1,094</u>	<u>1,140</u>	<u>1,449</u>	<u>1,429</u>	<u>1,300</u>	<u>1,300</u>
DoD Total	1,657	1,724	10,550	10,530	1,862	1,920

The higher Air Force loads are mainly the result of different methods of accounting for medical residents. The Air Force centrally manages the training of residents and counts them as students; the Army and Navy consider residents as being in on-the-job training status and do not include them in student loads. Actually, the programs of the three Services are not markedly different in character.

VIII

RESERVE COMPONENTS TRAINING

In addition to training members of the active forces, the Service training establishments also train members of the Reserve Components. Reserve Component training, as part of individual training and education, involves Reservists and Guardsmen who are on active duty for formal school training. It does not include training of Reserve Component members provided under the following circumstances:

- Training received while members are on extended active duty (this training is included in active force aggregates);
- Training conducted by the Reserve Components themselves;
- Training received on annual active duty, except if provided through courses conducted by the active training establishment;
- Any training received while the individual is not in an active military status; as a minor exception, some Reserve and Guard technicians attend military schools in Civil Service status.

The purpose of this chapter is to summarize the amount and types of training of Reservists and Guardsmen which are conducted by the active training establishments. The training loads discussed in this chapter are included within the loads attributed to the various Reserve Components in the previous chapters.

Training of members of the Reserve Components will comprise approximately 14 percent of all individual training and education in FY 1978. Training loads for each of the Reserve Components for each of the major categories of training for FY 1978 are shown in the following table.

Training Loads, Reserve Components, FY 1978 a/ b/

<u>Component</u>	<u>Recruit</u>	<u>One-Station Unit Training</u>	<u>Officer Acquisition</u>	<u>Specialized Skill</u>	<u>Flight</u>	<u>Professional Development</u>	<u>Total</u>
Army Reserve	4,366	605	129	5,861	30	145	11,136
Army National Guard	5,665	2,638	42	8,077	57	127	16,606
Naval Reserve	335	-	62	661	-	7	1,065
USMC Reserve	1,964	-	329	1,141	-	15	3,449
Air Force Reserve	362	-	11	747	31	35	1,186
Air National Guard	<u>679</u>	<u>-</u>	<u>-</u>	<u>1,782</u>	<u>95</u>	<u>42</u>	<u>2,598</u>
Total, Reserve Components	13,371	3,243	573	18,269	213	371	36,040

a/ Training of ROTC cadets and Health Professions Scholarship Program participants not included.

b/ Loads in this table are a summary of Reserve Components loads displayed previously in this report, and are not additive to them.

The great majority of training of Reservists and Guardsmen is in Recruit and Specialized Skill Training and, in the two Army Components, One-Station Unit Training. Within Specialized Skill Training, most of this training is in Initial Skill Training for enlisted personnel. The combination of Recruit and Initial Skill Training or One-Station Unit Training for enlisted personnel, including Reservists and Guardsmen, provides them basic qualification training which transforms the untrained civilian into a service member with a useable skill.

Enlisted members of the Reserve Components without prior service receive the same basic qualification training as active service members. Each non-prior service enlistee in the Reserve Components must undergo a minimum of twelve consecutive weeks of active duty training. This statutory requirement, in practice, is carried out by sending the new recruit through Recruit Training and on through Initial Skill Training. Alternatively, many Army Guardsmen and Reservists are provided similar training in certain skills through One-Station Unit Training. Trainees who graduate from Recruit Training proceed to Initial Skill Training in their occupational specialty. This may consist of a course in a Service school or Advanced Individual Training at an Army training center. If a course in the proper skill is not available, the trainee may be assigned to on-the-job training in an active duty for training status. The actual length of active-duty training, in comparison with the statutory twelve weeks minimum, varies from twelve weeks to twelve months, depending on the occupational specialties involved.

The following table summarizes load data for entry-level Reserve Component basic qualification training for FY 1978.

Enlisted Entry-Level Training, Reserve Components, FY 1978

	<u>Inputs</u>	<u>Outputs</u>	<u>Loads</u>
Recruit Training	99,145	88,794	13,371
Initial Skill Training	88,517	81,253	14,400
One-Station Unit Training	<u>14,983</u>	<u>12,422</u>	<u>3,243</u>
Totals	202,645	182,469	31,014

Entry-level training of Reserve Component members accounts for 19 percent of all Recruit Training, 16 percent of all Initial Skill Training (Enlisted), and 31 percent of all Army One-Station Unit Training programmed in the Department of Defense for FY 1978.

Although entry-level training for enlisted personnel makes up about 86 percent of total Reserve Component training loads, Reserve and Guard officers and enlisted personnel beyond

the initial entry stage also are trained by the active establishment. The majority of this training is at the more advanced levels of Specialized Skill Training, and fills the same demands for skill progression or new equipment training that these types of training provide for active members. Reserve Component participation in Flight Training is relatively minor, since most aviator requirements in Reserve Component units are filled by experienced aviators who join after extended service in the active components. Reserve Component participation in the professional military schools portions of Professional Development Education accounts for about nine percent of total DoD officer training at the basic, intermediate and senior levels and about three percent of Enlisted Leadership Training.

Reserve Component personnel participate in a variety of non-resident courses sponsored by Service Schools; Reservists and Guardsmen make use of these training opportunities on the same basis as active personnel. For many Reserve and Guard officers, consideration for promotion depends upon successful participation in Professional Development Education programs.

Beyond the training covered in the training loads, the active training establishment makes other valuable contributions to the state of training of the Reserve Components. Perhaps the most important is realized through former active members who join the Reserve Components after having been trained on active duty. The Reserve Components also receive graduates of Army and Air Force ROTC who are not called to extended active duty.

In summary, training of members of the Reserve Components forms a significant portion of the workload of the active training establishment. Particularly at the entry level, this training is indispensable to the readiness of individuals and organizations of the Reserve Components and to the realization of the Total Force policy.

IX

TRAINING MANPOWER

General

Manpower associated with the individual training missions in the Department of Defense can be divided into two parts: first, the trainees and students being trained, and, second, the military and civilian manpower which conducts and supports the training. These two classes of manpower are discussed and explained in this chapter.

Trainees and Students

Manpower undergoing training in the Defense training establishment is defined and quantified in three different ways, each of which serves a somewhat different purpose with regard to manpower accounting and resource allocation.

1. Training Loads. These are the "military training student loads" which are detailed in Chapters III through VII of this report -- the average number of military trainees, students and cadets of each Service and component in training during a given fiscal year, which is subject to annual congressional authorization. Training loads include all military manpower of a given Service or component who are undergoing individual training, regardless of whether the training is conducted by the parent Service, one of the other Services, a DoD school, or by an agency or institution outside the Department of Defense, such as a civilian college or university. Training loads also include all military personnel in training regardless of their assignment status. Some trainees and students are assigned to the training activity; others are attending training in a temporary duty (TDY) or temporary additional duty (TAD) status while remaining assigned to their parent units; still others are attending while in transit from one permanent assignment to another.

Since training loads are an annual average and most courses are much shorter than a year in length, the actual number of students and trainees who enter training, and the number who graduate, is considerably greater than the training load. For example, the total programmed training load for Recruit Training in FY 1978 is approximately 70,000, but some 460,000 persons will enter Recruit Training and 422,000 will graduate.

2. Training Workloads. The total number of trainees and students undergoing training within DoD includes some trainees and students of foreign nations, DoD civilian employees, and members of other departments and agencies of the U.S. Government, notably the Coast Guard. In addition, many U.S. military students and trainees are trained by a Service other than their own. Consequently, the average number of students being trained by a given Service, or its training workload, is usually either greater or smaller than its training load. For example, the Marine Corps has a programmed Flight Training load of 570 in FY 1978; however, since the training is conducted by other Services, its Flight Training workload is zero. On the other hand, because the Navy trains many personnel from other Services and Coast Guard and foreign students as well as most of its own students, the Navy's Specialized Skill Training workload is considerably higher than its training load.

Since training workload, in conjunction with other applicable workload factors, is the major determinant of the resources (manpower, funds, materiel and facilities) required to conduct training, it, rather than training load, is appropriately used in considering the allocation of resources to a Service or a training activity. Programmed training workloads for each of the Services in FY 1978 are displayed in the following table.

Training Workloads, FY 1978
(Thousands)

	<u>Army</u>	<u>Navy</u>	<u>Marine Corps</u>	<u>Air Force</u>	<u>DoD</u>
<u>Type Training</u>					
Recruit	29.0	16.0	13.1	11.8	69.9
One-Station Unit Training	10.6	-	-	-	10.6
Officer Acquisition	4.6	5.3	0.5	4.8	15.2
Specialized Skill	60.9	45.2	7.9	34.2	148.2
Flight	1.3	1.8	-	2.5	5.6
Professional Development	2.1	2.3	0.3	3.7	8.4
Total	108.5	70.5	21.9	57.0	257.9

3. Students, Trainees, and Cadets. In the Individuals accounts of the Defense Manpower Requirements Report, military manpower is included for each Service as "Trainees and Students" and (except for the Marine Corps) "Cadets". This manpower represents the number of military trainees, students, cadets and midshipmen in training status on a permanent change of station (PCS) basis on the last day of a given fiscal year. Student, trainee, and cadet manpower is similar to training loads in that both represent military members of the reporting Service in training status. However, there are substantial differences in the way the amount of manpower in these two manpower aggregations is calculated, with the result that the totals are seldom the same. The major reasons for these differences are:

- Training loads are manyyears in training status, whereas trainees, students, and cadets are end-strengths, or numbers in training on the last day of the fiscal year. Trainee, student, and cadet numbers are thus affected by the seasonality of enlistment patterns, described in Chapter III, while the element of seasonality is evened out in training loads.

- Training loads include students attending training in a temporary duty (TDY or TAD) status. In the Defense Manpower Requirements Report these students are carried in the categories of their parent units. In addition, some manpower attending training while in transit from one permanent assignment to another are included in training loads but are classified as "Transients" in the Defense Manpower Requirements Report.

The categorizations "trainees," "students," and "cadets" are useful for displaying the portion of the force which is not available for assignment to force units; training loads are a more accurate measure of the amount of training which is needed to meet military requirements.

Manpower in Support of Training

Military and civilian manpower is required to accomplish the individual training mission. This manpower conducts and supports instruction, operates training bases and facilities, maintains training equipment, produces training aids, provides personal and community services to students, trainees, and other military members, plans and manages training, and performs all the other tasks necessary to conduct and support individual training. This manpower is analyzed in the following paragraphs.

Manpower in support of training is accounted for in the Defense Manpower Requirements Report in several different Defense Planning and Programming Categories (DPPC). The purpose of this section is to bring together total manpower in support of training and relate it to the general functions it performs.

The DPPC Individual Training has sometimes been used to represent manpower in support of training. However, some manpower in Individual Training does not support the training workloads, and a considerable amount of manpower in other DPPC's exists primarily to support the individual training mission. In the following paragraphs manpower in the DPPC's which contribute to the support of individual training -- that is, the execution of the training workload -- is analyzed, by Service, to remove those portions not attributable to individual training and to derive numbers reflecting total manpower in support of individual training. The term "training-attributable" is used to describe manpower which supports the individual training workload; the term "non-training" is used to describe manpower in associated DPPC's which supports other missions. All DPPC's are in the aggregation Central Support Forces unless otherwise noted.

The following adjustments are made to applicable DPPC's to provide for accuracy in accounting for manpower in support of individual training:

- Manpower supporting ROTC programs is removed from Individual Training in all Services, since ROTC students, not being military members in an active status, are not included in training loads.

- Manpower supporting non-training functions is removed from all DPPC's. In the case of the DPPC Individual Training, the amount of such manpower varies considerably among the Services and is explained below in some detail. In general, this is manpower which is assigned to Service training commands but which performs functions for the Service as a whole or for operational units outside the training establishment, such as the development of operational doctrine or unit training programs. The supporting DPPC's Base Operating Support and Command contain manpower which is involved in supporting a variety of missions in addition to individual training. Only the manpower in these DPPC's which is training-attributable is listed in the tables below.

- The Individual Training DPPC contains some manpower which is more properly ascribed to the base operating support function, and is subtracted from Individual Training and added to Base Operating Support in the tables below.

- Manpower in DPPC's outside Central Support Forces which supports the individual training mission, such as allocations of base operating support manpower which supports training activities on bases under control of other functional commands, is added in.

The Department of Defense has recently adopted a redefinition of elements of the Five-Year Defense Program, to become effective in April 1977. This restructure will, in the future, eliminate many of the inconsistencies and anomalies discussed above.

Military trainees, students, and military training staff members and their dependents are entitled to care in military medical facilities; a portion of medical manpower is therefore in support of individual training. However, only the Air Force has undertaken to estimate separately the portion of medical manpower which supports its training establishment. This Air Force effort was facilitated by the fact that Air Force training is largely located on single-function bases; a larger portion of Army and Navy training is conducted at bases with multiple functions. Army and Navy medical accounting systems identify patient workload only in such broad categories as "active duty Army" and "dependents of active duty Navy" and not by the functions, such as training, with which the patients are associated.

The Air Force estimates its medical manpower in support of training for FY 1978 as follows: military, 2,600; civilian, 900. A rough approximation of medical manpower in support of training in the Department of Defense as a whole can be made if it is assumed that the relationship between the number of medical personnel and its supported population (defined as training loads plus military manpower in support of training) is the same for the other Services as it is for the Air Force. In the absence of specific data, this appears to be a reasonable assumption, although not one which is subject to verification from current accounting systems; other methods of allocation will give different answers. Using this assumption, total DoD medical manpower in support of training in FY 1978 can be estimated at about 10,000 military and 3,500 civilian spaces. However, because of the

very tentative nature of these estimates, medical manpower has not been included in the tables in this chapter which describe manpower in support of training.

The net effect of the adjustments described above provides an accounting for total military and civilian manpower in support of training and arrays it by the major functions it performs. Data are shown for FY 1976, 1977, and 1978.

Army Training Manpower. Army manpower in support of individual training is displayed in the following table.

Army Manpower in Support of Training
(End Strengths, Thousands)

DPPC/Functions	FY 76		FY 77		FY 78	
	Military	Civilian	Military	Civilian	Military	Civilian
<u>Individual Training</u>	45.4	18.3	44.9	18.4	45.0	18.1
Less ROTC	-2.7	-0.7	-2.7	-0.6	-2.7	-0.6
Less Non-Training	-6.1	-8.7	-6.1	-9.6	-6.2	-8.7
Plus Training-Attributable from other DPPC's	+0.1	+0.1	+0.1	+0.1	+0.1	+0.1
Training-Attributable	36.7	9.0	36.2	8.3	36.2	8.9
<u>Base Operating Support</u>						
Training-Attributable						
BOS in BOS DPPC	8.0	16.2	9.4	15.0	9.7	13.9
Plus Other BOS a/	+0.7	+0.2	+0.7	+0.2	+0.7	+0.2
Training-Attributable	8.7	16.4	10.1	15.2	10.4	14.1
<u>Command</u>						
Training-Attributable	0.3	0.3	0.3	0.3	0.3	0.3
<u>Total Training-Attributable</u>	45.7	25.7	46.6	23.8	46.9	23.3

Note: In this and subsequent tables in this chapter, totals may not add due to rounding.

a/ Manpower from BOS (Mission Support Forces) which supports individual training activities on bases of non-training commands.

The major adjustments made by the Army are a product of the dual functions of the Army Training and Doctrine Command (TRADOC). In addition to its mission of conducting most of Army's individual training, TRADOC also performs

Service-wide functions which were formerly the responsibility of Combat Developments Command, now disestablished. The following adjustments were made by the Army in order to properly identify training manpower.

- Individual Training. Non-training manpower in this DPPC is largely manpower assigned to TRADOC service schools which is engaged in the development of organizational and operational concepts and doctrine and supporting literature for the use of active and reserve operational units. These activities include development of the Army Training and Evaluation Program for operational units, Skill Qualification Tests for soldiers Army-wide, manuals and training techniques for guidance of unit operations and training, the Training Extension Course (TEC) program for instruction of soldiers in the field, etc. Manpower in other activities which do not support individual training, such as Training Aids Support Offices administered by TRADOC but supporting active and reserve units rather than TRADOC schools or training centers, is also excluded.

- Base Operating Support. Base operating support manpower at each training installation was allocated between training-attributable and non-training using such workload factors as population profiles, square feet of building space, and maintenance work orders. Since some individual training takes place on installations belonging to non-training commands, base operating support manpower attributable to this training was similarly identified and allocated, and the training-attributable portion was added in.

Navy Training Manpower. Navy manpower in support of training is shown in the following table.

Navy Manpower in Support of Training
(End Strengths, Thousands)

DPPC/Functions	FY 76		FY 77		FY 78	
	Military	Civilian	Military	Civilian	Military	Civilian
<u>Individual Training</u>	33.4	7.7	34.2	8.0	32.3	7.6
Less ROTC	-0.6	-0.1	-0.5	-0.1	-0.5	-0.1
Less Non-Training	-1.4	-3.0	-1.5	-3.3	-1.6	-3.1
Less Included BOS a/	-4.2	-	-3.9	-	-3.8	-
Plus Training-Attributable in other DPPC's	*	*	*	*	*	*
Training-Attributable	27.2	4.6	28.3	4.6	26.4	4.4
<u>Base Operating Support</u>						
Training-Attributable BOS in BOS DPPC	0.1	5.3	0.1	4.9	0.1	4.2
Plus BOS in DPPC Individual Training a/	+4.2	-	+3.9	-	+3.8	-
Plus Other BOS b/	*	*	*	*	*	*
Training-Attributable	4.3	5.3	4.0	4.9	3.9	4.2
<u>Command</u>						
Training-Attributable	0.4	0.5	0.4	0.5	0.4	0.5
<u>Total Training-Attributable</u>	31.9	10.4	32.7	10.0	30.7	9.1

* Less than 50.

a/Some Navy training base operating support is included in DPPC Individual Training; this manpower is subtracted from Individual Training and added to Base Operating Support in the table above.

b/Base operating support manpower from other DPPC's which supports individual training activities on bases on non-training commands. This manpower is probably understated. Navy training, to a much greater extent than that of the other Services, is conducted in relatively small training facilities on non-training bases. The Navy is unable to provide an estimate of the manpower value of the base support furnished to these facilities.

Adjustments made by the Navy are similar to those made in the case of the Army. The major difference is the shifting of base operating support manpower from Individual Training to Base Operating Support to improve comparability among the Services.

Navy non-training manpower in Individual Training is made up of manpower in such activities as Service-wide promotion examination processing, correspondence course administration, evaluation of fleet operational readiness, and procurement and production of simulators for use outside the training establishment. The crew of the training carrier LEXINGTON is allocated to training-attributable and non-training on the basis of the carrier's use rate by operational units and the training establishment.

Marine Corps Training Manpower. Marine Corps manpower in support of training is displayed in the following table.

Marine Corps Manpower in Support of Training
(End Strengths, Thousands)

<u>DPPC/Functions</u>	<u>FY 76</u>		<u>FY 77</u>		<u>FY 78</u>	
	<u>Military</u>	<u>Civilian</u>	<u>Military</u>	<u>Civilian</u>	<u>Military</u>	<u>Civilian</u>
<u>Individual Training</u>	8.3	0.3	8.3	0.3	8.2	0.3
Less ROTC a/	-0.1	-	-0.1	-	-0.1	*
Less Non-Training	-0.3	*	-0.3	*	-0.3	*
Less Included BOS b/	-0.1	*	-0.1	*	-0.1	*
Training-Attributable	<u>7.8</u>	<u>0.2</u>	<u>7.8</u>	<u>0.2</u>	<u>7.8</u>	<u>0.2</u>
<u>Base Operating Support</u>						
Training-Attributable BOS in DPPC	3.4	1.6	3.0	1.6	3.1	1.6
Plus BOS in Individual Training b/	+0.1	*	+0.1	*	+0.1	*
Plus Other BOS c/	-	-	-	-	-	-
Training-Attributable	<u>3.5</u>	<u>1.6</u>	<u>3.1</u>	<u>1.7</u>	<u>3.2</u>	<u>1.7</u>
<u>Command</u>						
Training-Attributable	*	*	*	*	*	*
<u>Total Training-Attributable</u>	<u>11.4</u>	<u>1.8</u>	<u>11.0</u>	<u>1.9</u>	<u>11.0</u>	<u>1.9</u>

* Less than 50.

a/ Marine Corps manpower supporting Naval ROTC program.

b/ Base operating support manpower included in DPPC Individual Training; in the table above, subtracted from Individual Training and added to Base Operating Support.

c/ Base operating support manpower from DPPC's which supports individual training activities of bases on non-training commands.

The major adjustments to Marine Corps manpower is the shift of minor amounts of military manpower from Individual Training to Base Operating Support, as was done in the case of the Navy, to improve inter-service consistency, and the designation as non-training of manpower which administers correspondence courses.

Air Force Training Manpower. Air Force manpower in support of training is shown in the following table.

Air Force Manpower in Support of Training
(End Strengths, Thousands)

DPPC/Functions	FY 76		FY 77		FY 78	
	Military	Civilian	Military	Civilian	Military	Civilian
<u>Individual Training</u>	25.0	7.0	21.9	6.4	21.9	6.3
Less ROTC	-1.2	*	-1.2	*	-1.1	*
Less Non-Training	-1.7	-0.5	-2.0	-0.4	-2.5	-0.7
Less Included BOS	-0.5	-0.5	-0.5	-0.4	-0.5	-0.4
Plus Training-Attributable in other DPPC's	+0.8	+0.1	+2.5	+1.2	+2.3	+1.2
Training-Attributable	22.4	6.1	20.7	6.8	20.1	6.4
<u>Base Operating Support</u>						
Training-Attributable BOS in DPPC	9.9	9.8	7.9	8.2	7.3	7.9
Plus BOS in Individual Training	+0.5	+0.5	+0.5	+0.4	+0.5	+0.4
Plus BOS a/	+2.3	+0.5	+2.0	+0.5	+2.0	+0.5
Training-Attributable	12.7	10.8	10.4	9.1	9.8	8.8
<u>Command</u>						
Training-Attributable	1.0	0.6	1.0	0.6	1.0	0.6
<u>Total Training-Attributable</u>	36.1	17.5	32.1	16.5	30.9	15.8

* Less than 50.

a/ Base operating support manpower in other DPPC's.

The major adjustments to Air Force manpower are as follows:

- Designation as non-training of manpower which administers correspondence courses and base-level off-duty education programs.
- Transfer of Air Force Academy base operating support manpower from Individual Training to Base Operating Support.
- Addition to training-attributable manpower of manpower in DPPC Support to Other Nations (Auxiliary Forces) which supports Foreign Military Sales training.

The following tables sum up manpower in support of training, as identified in the preceding tables, by the general functions Conduct of Individual Training, Training Base Operating Support, Medical Support, and Command. The function Conduct of Individual Training includes the following types of manpower: instructors, instructional support, school/training center staffs, student supervisors and much of student support.

DoD Manpower in Support of Training,
Conduct of Individual Training Function
(End Strengths, Thousands)

	<u>FY 76</u>		<u>FY 77</u>		<u>FY 78</u>	
	<u>Military</u>	<u>Civilian</u>	<u>Military</u>	<u>Civilian</u>	<u>Military</u>	<u>Civilian</u>
Army	36.7	9.0	36.2	8.3	36.2	8.9
Navy	27.2	4.6	28.3	4.6	26.4	4.4
Marine Corps	7.8	0.2	7.8	0.2	7.8	0.2
Air Force	22.4	6.1	20.7	6.8	20.1	6.4
DoD	<u>94.1</u>	<u>19.9</u>	<u>93.0</u>	<u>19.9</u>	<u>90.5</u>	<u>19.9</u>

DoD Manpower in Support of Training,
Base Operating Support Function
(End Strengths, Thousands)

	FY 76		FY 77		FY 78	
	Military	Civilian	Military	Civilian	Military	Civilian
Army	8.7	16.4	10.1	15.2	10.4	14.1
Navy	4.3	5.3	4.0	4.9	3.9	4.2
Marine Corps	3.5	1.6	3.1	1.7	3.2	1.7
Air Force	12.7	10.8	10.4	9.1	9.8	8.8
DoD	29.2	34.1	27.6	30.9	27.3	28.8

DoD Manpower in Support of Training, Command Function
(End Strengths, Thousands)

	FY 76		FY 77		FY 78	
	Military	Civilian	Military	Civilian	Military	Civilian
Army	0.3	0.3	0.3	0.3	0.3	0.3
Navy	0.4	0.5	0.4	0.5	0.4	0.5
Marine Corps	*	*	*	*	*	*
Air Force	1.0	0.6	1.0	0.6	1.0	0.6
DoD	1.7	1.4	1.7	1.4	1.7	1.4

DoD Manpower in Support of Training, All Functions
(End Strengths, Thousands)

	FY 76		FY 77		FY 78	
	Military	Civilian	Military	Civilian	Military	Civilian
Army	45.7	25.7	46.6	23.8	46.9	23.3
Navy	31.9	10.4	32.7	10.0	30.7	9.1
Marine Corps	11.4	1.8	11.0	1.9	11.0	1.9
Air Force	36.1	17.5	32.1	16.5	30.9	15.8
DoD	125.1	55.4	122.4	52.2	119.5	50.1

Trends in Manpower in Support of Training

The following tables show changes in total military and civilian manpower in support of training between FY 1975 and 1978. Manpower for each year is first shown by Service and then by the general functions it performs. Figures for FY 1975 differ somewhat from those used last year in this report to make them definitionally consistent with figures for FY 1976 and 1977; some of the changes, particularly in Army's figures, is due to a more precise division between training-attributable and non-training manpower.

Trends, Total Manpower in Support of Training, FY 1975-1978 (End Strengths, Thousands)

	FY 75			FY 78			Change, Total Manpower	
	Mil.	Civ.	Tot.	Mil.	Civ.	Tot.	No.	%
Army	55.8	30.4	86.2	46.9	23.3	70.2	-16.0	-18.6
Navy	35.0	11.5	46.5	30.7	9.1	39.8	-6.7	-14.4
Marine Corps	12.3	2.2	14.5	11.0	1.9	12.9	-1.6	-11.0
Air Force	40.2	18.8	59.0	30.9	15.8	46.7	-12.3	-20.8
DoD	143.3	62.9	206.2	119.5	50.1	169.6	-36.6	-17.7

As the table shows, military and civilian manpower in support of training is being reduced by 36,600 spaces, or almost 18 percent, between FY 1975 and 1978.

The same data, displayed by the functions Conduct of Individual Training, Base Operating Support, and Command, is shown in the following table.

Trends, Total Manpower in Support of Training,
FY 1975-78, By General Function
 (End Strengths, Thousands)

	<u>FY 75</u>			<u>FY 78</u>			<u>Change, Total Manpower</u>	
	<u>Mil.</u>	<u>Civ.</u>	<u>Tot.</u>	<u>Mil.</u>	<u>Civ.</u>	<u>Tot.</u>	<u>No.</u>	<u>%</u>
Conduct of Individual Training	106.0	22.4	128.4	90.5	19.9	110.4	-18.0	-14.0
Base Operating Support	35.5	39.0	74.5	27.3	28.8	56.1	-18.4	-24.7
Command	1.8	1.5	3.3	1.7	1.4	3.1	-0.2	-6.1
Total	143.3	62.9	206.2	119.5	50.1	169.6	-36.6	-17.7

As shown in the following table, training workloads are about three percent higher in FY 1978 than in FY 1975; combined with the reduction of almost 18 percent in manpower in support of training, this implies a notable increase in manpower productivity.

Trends, Training Workloads, FY 1975-78
 (Thousands)

	<u>FY 75</u>	<u>FY 78</u>	<u>Change</u>	
			<u>Number</u>	<u>Percent</u>
Army	97.9	108.5	+10.6	+10.8
Navy	74.9	70.5	-4.4	-5.9
Marine Corps	24.3	21.9	-2.4	-9.9
Air Force	53.5	57.0	+3.5	+6.5
DoD	250.6	257.9	+7.3	+2.9

A similar situation of lower manpower in support of training and relatively higher training workloads in FY 1978 as compared to FY 1976 is shown in the following table.

Total Training Manpower and Training Workloads, FY 1976-78
(Thousands)

	<u>FY 76</u>	<u>FY 78</u>	<u>Change</u>	
			<u>Number</u>	<u>Percent</u>
Military and Civilian Manpower in Support of Training	180.5	169.6	-10.9	-6.0
Training Workloads	245.6	257.9	+12.3	+5.0

The relatively higher training workloads in FY 1978 are mainly the result of two factors:

- Higher reserve component loads, particularly in the Army, reflecting greater non-prior Service accessions to meet mandated strengths.
- Higher projected foreign military student workloads.

The lower level of manpower in support of training in FY 1978 is attributable to a number of management actions:

- Base realignment actions, either transfer of bases from the training function to the operating forces or the assumed realignments and closures of training bases which were announced to the Congress in 1976 and are under study in accordance with the Environmental Protection Act. It will be noted that training-attributable Base Operating Support manpower is projected to be 25 percent lower than in FY 1975.
- Interservice training consolidations in Flight Training, either already in effect in FY 1977 or proposed for FY 1978.
- Support manpower reductions through such innovations as the Army's One-Station Unit Training program.
- A general tightening of staffing standards in training activities.

TRAINING MANAGEMENT AND FUNDING

General

Chapters III through VII of this report describe and explain the military training student loads requested to be authorized for each military component for FY 1978 and 1979. These student loads represent patterns and levels of training effort which require manpower and other resources. The purpose of this chapter is to describe and explain the resources (other than manpower), funding and costs associated with the conduct of individual training.

In considering training resources, it is important to distinguish between the training loads required by a Service, but conducted in part outside the Service, and the workloads representing training conducted by the Service. As discussed in the previous chapter, the workloads, which represent training conducted by a Service, are the basis for resource requirements (manpower, materiel, facilities, and funds) needed to conduct and support the training which the Service executes. Training workloads and manpower in support of training are discussed in Chapter IX.

Management of Individual Training

Detailed management of individual training is carried out by the four Military Services. Each of the Services, except the Marine Corps, has a training commander immediately subordinate to the Service chief who is responsible for most of the individual training conducted within that Service. Some training is managed directly by the Service headquarters; a few training activities are subordinated directly to the Service headquarters. However, the most prevalent pattern of control is through a training command headquarters which manages most Service military schools, training centers, and other training facilities.

Staff Responsibilities

Within the Office of the Secretary of Defense, staff responsibility for individual training and education policies

rests with the Assistant Secretary of Defense (Manpower and Reserve Affairs), with a very strong influence over the allocation and use of resources being exercised by the Assistant Secretary of Defense (Comptroller). The staffs of these two offices work especially closely together in the management of DoD individual training and education. Other OSD offices, such as Installations and Logistics, Intelligence, and Research and Development, participate as appropriate. The OSD role is generally one of policy formulation, allocation of resources, overview of Service training programs, and coordination among the Services.

Within each Service headquarters, a principal staff officer has responsibility for individual training. Other staff members may have primary responsibility for certain types of training, as, for example, a Service Surgeon General for professional medical training. Other staff members have collateral responsibilities for the allocation of manpower and funds to the training function.

Primary responsibility on the Army staff for individual training rests with the Deputy Chief of Staff for Personnel and his subordinate, the Director of Military Personnel Management. Within the Navy, the principal staff officer is the Director of Naval Education and Training, who also is the head of the Navy's training command. Headquarters, Marine Corps, manages training through the Deputy Chief of Staff for Operations and Training and his subordinate, the Director of Training. Commanders of the separate major subordinate training activities report directly to the Commandant of the Marine Corps, dealing with the headquarters training staff. Within the Air Staff, the Director of Personnel Programs, under the Deputy Chief of Staff for Personnel, has staff responsibility for individual training.

Training Commands

The Army, Navy and Air Force each has a command headquarters which manages most of the individual training conducted by that Service.

The Army's principal training command headquarters is Headquarters, Training and Doctrine Command (TRADOC), located at Fort Monroe, Virginia. TRADOC's control is exercised through training installation and school commanders throughout the United States.

The Chief of Naval Education and Training, headquartered at Pensacola, Florida, exercises control, through subordinate functional commanders, of education and training conducted in training centers, schools and programs throughout the Navy.

Headquarters, Air Training Command, at Randolph Air Force Base, Texas, directly controls individual training centers and units.

In no instance do these Service-wide training commands have responsibility for all individual training and education conducted. The Surgeons General are responsible for most health professional and medical technical training, for example, as already noted. The training commands normally do not have responsibility for training conducted outside Major Defense Program VIII-T (Training); nor do they have responsibility for all of Program VIII-T, as, for example, the Military Academy, the Naval Academy, and the Air University.

Training Facilities

Appendix C lists the principal individual training facilities of the four Services for each of the major categories of training. Projected average training loads and training support manpower for FY 1978 are also shown for each facility listed.

Training Funding and Costs

The training costs addressed in this section include all estimated funding in the President's Budget for Fiscal Year 1978, as amended, which has been identified as attributable to accomplishment of the training loads requested for individual military training and education. These costs differ from life-cycle costs, which would take account of retirement and other costs which are omitted here as not funded during FY 1978. Life-cycle depreciation costs of training facilities and equipment are not included, although training investment costs estimated for FY 1978, such as certain procurement and construction costs, are included. Training investment in instructor training is included only to the extent that costs are funded in FY 1978.

The costs in this chapter include funding for military pay and allowances for both PCS and TDY/TAD students, allocations of base operating costs in support of training, training-related operations and maintenance costs (including civilian support personnel pay and allowances), certain medical support

costs, training investment costs for construction and procurement, and overhead costs attributable to training administration and command. An attempt has been made to exclude non-training-related costs associated with budget requests of training organizations or bases (e.g., maintenance support to tenant activities not having a training function).

For a given Service, the requirement for funding for training arises from two factors: first, the need to fund the pay and allowances of its own military training student loads, regardless of where or by whom the students are trained; and, second, the need to provide for the level of individual training and education effort necessary to meet the Service's commitments to accomplish training for its own and other students.

To facilitate identifying these two needs, student military pay and allowances are separately presented. Military personnel pay and allowances cost estimates are compatible with budget estimates. It is noted in this regard that all dollar figures shown in this chapter are intended to explain and supplement data in budget justification documents by relating the budget to the training activities included in this report. These data, however, do not replace or amend budget justification documents.

Funding estimates used here for costing training exclude the funding requested and justified in budget documents for programs not included in the training loads requested and explained in this report (e.g., ROTC).

The following tables reflect the important cost differences among training programs. These differences are due to the mix of training activities needed to accomplish effective and efficient training to satisfy Service manning requirements, and to the mix of training resources devoted to these training activities.

Special caution should be exercised in using these costs for comparisons among Services. Differences in missions among the Services, differing operating and training conditions, and differences in the mix of component Service training programs, degrade the soundness of comparisons based on aggregated data such as these.

Aggregate training funding, by Service and major training category, is shown in the following tables.

Aggregate Funding of Individual Training by Service, FY 1978
(\$ Millions)

<u>Army</u>	<u>Navy</u>	<u>Marine Corps</u>	<u>Air Force</u>	<u>DoD Total</u>
\$2,535 (1,014)	\$1,549 (600)	\$452 (254)	\$1,600 (536)	\$6,136 (2,404)

Aggregate Funding of Individual Training
by Major Training Category, FY 1978
(\$ Millions)

<u>Recruit</u>	<u>One-Station Unit Training</u>	<u>Officer Acquisition</u>	<u>Specialized Skill</u>	<u>Flight</u>	<u>Professional Development</u>	<u>DoD Total</u>
\$840 (510)	\$158 (69)	\$379 (120)	\$3,387 (1,338)	\$939 (88)	\$431 (278)	\$6,136 (2,404)

Note: Figures in parentheses show student pay and allowances included in the figures immediately above.

Appendix D shows a distribution of funds in the table above by appropriation.

The figures in parentheses relate to student pay and allowances estimated for requested military student training loads.

If the parenthetical figures covering student pay and allowances are subtracted from the total training funding figures for each Service and each major training category, the remainders are the funding requirements attributable to training activity conducted -- i.e., the training to be accomplished by the respective Service in the respective category.

This table reflects an essentially stable resource pattern, with less than a one percent shift from the total funding estimated last year for FY 1977. Although there are compositional differences, many of these offset one another. The total workloads supported by these resources are also essentially stable, with less than a one percent shift from those estimated last year for FY 1977.

The table above includes substantial segments of cost which are not normally sensitive to significant shifts (say up to fifteen percent) in training load. These include certain command, base, facility, and equipment costs (e.g., flight simulators or the training aircraft carrier USS LEXINGTON), and other costs associated with activities or capabilities essential for training loads to be accomplished. These "fixed" costs need to be considered in program and budget adjustments because, within a reasonable range of output, they remain approximately the same and do not vary as the training load varies. They change, instead, with decisions to change the manner of accomplishing training, most often through training investment decisions or base realignments.

It should be noted that, because of such factors as the nature of Defense training investment funding, there are often substantial year-to-year fluctuations in funding for fixed costs. These costs are termed "fixed", not because they do not change from year to year, but because their changes characteristically are not "variable" with changes in workloads from period to period. Funding of these costs reflects significant increases, however, for years in which there are major procurements of, for example, simulators, aircraft, or construction in support of training.

Thus, the proportion of total funding any year which is attributable to fixed costs differs significantly among the Services and among categories of training; the proportion is often as much as two-thirds of total cost and very seldom will be less than one-third of total cost. This has important implications for the extent of funding adjustments appropriate to changes in the level of activity or size of a training program. If training funds are to be adequate for the needs of a reduced program, they must be reduced by a smaller proportion than the program loads or output in order to account for the fact that all program costs simply do not vary in proportion with program activity levels. By the same token, program increases within reasonable capacity limits may not require a proportional increase in total program funding.

Training programs are affected generally by today's cost inflation, both because of price rises for goods and services and because of the pay of the military and civilian personnel involved as students, instructors, and support. Some training program costs are strongly affected, in addition, by energy cost increases. Flight Training, for example, has been affected by the increased costs of aircraft fuels. However, the stable workloads and resources discussed above suggest that

efficiencies in Defense training may have kept pace in the aggregate with price increases during this intervening year.

All of these factors contribute to the challenge confronting the Department of Defense for further improvements in management of training, for further improvements in utilization of trained manpower resources, and for aggressive implementation of initiatives and innovations that promise further improvements in the quality and efficiency of training.

TRAINING IMPROVEMENTS

General

The purpose of this chapter is to discuss some of the actions being taken by the Department of Defense to make individual training more effective in producing qualified graduates or more efficient in its use of resources. Some pertinent actions have been discussed in the previous chapters of this report; in addition, a report on Efficiency and Effectiveness of Military Training, which analyzes the merits of a number of criteria for judging the efficiency and effectiveness of training, is appended to this report. This chapter will discuss actions not covered elsewhere in the report, with emphasis on joint training and progress in development and use of training technology.

Interservice and Joint Training

Interservice training is training performed by one Service for one or more of the other Services; joint training is that conducted in a school with a multi-Service faculty, usually operating under a Defense-wide charter. The distinction is not important for the purpose of this report, since both types of training act to lessen duplication of training among the Services and to make better use of resources. "Joint training" will therefore be used in this report to describe all cooperative training arrangements among the Services.

Interservice and joint training arrangements have existed for many years, but systematic efforts to increase the amount of those types of training have been in effect for only about four years. The starting point for consideration of increased joint training in the Service training establishments are their programs as they have evolved over many years and as they exist today. Essentially, each Service historically has been responsible for training its own members to satisfy its own requirements. To carry out this responsibility, each Service has developed and maintained training bases, activities and programs to meet its own requirements; until recently, with some exceptions, little emphasis has been placed on the potential for structuring training systems which are usable by other Services. The major exception has been

Navy training of Marines, particularly in Flight Training and other aviation-related skills. This cooperative arrangement grew up over a period of many years; its success gives an idea of the potential for interservice cooperation if it were feasible to rebuild the DoD training system from the beginning. However, the position from which the potential for increased joint training must be considered is the situation that exists today.

Advantages and Limitations of Joint Training. Significant efficiencies in faculties, staffs, and support establishments, and in operating costs, may be realized by reducing the total number of training activities and combining them into fewer and larger organizations. Another advantage of consolidation is better utilization of equipment and systems required to support courses of instruction. Joint training also stimulates the interchange of new training ideas and methods.

With regard to the practical limitations to the use of joint training, it is preferable and cost effective for each Service to provide the first phase of training to its own new members, in order to orient and motivate them to the unique roles and missions of that Service and to inculcate the Service's standards, customs, and traditions. This is accomplished in Recruit Training and Officer Acquisition Training. For practical purposes, then, joint training is limited to Specialized Skill Training, Flight Training and Professional Development Education; to a degree, the uniqueness of Service roles and missions are also a limiting factor in these types of training.

Beyond this consideration, another limitation to the extension of joint training is that Service training facilities are sized, in many cases, to accommodate only their own students, and consolidating courses or schools may require additional facilities. Other limitations are differing skill requirements among the Services, the diversity of equipment used by the Services, possible excessive travel costs if interservice facilities are not conveniently located for joint use, and the possibility that joint training centers would not be sufficiently flexible to meet Service needs in the event of mobilization.

The general criteria used to determine what training will be conducted jointly are that joint training should not lead to an unacceptable loss of training quality or failure to meet the needs of the participating Services; that it should not require a capital investment in either facilities or equipment or other one-time costs which cannot be amortized

over a reasonable period of time; and that the courses under consideration should have sufficient commonality to allow for common-core training or enough common equipment utilization to produce savings.

Mechanisms for Increasing Joint Training. The primary mechanism for increasing joint training within DoD is the Interservice Training Review Organization (ITRO), directed by the training chiefs of the four Services and comprised of interservice committees and working groups which do the detailed analysis which leads to decisions on the feasibility of consolidation or other cooperative arrangements among the Services. When necessary, as for example when the Services cannot reach agreement in an important case, the potential for consolidation is further analyzed by the Office of the Secretary of Defense and a decision may be recommended to the Secretary of Defense. Most of the detailed analysis of the thousands of courses which might be consolidated, collocated, or otherwise rationalized is done by the subordinate groups of ITRO.

Joint Training in FY 1978. The following table shows, for each Service (active and Reserve Components combined), the amount of training it expects to have conducted by one of the other three Services or DoD schools in FY 1978.

Loads Trained by Other Services or in DoD Schools, FY 1978
(Active and Reserve Component)

	Trained By Other Service or DoD Schools	Total Parent Service Loads	Percent Trained By Other Services or DoD Schools
<u>Specialized Skill Training</u>			
Army	1,654	55,969	3.0
Navy	1,175	37,095	3.2
Marine Corps	4,555	12,277	37.1
Air Force	1,268	30,444	4.2
DoD	8,652	135,785	6.4
<u>Flight Training</u>			
Army	-	846	-
Navy	180	1,311	13.7
Marine Corps	571	571	100.0
Air Force	44	1,864	2.4
DoD	795	4,592	17.3
<u>Professional Development Education</u>			
Army	255	4,359	5.8
Navy	370	1,974	18.7
Marine Corps	154	750	20.5
Air Force	351	4,676	7.5
DoD	1,130	11,759	9.6

The figures above do not give a full picture of the actual extent of joint training, since they do not include the members of the host Service who are being trained in the same courses with members of other Services. For example, the figures for Specialized Skill Training include Marines being trained as tank crewmen by the Army but not the much larger number of Army trainees in the same course. The Navy, for example, estimates that 69 percent of its Specialized Skill Training loads are in courses which include students from one or more of the other Services. The total scope of joint training is therefore considerably underestimated if only students being trained outside their own Service are considered and their classmates from the host Service are not.

Trends and Initiatives in Joint Training. The amount of joint training has increased significantly in recent years. Between FY 1975 and 1978 training loads being trained outside the parent Service by another Service or in a DoD school have increased by about one-third. By category of training, the increase is 36 percent in Specialized Skill Training, 25 percent in Flight Training, and 18 percent in Professional Development Education.

The most important current initiatives in joint training are in undergraduate Flight Training. The Department of Defense last year proposed to consolidate all Defense undergraduate helicopter pilot training under Army at Fort Rucker, Alabama. The congressional conferees on the FY 1977 Defense Appropriations Bill directed that consolidation not be undertaken pending further study and a report to the Congress. Since preliminary study has confirmed that consolidation would be cost effective, the proposal has been included in the FY 1978 President's Budget. The consolidated program would replace the current system under which the Army trains its own and Air Force helicopter pilots and the Navy trains its own and those of the Marine Corps. The consolidated program would contain training modules to meet Service-peculiar requirements. Substantial savings are made possible through this consolidation because of lower operating costs and the elimination of the need to buy training aircraft and other training equipment in the future to support the separate Navy program.

The Navy, Marine Corps and Air Force, as the result of an ITRO study, consolidated their Advanced Undergraduate Navigator training at Mather Air Force Base, California, in the fall of 1976.

ITRO is continuing its study of potential for consolidations among the several thousand Specialized Skill Training courses. Recent decisions have included the consolidation of Marine Corps Redeye missile training with the Army and Army weather observer training with the Air Force.

ITRO is currently participating with the Office of the Secretary of Defense in a project which, although it probably will not result in additional joint training, will save substantial course development costs. The Privacy Act and Freedom of Information Act require training at several levels: some orientation for all DoD personnel with regard to their rights and obligations under the two Acts; detailed instruction for personnel who have relevant information under their custody; and appropriate training for responsible managers. To preclude the need to develop separate training programs for each Service and Defense Agency, ITRO is sponsoring a single curriculum development effort to satisfy all DoD training needs.

The following table lists some of the major skill areas or courses which are, or are programmed to be, conducted as joint training.

MAJOR COURSES/SKILL AREAS TRAINED IN OTHER SERVICES

<u>Sponsoring Service</u>	<u>Major Interservice Course/ Skill Areas</u>	<u>Other Participating Services</u>
Army	Undergraduate Helicopter Pilot Training	Navy Marine Corps Air Force
Army	Construction Equipment Operator	Marine Corps Air Force
Army	Artillery	Marine Corps
Army	Armor	Marine Corps
Army	Redeye Missile	Marine Corps
Army	Tracked Vehicle Repair	Marine Corps
Army	Security Police Correction Management Training	Air Force Marine Corps
Army	Postal Clerk	Navy Marine Corps
Navy	Aviation Maintenance	Marine Corps
Navy	Electrical Accounting Machine Operator	Marine Corps
Navy	Cryptologic Courses	Army Marine Corps Air Force
Navy	Univac 1500 Computer Training	Marine Corps Air Force
Navy	Diving	Army Marine Corps
Navy	Musician	Army Marine Corps
Marine Corps	IBM 300 Computer Operator, Analyst, and Programmer	Navy Air Force
Air Force	Basic Law Enforcement Training	Navy
Air Force	Communications Radio	Navy
Air Force	Tempest (Cryptologic Courses)	Navy
Air Force	Audio Visual	Army Navy Marine Corps
Air Force	Advanced Undergraduate Navigator Training	Navy Marine Corps
Air Force	Military Dog Handler	Army Navy Marine Corps
Air Force	Microwave Measurement and Calibration	Army Navy
Air Force	Weather Observer	Army

Potential for Increased Joint Training. It is not possible to state with precision the ultimate potential for joint training. Each decision, to be cost-effective, must be based on a detailed analysis of facilities, equipment, comparative costs of alternatives, and the effect of common training on the mission readiness of each Service which might participate. Changes in weapons systems and other equipment may make consolidations feasible in the future which are not today, or may, in some cases, make it less attractive. These factors make it difficult to state how much consolidation may be possible. In consequence, the best plan for the future appears to continue to strive for incremental progress, based on continued analysis of subject areas which now, or in the future, are apparent possibilities for consolidation or other rationalization actions.

Progress in Training Technology

The Military Services have been leaders in training technology for many years. The term "training technology" is used here in a broad sense to encompass both methods used to structure training courses and also the use of hardware, such as computers or simulated equipment, used in instruction.

Training Technology in Structuring Courses. Each of the Services makes use of a systematic process in determining what should be taught in a given course and the most effective and efficient way of conducting the instruction. This process, generally known as Instructional Systems Development (ISD) is based on analysis of tasks actually performed on the job in operational units. The tasks which can most effectively be taught in formal training become the basis of the course; those which can be effectively learned on the job are deferred to be learned in the operational unit. The course is then structured to teach the essential tasks in the most effective and efficient way.

A systematic approach to training assures that graduates are trained to the proper skill level and, in many cases, results in a reduction in course lengths. This is important because military students must be paid, housed and supported, and course length reductions yield savings in those costs. Two examples demonstrate savings being achieved. The Air Force has reduced course lengths in 75 electronics courses by an average of six weeks, thus saving 1,269 student man-years. In the Army, training time

reductions brought about through adoption of its current seven One-Station Unit Training courses save approximately 1,600 trainee manyears in FY 1977 and 2,200 manyears in FY 1978. The latter figure is close to the number of manpower spaces required to man four tank battalions.

Use of Training Equipment. The Services are making increased use of computers as means of improving instruction and reducing costs. As an example, the Navy is expanding its Computer-Managed Instruction system. This system, operating from the Naval Technical Training Center at Memphis, centrally manages training at three remote sites, San Diego, Great Lakes, and Orlando (and at Meridian, MS, beginning in FY 1978), as well as at Memphis. The system centrally controls such functions as testing, grading, test analysis and corrective prescription to the students, thus producing substantial savings in support costs. The average number of students under the system, 5000 at the end of FY 1976, will expand to 8,700 by the end of FY 1977.

The use of modern, highly capable flight simulators is increasing in undergraduate flight training. The Army is revising its undergraduate helicopter pilot training syllabus this year by doubling the amount of time devoted to training in flight simulators from 20 to 40 hours and reducing flight time in training aircraft. During 1977 the Air Force will begin using new, modern flight simulation in undergraduate pilot training. Students will receive over 70 hours in simulators equipped with visual and motion systems, which will provide realistic training in instrument flight, visual approaches and emergency procedures. Students in the Air Force undergraduate navigator course now receive 84 hours of simulated airborne training; the adoption of this training system has both improved graduate quality and reduced costs.

The modern flight simulators now in use not only save funds and fuel by reducing the requirement for flying but also provide training which cannot, or should not for safety reasons, be provided in the aircraft, such as playback of maneuvers for critiquing by the instructor or induced emergency situations.

Other modern simulators are being used, or introduced, to support a variety of training courses. The Navy is beginning installation of the Naval Electronic Warfare Training System (NEWTS) in FY 1977. NEWTS, which consists of 20 student stations and a data storage and retrieval

computational system, is a generalized basic trainer for teaching electronic warfare operators. Training on NEWTS prepares the student to adapt readily to the specific weapons system platform, whether surface, subsurface, or air, to which he will ultimately be assigned.

The Department of Defense intends to continue to take advantage of available or emerging training technology to improve the quality of training and to reduce training time and the costs of training.

APPENDIXES

APPENDIX A

SUMMARY TRAIL OF TRAINING CATEGORY REALIGNMENTS

<u>Training Segment</u>	<u>FY 1978 Budget Justification</u>	<u>Military Manpower Training Report</u>
1. ROTC Programs	Officer Acquisition Training	Excluded from Loads
2. Health Professional Scholarship Program	Professional Education	Excluded from Loads
3. Officer Candidate Schools	Specialized Training	Officer Acquisition
4. Other Enlisted Commissioning Programs and Medical Officers Acquisition Programs	Professional Education	Officer Acquisition
5. Non-flight-related Aviation Training	Flight Training	Specialized Skill
6. Senior Noncommissioned Officers Academies	Specialized Training	Professional Development
7. Army Advanced Individual Training conducted in Training Centers; Navy Apprenticeship Training	Recruit	Specialized Skill
8. Uniformed Services University of the Health Services	Separate Justification	Excluded from Loads

Category Changes in Training Report

For all practical purposes there have been no category changes since preparation of last year's Military Manpower Training Report for FY 1977. However, this year's report separately displays Army One-Station Unit Training (see Chapter III). Last year Army reported One-Station Unit Training partly under Recruit Training and partly under Initial Skill Training (Enlisted).

Effective in mid-April 1977, a number of changes are to take effect in the structure and definition of Defense training and education programs. These will result in Five-Year Defense Program and budget justification displays being more closely aligned with the displays of this report. Specifically, the principal differences listed above between budget justification documents and this report will be eliminated in next year's report.

APPENDIX B

DETERMINING TRAINING REQUIREMENTS

Discussions of the determination of training requirements in this report reflect a generally uniform approach. The following overview of the methodology for assessing and calculating training requirements is provided as a framework for understanding this approach. As noted, details in calculation may differ to some extent among the Services and among the training categories.

Requirements

All training is accomplished to satisfy the need for personnel with certain types and levels of skills to man the approved or projected force. The Services, over the years, have developed detailed, systematic methods of determining the manpower needed to man and support the forces. The Manpower Requirements Report discusses this process. From these force requirements for manpower, the need for trained personnel with specific skills can then be derived. For example, a given force structure establishes the number of trained enlisted personnel needed. The number of authorized positions within that force structure for radar technicians establishes the basic requirement for trained personnel with that skill. This process is reiterated on a phased basis for all skills and skill levels for each Service, for both officer and enlisted skills. The total of all personnel in all skills needed to perform all the jobs in the force at a point in time represents the total requirement for trained manpower projected for that date.

Inventory Projections

The requirements identified through this process must be measured against the available assets, in terms of trained personnel on hand in each skill and skill level. From this asset base, estimates are made of how many trained personnel will be available at various points of time in the future. These estimates take into account probable rates of change to the current inventory -- through reenlistment, promotion, discharge, death, retirement, or other causes. These estimates are based on the best historical information available, tempered by judgment of how in the future personnel policies,

the state of the economy, behavioral patterns, and other factors, many of them difficult to predict, will affect the probabilities that a trained individual will remain in the Service. A comparison of skill requirements and skill inventory projections, over time, establishes the extent of shortage or surplus likely to exist in each skill area by month and year. Adjusting the inventory may entail retraining personnel who are in surplus skills, but to a much greater degree, adjustment is likely to require the training of new accessions at entry level in shortage skill areas. The process places a demand on the personnel management and training establishments continually to analyze information about attrition as it occurs, by skill and skill level, in order to produce the right number of trained personnel with the proper skills needed to restore and maintain the balance of the skill inventory. The workload thus placed on the training establishment is detailed by graduates needed from courses of various lengths and is measured in terms of average student load, or "training load."

Average Training Loads

Resources (men, money, and materiel) needed for any particular category of training vary with the number of students undergoing training at any given time. Facilities must be constructed and maintained to accommodate these students in training. The training establishment must maintain a sufficient staff of qualified instructors to conduct instruction for the "load" of students. Students and Trainees, as described in the "Individuals" chapter of the Manpower Requirements Report, must be programmed to account for the fact that these personnel are in formal school training and are not available for duty with operational units. All of these personnel must be paid, housed, and supported. The basis for establishing these resource requirements is the "average training load."

The aggregate training load of courses of instruction within a given training category or sub-category for a given period is computed in accordance the the following formula, except as noted:

$$L = \frac{\sum_{i=1}^n \left(\frac{E_i + G_i}{2} \right) t_i}{y}$$

where L is Average Training Load,

i is a class (1,2,...n) scheduled for a training course within the training category under consideration,

E is number of expected entrants to scheduled class i,

G is number of expected graduates from scheduled class i,

t is the calendar length of the syllabus of class i, and

y is the length of a calendar year (or quarter-year, in the case of FY 197T) expressed in the same units as t (1 year = 12 months = 52 weeks = 365 days).

Fractions of carryover classes conducted during the year are included as though they were separate classes. However, individuals remaining in class at the end of a period are not counted as graduates, nor are individuals already in a class at the beginning of a period counted as entrants except for purposes of computing training loads for these fractions of courses.

The training load for a category or sub-category of training (e.g., Specialized Skill Training or Functional Training within that category) is the sum of the loads computed for all classes of courses within the category or sub-category.

This method of computation implies "straight-line" attrition, under an assumption that net class attrition occurs at a constant rate during a course. In the relatively few cases when attrition patterns experienced characteristically produce a significantly different distribution of attrition, the more appropriate attrition pattern is used in lieu of the term $\frac{E + G}{2}$.

Since attrition varies for different training programs and is not always spread uniformly throughout the length of a course of training, determining training loads becomes a complex problem in estimation. This process of estimation involves two related factors.

First, across the spectrum of training programs that are within the scope of this report, attrition varies from nearly zero to as high as 25 to 30 percent. Most officer Professional Development Education programs have practically no attrition. For FY 1978, the Services estimate that about 10 percent of new recruits, on a DoD average basis, will not complete Recruit Training because they will be found, in the course of undergoing training, not to have the mental or physical qualifications, or the motivation, for military life. Of these, some will fall ill or go absent without leave. Attrition rates in Specialized Skill Training vary widely, with the longer and more demanding courses tending to have higher losses. Pilot training is near the top of the scale in attrition; the higher rate of losses is based on lack of aptitude or motivation for flying, accidents, and similar causes which are intensified in this type of training. While historical data provide a basis for projecting attrition rates for all types of training, there is a considerable possibility for error based on variance in such factors as student quality and motivation.

A second necessary step in evaluating the effect of attrition is to estimate the phasing of attrition for each training program. In some courses, attrition tends to be higher in the early states of a course when the inept and those lacking motivation are discovered. In other courses, the bulk of attrition may occur toward the end of the course. The patterns of losses vary widely among types of training and, to the detriment of precise planning, over time. The complexities of the attrition variable makes it necessary for the Services to use computer simulations in their training load calculations which take into account the rates and time-phasing of attrition.

An additional variation is introduced into the conceptual process of forecasting requirements and planning training loads as described above by the seasonal and cyclical nature of new accessions to the Services. Inputs to many of the more stable training programs -- Professional Development Education, Flight Training, the Service Academies, and the most advanced portions of Specialized Skill Training -- are

readily predictable. Inputs to the training programs which are dependent on new accessions, Recruit Training and Initial Skill Training for graduates of Recruit Training, are considerably more volatile. The volume of inputs to these types of training depends on such intangibles as job opportunities in the civilian economy and the decisions of young people to enlist, delay enlisting, or not enlist. Moreover, enlistments are seasonal in nature, following a long-term pattern of "good" and "bad" recruiting months, whereas phased requirements move independently of these seasonal patterns. As a result, training loads for the initial active duty training programs are generally based on a compromise involving the timing of predicted enlistments and the capacity of the training base as well as when the new personnel are needed to fill vacancies in the job structure. Most of the courses in these programs are relatively short, and program adjustments can readily be made.

APPENDIX C

INDIVIDUAL TRAINING FACILITIES BY LOCATION AND MAJOR TRAINING CATEGORY, FY 1978

<u>Facility Location</u>	<u>Estimated Student Load</u>	<u>Estimated Training Support</u>	
		<u>Military</u>	<u>Civilian</u>
A. <u>Recruit Training</u>			
<u>Army a/</u>			
Fort Bliss, TX	1,110	642	287
Fort Dix, NJ	6,041	1,699	938
Fort Gordon, GA	1,368	719	235
Fort Jackson, SC	7,660	2,031	775
Fort Knox, KY	4,108	2,203	1,179
Fort Leonard Wood, MO	5,503	3,265	766
Fort McClellan, AL	1,595	457	460
Fort Sill, OK	1,368	403	359
<u>Navy</u>			
Great Lakes, IL	6,395	626	13
Orlando, FL	4,747	504	-
San Diego, CA	4,747	468	14
<u>Marine Corps</u>			
Parris Island, SC	7,030	2,246	500
San Diego, CA	6,107	1,966	282
<u>Air Force</u>			
Lackland Air Force Base, TX	11,823	1,697	452

a/ Loads include some Specialized Skill Training conducted for recruits in connection with One Station Unit Training.

<u>Facility Location</u>	<u>Estimated Student Load</u>	<u>Estimated Training Support</u>	
		<u>Military</u>	<u>Civilian</u>

B. Officer Acquisition Training

Army

Fort Benning, GA	232	103	22
Fort Monmouth, NJ	303	54	29
West Point, NY	4,200	1,461	2,562

Navy

Annapolis, MD	4,183	744	1,672
Newport, RI	368	92	15
Pensacola, FL	291	73	-

Marine Corps

Quantico, VA	539	464	104
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Air Force

Colorado Springs, CO	4,446	1,994	1,854
Lackland Air Force Base, TX	401	196	31

<u>Facility Location</u>	<u>Estimated Student Load</u>	<u>Estimated Training Support</u>	
		<u>Military</u>	<u>Civilian</u>

C. Specialized Skill Training

Army

Aberdeen Proving Ground, MD	2,598	1,414	333
Charlottesville, VA	126	55	36
Fort Belvoir, VA	1,549	1,130	601
Fort Benning, GA	7,976	3,445	1,271
Fort B. Harrison, IN	2,278	771	579
Fort Bliss, TX	2,587	2,550	791
Fort Bragg, NC	517	520	127
Fort Devens, MA	1,478	1,069	104
Fort Dix, NJ	1,788	605	374
Fort Eustis, VA	1,657	1,292	934
Fort Gordon, GA	5,536	2,367	1,269
Fort Huachuca, AZ	1,070	777	200
Fort Jackson, SC	4,046	1,199	438
Fort Knox, KY	2,523	2,209	677
Fort Lee, VA	4,478	1,373	900
Fort L. Wood, MO	2,496	1,289	390
Fort McClellan, AL	893	291	176
Monterey, CA	2,875	146	578
Redstone Arsenal, AL	1,835	892	597
Fort Rucker, AL	1,113	694	523
Fort Sam Houston, TX	4,507	1,995	732
Fort Sill, OK	2,527	3,023	758
Fort Wadsworth, NY	162	96	30

<u>Facility Location</u>	<u>Estimated Student Load</u>	<u>Estimated Training Support</u>	
		<u>Military</u>	<u>Civilian</u>
<u>Navy</u>			
Athens, GA	236	79	2
Charleston, SC	643	474	15
Coronado, CA	699	254	47
Corry Station, FL	1,637	753	108
Dam Neck, VA	1,472	547	43
Great Lakes, IL	7,234	1,562	107
Gulfport, MS	70	137	10
Idaho Falls, ID	770	541	-
Indian Head, MD	323	88	8
Lakehurst, NJ	348	199	25
Little Creek, VA	243	86	20
Mayport, FL	124	82	4
Mare Island, CA	931	504	37
Memphis, TN	6,641	1,032	320
Meridian, MS	823	153	27
New London, CT	1,741	717	66
Newport, RI	697	469	27
Norfolk, VA	1,475	1,326	110
Orlando, FL	3,488	448	21
Pearl Harbor, HI	500	349	29
Port Hueneme, CA	502	179	29
San Diego, CA	6,296	2,290	184
Schenectady, NY	721	596	-
Treasure Island, CA	700	198	5
Windsor, CT	258	141	-
Washington, D.C.	34	78	5

<u>Facility Location</u>	<u>Estimated Student Load</u>	<u>Estimated Training Support Military</u>	<u>Civilian</u>
<u>Marine Corps</u>			
Albany, GA	60	30	-
Camp Lejeune, NC	1,981	668	29
Camp Pendleton, CA	1,615	524	10
Coronado, CA	138	118	10
Little Creek, VA	22	113	15
Parris Island, SC	439	58	13
Quantico, VA	1,404	1,930	599
San Diego, CA	341	73	10
Twentynine Palms, CA	1,731	621	59

Air Force

Chanute Air Force Base, IL	6,456	2,945	1,548
Fairchild Air Force Base, WA	134	291	23
Goodfellow Air Force Base, TX	849	977	319
Homestead Air Force Base, FL	46	136	1
Keesler Air Force Base, MS	6,496	4,058	2,448
Lackland Air Force Base, TX	4,822	1,665	826
Lowry Air Force Base, CO	5,579	3,332	1,295
Sheppard Air Force Base, TX	6,800	2,849	1,703

<u>Facility Location</u>	<u>Estimated Student Load</u>	<u>Estimated Training Support</u>	
		<u>Military</u>	<u>Civilian</u>

D. Flight Training

Army

Fort Rucker, AL	1,339	1,239	589
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Navy

Chase Field, TX	163	1,092	226
Corpus Christi, TX	90	532	121
Kingsville, TX	182	1,329	221
Meridian, MS	134	967	128
Pensacola, FL	835	2,118	477
Whiting Field, FL	465	1,444	95

Air Force

Columbus Air Force Base, MS	<u>a/</u>	<u>a/</u>	<u>a/</u>
Laughlin Air Force Base, TX	<u>a/</u>	<u>a/</u>	<u>a/</u>
Mather Air Force Base, CA	635	1,907	789
Randolph Air Force Base, TX	160	1,844	937
Reese Air Force Base, TX	<u>a/</u>	<u>a/</u>	<u>a/</u>
Sheppard Air Force Base, TX	<u>a/</u>	<u>a/</u>	<u>a/</u>
Vance Air Force Base, OK	<u>a/</u>	<u>a/</u>	<u>a/</u>
Williams Air Force Base, TX	<u>a/</u>	<u>a/</u>	<u>a/</u>

a/ FY 1978 student basing for Air Force Undergraduate Pilot Training is not yet available.

<u>Facility Location</u>	<u>Estimated Student Load</u>	<u>Estimated Training Support Military</u>	<u>Civilian</u>
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E. Professional Development Education

Army

Carlisle Barracks, PA	237	90	436
Fort Belvoir, VA	119	52	79
Fort Bliss, TX	200	90	45
Fort Leavenworth, KA	1,009	432	744
Fort McNair, DC	170	94	224

Navy

Monterey, CA	1,028	170	357
Newport, RI	404	177	201
Norfolk, VA	260	78	87

Marine Corps

Quantico, VA	330	399	186
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Air Force

Gunter Air Force Base, AL	208	176	258
Maxwell Air Force Base, AL	1,538	820	441
Wright-Patterson Air Force Base, OH	852	266	268

APPENDIX D

SUMMARY OF TOTAL FUNDING FOR INDIVIDUAL TRAINING AND EDUCATION, BY SERVICE AND APPROPRIATION, FY 1976-78 (\$ millions)

FUNDING RELATED TO MILITARY STUDENT TRAINING LOADS

<u>Appropriation</u>	<u>FY 76</u>	<u>FY 77</u>	<u>FY 78</u>
<u>Army</u>			
Operations and Maintenance, Army	\$ 621	\$ 177	\$ 714
Military Personnel, Army	1,189	326	1,280
Reserve Personnel, Army	65	92	115
National Guard Personnel, Army	81	19	100
Aircraft Procurement, Army	3	1	2
Missile Procurement, Army	18	1	5
Procurement Weapons and Tracked Combat Vehicles, Army	24	7	33
Procurement of Ammunition, Army	10	4	3
Other Procurement, Army	55	8	62
Military Construction, Army	157	-	48
Total Army	\$2,224	\$ 636	\$2,362

Note: See notes on subsequent pages of this Appendix.

<u>Appropriation</u>	<u>FY 76</u>	<u>FY TQ</u>	<u>FY 77</u>	<u>FY 78</u>
<u>Navy *</u>				
Operations and Maintenance, Navy	\$ 344	\$ 98	\$ 357	\$ 393
Military Personnel, Navy	1,056	236	1,098	1,039
Reserve Personnel, Navy	18	5	19	19
Aircraft Procurement, Navy	<u>a/</u>	<u>a/</u>	<u>a/</u>	<u>a/</u>
Research, Development, Test, and Evaluation, Navy	<u>a/</u>	<u>a/</u>	<u>a/</u>	<u>a/</u>
Other Procurement, Navy	39	21	43	94
Military Construction, Navy	<u>30</u>	<u>-</u>	<u>31</u>	<u>3</u>
Total Navy	\$1,488	\$ 360	\$1,548	\$1,549
<u>Marine Corps *</u>				
Operations and Maintenance, Marine Corps	\$ 59	\$ 15	\$ 61	\$ 66
Military Personnel, Marine Corps	324	68	338	339
Reserve Personnel, Marine Corps	22	9	28	30
Procurement, Marine Corps	<u>3</u>	<u>1</u>	<u>11</u>	<u>17</u>
Total Marine Corps	\$ 407	\$ 93	\$ 437	\$ 452

* These figures reflect funding practices within the Department of Navy (e.g., Navy funds for aviation fuel used by the Marine Corps as well as for that used by Navy). Thus, Service figures may not always be relatable to training activities of the respective Service, although the Service totals taken together relate to the total Department of Navy individual training and education loads.

a/ Less than \$500,000.

<u>Appropriation</u>	<u>FY 76</u>	<u>FY TQ</u>	<u>FY 77</u>	<u>FY 78</u>
<u>Air Force</u>				
Operations and Maintenance, Air Force	\$ 576	\$ 153	\$ 574	\$ 569
Military Personnel, Air Force	902	219	927	920
Reserve Personnel, Air Force	18	5	25	26
National Guard Personnel, Air Force	21	6	27	27
Aircraft Procurement, Air Force	62	12	68	43
Other Procurement, Air Force	1	a/	3	4
Military Construction, Air Force	<u>41</u>	<u>-</u>	<u>16</u>	<u>9</u>
Total Air Force	\$1,622	\$ 395	\$1,640	\$1,600
Total Department of Defense	\$5,741	\$1,483	\$5,986	\$6,136

a/ Less than \$500,000.

Note: Totals may not add due to rounding. These totals exclude funding for individual education and training programs for which loads have not been requested and for which funds were not shown in the funding tables in Chapter X (e.g., ROTC).

EFFICIENCY AND EFFECTIVENESS
OF MILITARY TRAINING

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INTRODUCTION

Individual training in the Department of Defense costs approximately \$6 billion a year; some 190,000 military and civilian personnel are required to conduct or support individual training. In 1977, an average of about 250,000 military personnel are undergoing training at any one time. It is therefore incumbent upon the Department of Defense to insure that training is both efficient -- that is, that it uses no more resources than are required to achieve its objectives -- and effective in producing graduates capable of performing required jobs in military units.

To meet this challenge the Department must make careful, informed judgments on a multitude of training-related matters -- what to teach, how to teach it, and what resources to devote to the task. To support these management decisions, the Department needs means to insure that these judgments, individually and in the aggregate, are soundly based.

This report was prepared and submitted in response to provisions in the Report of the Senate Armed Services Committee on the Defense Appropriation Authorization Bill for FY 1977. The following is an extract of the pertinent portion of the report:

The committee encourages further examination of the training establishment and the development of criteria to measure the training program. The committee requests that the Secretary of Defense study the criteria used to evaluate the total size, cost, and adequacy of training programs and develop new criteria. The study should include an evaluation of the current criteria, and the possibility for the development of new criteria such as average cost per graduate of military training programs and average time in education and training over the course of a person's military service. The study should also include an assessment of the relation of classroom training to improved on-the-job training.

The purpose of this report is to discuss the usefulness of various criteria for measuring the relative efficiency and effectiveness of individual training activities. It should be made clear at the outset that, because military training is made up of such diverse components with widely varying manpower and other resource requirements, no single criterion or formula has been discovered which will, by itself, lead to valid judgments about the efficiency or effectiveness of military training in the aggregate.

In general, the criteria discussed in this report are most valid when applied at relatively low levels of aggregation -- for example, when applied to one course or a cluster of related courses. The criteria are considerably less valid when applied to all individual training, all training conducted by a given Service, or other large aggregations of dissimilar courses. Within these limitations, however, the criteria discussed in this report show promise as means of assessing the efficiency and effectiveness of individual training so that improvements can be made.

The following sections of this report discuss each of the concerns expressed in the Committee Report. The first section deals with criteria or measures for evaluating the efficiency of the Department of Defense training program. The second section discusses effectiveness measures. The last section addresses the relative utility of formal individual training and on-the-job training (OJT).

MEASURING THE EFFICIENCY OF MILITARY TRAINING

The purpose of this section is to explain, illustrate, and evaluate two potentially important and useful ways to measure training efficiency. Also included here is a brief discussion of four other management tools of more limited use.

The relationship between the resources a productive activity consumes (its cost) and its output determines the efficiency of the activity. The fewer resources an activity consumes in producing a standard unit of output, the more efficient the activity is considered to be. The overall military training establishment, an individual school, or even one particular course within a school may be thought of as a productive activity that consumes resources (dollars, manpower, equipment, ammunition, food) and produces an output (trained people).

A. RECENT ANALYSIS AND ITS WEAKNESSES

Much of the recent debate on training efficiency has centered on staffing-level comparisons between military and civilian schooling. Because staffing ratios are readily available from civilian as well as military institutions, a comparative analysis was inevitable. Staffing ratios appeared to help fill an almost complete lack of overall training efficiency measures.

But, as the "Report on the Defense Training Establishment", submitted to the Congress in March 1976 as part of the Military Manpower Training Report for FY 1977, pointed out, there are many reasons why the staffing ratios of military and civilian institutions should differ. The most important of these reasons are:

- o Military training produces a different product than civilian education.
- o Military trainees spend more time in training each week than do students in civilian institutions.
- o Certain types of military training require round-the-clock supervision.

- o Military training involves more "hands-on" training than civilian education. Civilian education leans more heavily on lecture formats which require fewer teachers.
- o Because much military training involves safety hazards, closer supervision and more instructors are required.
- o Military training organizations prepare their own course materials and teaching aids rather than buy them.
- o Many military schools are also involved with supporting the training of operational units and administering correspondence courses.
- o Most military training bases must maintain large and extensive training facilities with a great deal of operational equipment, such as aircraft, tanks, and complex training devices.
- o Military training installations must provide students and military staff with housing, medical care, and community support services usually provided to civilian institutions by local governments.
- o Short military courses mean a high student turnover rate with attendant administrative burdens.
- o More people enlist in June through September and in January than in other months. Military training organizations must be staffed to cope with these peak loads; civilian institutions normally have steady, predictable enrollments during a year.
- o Military schools operate year-round; additional staff must be on hand to allow for leave.
- o Because student pay represents so much of the total military training cost, it can cost less to hire additional instructors and supporting manpower to send students through

training more quickly, thus saving more in student pay than the cost of the extra instructor and support manpower. Civilian schools do not pay their students and therefore lack incentive to apply more instructor manpower to graduate students more quickly.

Many of the above reasons for differences between military and civilian staffing apply to comparisons between various types of military training as well. For example, it would be quite unreasonable to expect Air Force undergraduate pilot training and Army recruit training to require the same ratio of students to instructors.

It is because of the diverse nature of military training that overall aggregate measures of training efficiency fail to paint an accurate picture of the resources required to conduct military training. Not only is military training in the aggregate unlike civilian education, one type of military training is unlike another, both in its product as well as the resources it requires.

But even if one were to compare two military training organizations with identical training missions, the organization with the higher student-to-instructor ratio would not necessarily be the more efficient organization. There are several reasons why this is the case. All have to do with the inherent shortcomings of using the staffing ratio as an efficiency measure:

- o The school with more instructors per student may train students more quickly than the other school. The resulting savings in student pay may be larger than the difference in instructor costs. Additionally, the shorter training time could result in a smaller number of students in training at any one time, thus reducing housing, medical and other support manpower and associated costs which are dependent upon student workload.
- o The school with the "better" student-to-instructor ratio could be experiencing higher attrition rates than the other school. Since the rate of attrition determines the number of students that must begin a course in

order to produce a given number of graduates, a higher attrition rate means a higher average student load. The additional cost of the higher student load in the school with the "better" student-to-instructor ratio could be greater than the instructor savings over the school with more instructors per student.

Hence, both course length and attrition rates influence the efficiency of a training organization. Student-to-instructor (or student-to-staff) ratios fail to reflect the effects of variance in either course length or attrition rates. Other factors, such as varying support costs, also escape unnoticed in the analysis of staffing ratios.

In order to measure the effects of all the above factors one must use an efficiency measure that includes all the costs, not just instructor or staff costs. A good efficiency measure must also measure a standard unit of output. Staffing ratios meet neither of these criteria. The number of staff members does not necessarily correlate with total training costs; the average number of students does not necessarily correlate with training output.

The debate over staffing ratios and the resulting failure of such ratios to provide reliable answers has focused attention on the need to develop other criteria by which to measure the military training program. A discussion of two such measures, cost per graduate and cost per student man-year, follows.

B. TWO PROMISING EFFICIENCY MEASURES: COST PER GRADUATE
AND COST PER STUDENT MAN-YEAR

Cost Per Graduate

This measure may have the greatest potential of the many varied measures considered during the conduct of the study on which this report is based. Cost per graduate is viewed by Service training managers as a promising, although not fully tested, management tool. It should be pointed out, however, that because military training as a whole and even each major piece of military training (such as flight training or initial skill training) are made up of such a diverse set of courses, each with its own individual resource requirements, no single efficiency measure can serve as a

yardstick for sizing or evaluating aggregations of training. Neither cost per graduate nor any other efficiency measure is transferable across different types of training -- military or civilian.

Training output may be thought of in terms of the pattern of skills a given number of students learn or the amount of knowledge they gain. But skills and knowledge are difficult things to define and quantify precisely. On the other hand, the number of students who graduate from a course is an easily defined and readily available piece of information that can be meaningful.

If there are established criteria for graduation, then graduates provide a useful gauge of training output. One graduate of a particular course may obviously learn more than another graduate of the same course, but both at least meet some established criteria -- examinations, practical tests or other demonstrations of acquired skills -- for graduation. (A separate question -- and one that transcends the efficiency of training -- is whether the criteria for graduation are properly linked to the skills required by graduates when they reach their jobs. To the extent that the linkage is faulty, the effectiveness of military training is considered to have suffered. The issue of training effectiveness is the subject of the next section of the report.)

To the extent that established graduation criteria actually measure the learning, then the production of a graduate indicates that a training program has produced at least some specific amount of output. Hence, the resources required to produce a graduate can be used as a measure of training efficiency.

Cost per graduate can tell a manager how much it costs to train one infantryman, one dental technician, or one automotive mechanic. It can tell a manager how much it costs to turn out one soldier, sailor, Marine, or airman from recruit training. More importantly, changes in cost per graduate can highlight for a manager which courses appear to be improving in efficiency and which courses he should take a closer look at to find explanations for possible decreasing efficiency. Using standard cost-accounting systems a manager can compare the efficiency of the same training conducted on various installations or by different commands under his purview.

Data Problems

The Military Departments collected training cost data in the functional categories shown below in order to support analysis described in this report. The Office of the Secretary of Defense plans to work with the Military Departments to develop a common costing methodology. Until such time as the common methodology is developed, however, the data should be considered to be of limited reliability. Further, because the cost data shown below were developed from actual expense data using non-standard course-level accounting conventions rather than from programming or budget data, they may differ slightly from figures shown in the President's Budget and the Military Manpower Training Report.

Despite the above cautions it is desirable to include at least some sample data in this report to illustrate how the measures described herein might be used.

The table below displays the total cost of Air Force recruit training for Fiscal Years 1975 and 1976. Costs are separated into: (1) student pay and allowances (including PCS move costs); (2) direct school costs (the cost of primary instructors, their immediate supervisors, and other direct support costs); and (3) overhead broken into "in-school house" costs (training school management and administration) and "out-of-schoolhouse" costs (housing, medical and other base operating support).

USAF Basic Military Training (Millions of FY 1977 Dollars)

	<u>FY 1975</u>	<u>FY 1976</u>
Student Pay and Allowances <u>1/</u>	\$69.7	\$68.5
Direct School Costs	12.4	12.6
Overhead	(40.0)	(38.7)
In-Schoolhouse	7.1	7.2
Out-of-Schoolhouse	32.9	31.6
Total Costs	\$122.0	\$119.7

1/ At FY 1977 pay rates.

The number of Air Force recruit training graduates and the cost per graduate, computed from the above total costs, are shown below:

	<u>FY 1975</u>	<u>FY 1976</u>
Graduates	62,676	62,731
Cost per Graduate	\$1,947	\$1,908

The cost per graduate in both years was almost constant, reflecting essentially no change in efficiency. These figures indicate that the total cost of Air Force recruit training measured in FY 1977 prices remained almost unchanged between FY 1975 and FY 1976. At the same time, the Air Force maintained almost a constant output from recruit training, as measured by graduates. In FY 1976 the Air Force produced a basic military training graduate with the expenditure of about the same amount of resources it required to produce such a graduate in the previous year. Implicit in this discussion is that a graduate in FY 1976 received the same amount of training as a graduate in FY 1975. If graduation standards changed during the period, however, the cost-per-graduate figures would be influenced by these changes and might, or might not, represent unchanging efficiency. In fact, there was a minor change in the FY 1976 Air Force recruit training curriculum. Several subjects were added to the syllabus which, in effect, added slightly to the amount of instruction each trainee received.

Further analysis of the above data shows that overhead costs are declining slightly both in absolute amount and as a percent of the total, another useful bit of information for a manager to have. Incidentally, the cost figures illustrate the important and often-repeated point that student pay, which is directly related to the length of training, constitutes a significant proportion of total military training costs -- in this case over 57% of the total.

Because Air Force recruit training represents an aggregation of individual training cycles of uniform length, the aggregate costs and graduates may be used in this analysis. Similar aggregate analysis of all Air Force enlisted initial skill training would not be meaningful because the category comprises a mix of long and short, costly and inexpensive, changing and unchanging courses. While it is tempting to compute cost per graduate on larger, heterogeneous aggregations of

training, the fact that graduates of different courses learn different things that require differing amounts of resources dictates that such analysis be restricted to single courses or groups of like courses.

The table below highlights the large variance in cost per graduate among a sample of U.S. Marine Corps initial skill courses for FY 76.

	<u>Admin Clerk</u>	<u>Field Radio Operator</u>	<u>Infantry</u>
Total Cost (In millions of FY 1977 dollars)	\$1.93	\$3.81	\$18.9
Graduates	3143	1240	9437
Cost per Graduate	\$615	\$3074	\$1005
Course Length (days)	23	57	34

Not only do the three courses take different lengths of time to teach, they require different resources. An infantry trainee uses hand grenades, ammunition and many personnel to supervise weapons ranges and control field training exercises. On the other hand, a clerk trainee requires relatively few resources to learn his job. It is clear that computing an average cost per graduate from these three courses for comparison with averages of other courses would provide little useful management information. Nevertheless, cost per graduate trends for each individual course are useful.

While it is appealing as a measure of efficiency in accomplishing like training (e.g., in a single course), cost per graduate is not without its limitations and, like any management indicator, is subject to misuse. Four caveats should be stressed:

- o Cheaper is not always better. A graduate is only a convenient substitute for a measurement of a quantity of learning. Useful cost-per-graduate comparisons must be based upon courses with uniform, graduation criteria. By teaching half as much, a manager might be able to produce graduates twice as fast, perhaps for half the

cost. In such a case, however, the lower cost per graduate would be a false indicator of increased efficiency.

- o Heavy management emphasis on cost per graduate places pressure on trainers to reduce attrition in order to lower their cost per graduate. This could lead to the graduation of students who do not really meet the standards for graduation. Reliance on any single measure can be misleading.
- o Cost per graduate is useful only for analyzing trends in a single course or a limited group of similar courses where a graduate represents the same amount of training. The measure is less useful, and potentially misleading, when applied to aggregations of heterogeneous courses. For that reason, cost per graduate is best used for measuring trends over time. The fact that it might cost a top-ranked university \$30,000 to educate a 4 year graduate while a junior college might spend only \$5,000 to educate a 2-year graduate obviously implies nothing about the relative efficiency of the two institutions.
- o Cost data must be comparable. There is no existing information system to collect course cost data in a form that lends itself to the kind of analysis above. Currently available data are both sketchy and inconsistent across courses or across Services.

Cost Per Student Man-Year

Cost per student man-year answers the question, "How much does it cost to keep a student in training for a year?" Both course length and attrition rates affect the relationship between student man-years and training output. Higher attrition rates mean that more student man-years are needed to produce a given output. On the other hand, a manager who is able to shorten his courses by using his instructors and students more efficiently will require fewer student man-years to produce a given number of graduates than he required before the change. Hence, student man-years must be adjusted for course length and attrition rates in order to measure

training output. (See Appendix A for a more complete description of the effects of course length and attrition rates on the cost per student man-year and cost per graduate.)

While student man-years may be adjusted for attrition and course length so that they correlate with output, the adjustments require data that either require one to know, or will allow one to compute, the number of graduates. Since that is the case, it is more direct simply to compute cost per graduate to begin with rather than to manipulate student man-year figures so that they correlate with output.

Cost-per-graduate computations offer the advantage that they automatically capture the effects of attrition and course length changes. Cost per student man-year computations do not. This difference will be made clearer by continuing with the Air Force recruit training example from the foregoing discussion.

The table below displays the Air Force recruit training costs from the previous example, the number of student man-years devoted to Air Force recruit training, and the resulting cost per student man-year computed by dividing the student man-years into the total cost:

USAF Basic Military Training

	<u>FY 1975</u>	<u>FY 1976</u>
Costs (Millions of FY 77 \$)	\$122.0	\$119.7
Student Man-Years	10,404	10,201
Cost per Student Man-Year	\$11,726	\$11,734

It cost the Air Force about the same at FY 1977 prices to train a man-year's worth of recruits in FY 1975 and FY 1976. The total costs vary almost proportionately with the student man-years.

In this instance, actual attrition rates remained fairly constant at between 7 and 8 percent. But attrition could have skyrocketed in FY 1976 without affecting the cost per student man-year. Of course, the cost per graduate would have climbed because the increased attrition would have increased the number of student man-years and the support and travel costs required to produce a graduate. But, an

examination only of cost and student man-years would fail to reveal the increased cost due to attrition. In fact, increased attrition will actually lead to a lower cost per student man-year if support and travel costs rise by less than an amount proportionate to the increase in student man-years.

It should be pointed out that a high or increasing attrition rate does not necessarily indicate a failure of the training establishment. Attrition can result not only from poor teaching but from poor students as well. The quality of recruits the Military Departments are able to attract plays a big role in recruit training attrition rates. The ability of a student strongly influences his or her likelihood of graduation.

Attrition rates themselves can be a useful, if limited, management indicator. A high attrition rate may be caused by a failure to provide sufficient individual help to marginal students; in this case, increased remedial training could raise the number of graduates, possibly at a lower cost per graduate. On the other hand, a high rate in a particular course may mean that the quality of instruction is poor, that instructional methods need to be changed, or that criteria for acceptance into the course need to be revised. A low rate, conversely, may mean that the instructional staff is not adhering to established student performance standards and that some graduates are less than fully qualified.

Like attrition rates, course length affects student man-year requirements and cost-per-student-man-year computations. In the Air Force example the basic training course length remained constant at 6 weeks during the two-year period. But if in FY 1976 the Air Force had found ways to teach the same material in 5 weeks instead of 6, it would have been able to produce more graduates for the same number of man-years than when it took 6 weeks to train a recruit. When course lengths change, both the total cost and the student man-years can be expected to change in the same direction, precluding the ratio of cost to student man-year from reflecting an efficiency change.

Despite the fact that student man-years fail to offer a sound basis for overall training efficiency measurements, the direct relationship between support costs and student man-years makes it important to monitor costs per student man-year.

In fact, for many activities in support of training (e.g., billeting, messing, base operating support, etc.) student man-years supported may well be a useful and relevant output measure; for such training-support activities, cost per student man-year may be the valid measure of efficiency. This is often recognized by basing the budgeting for such activities upon the number of student man-years to be supported. The distinction in output measure and in the basis for resource budgeting, as noted above, can be useful to managers assessing both training and training support activities under their cognizance.

Data Collection Efforts

The Office of the Secretary of Defense will continue to work with the Military Departments to develop a standard course-costing methodology that can be applied to all types of military training. After such a methodology has been developed, the Military Departments will begin collecting data, down to course level where appropriate, to support the measures described in this report. The standard methodology and cost data should enhance the Services' ability to make informed judgments about the efficiency of their training activities.

C. OTHER MANAGEMENT INDICATORS

None of the management indicators discussed below qualifies as an efficiency measure in that none describes a relationship between input and output; none measures all the relevant costs against a standard product. Nonetheless, each indicator can provide a manager some information as to how well the Military Departments allocate their overall resources as well as how well they use the resources they allocate to training. And in some cases the measures may be useful for quantifying the relative efficiency of training support activities.

Student Man-Years per Staff Man-Year

The "Report on the Defense Training Establishment" in the FY 1977 Military Manpower Training Report explained in detail the shortcomings inherent in the comparison of military and civilian school staffing as a means of judging the efficiency of military training. Valid staffing differences also exist across Services within the DOD, as well as across

courses and types of training within a Service. Nevertheless, staffing ratios provide a useful measure of trends within a given Service with respect to a specific skill (e.g., automotive mechanic, light weapons infantryman) or a specific type of training (e.g., recruit training or undergraduate pilot training). Further, staffing ratios have some utility in a broad, quick check within a Service when it is reasonable to make the assumption that there is no change in the mix of training under scrutiny.

Because of differences in course content and physical layout, one Service may require more instructors and staff for each basic trainee than another Service. Yet, it is reasonable to expect each Service, regardless of where it stands in relation to its sister Services, to make better use of its staff -- and thereby reduce its staffing requirements -- up to a point. Reducing staff too far can lead to inefficiencies, more costly output, or even reduced output -- consequences that never become apparent in looking only at staffing ratios. For example, recent maltreatment incidents in Marine Corps recruit training have been attributed in part to understaffing, and additional supervisors have been added. The limitations of student-to-staff ratios as a management indicator are similar to those encountered with cost per student man-year.

For each course there is an optimal range of the number of students per instructor. Inefficiencies are created on either side of the range--either with too many or too few instructors. Unnecessary instructors represent a wasted resource. A shortage of instructors can increase the time required to teach a course or reduce the effectiveness of training, or both.

When applied to aggregations of courses, the absolute values of staffing ratios probably are meaningless for comparison with the staffing ratios of other aggregations; staffing ratios are highly course-dependent. Trends, however, when applied to an essentially unchanging mix of similar courses, are more useful. Nevertheless, technology changes such as self-paced instruction can require more staff per student man-year than conventional teaching methods, yet still generate significant overall cost savings by reducing training time and therefore student pay and support costs. This reinforces the necessity to find output measures, such as graduates, to compare with inputs. Because neither staff nor students measure output, changes in the ratio of the two can be misleading.

Actual Workload vs Programmed Workload

Congress appropriates training funds on the basis of programmed, or projected, student workloads. The Military Departments assign instructors, staff and support personnel to a training activity on the basis of programmed student workloads and other relevant workload factors.

To the extent that actual workloads differ from programmed workloads, inefficiencies may occur. If actual training workloads fall short of those budgeted for and the proper amount of resources are programmed, some resources are unnecessarily diverted from other programs. If actual training workloads exceed programmed workloads, understaffing results; unless resources were originally overestimated, this leads to less efficient or less effective training.

The table below shows the actual recruit training loads as a percentage of the programmed loads for FY 1976.

<u>Service</u>	<u>% of Programmed Load</u>
Army	94.8%
Navy	91.9%
Air Force	95.6%
Marine Corps	94.5%

All the Services fell short of their programmed loads in FY 1976. The Air Force programmed its resources most accurately; the Navy missed its target by the greatest margin. Navy recruit trainers had 8.1% fewer trainees to train than they expected. It is difficult to determine the cost to the Services of their program shortfalls but some misallocation of resources almost certainly resulted. Underlying this discussion is the assumption that staffing factors are such that optimum efficiency is attained when the actual loads equal the programmed loads; such an assumption is valid only if resources for the original programmed loads were efficiently allocated. Nevertheless, wide and continuing differences between actual and programmed training loads are cause for concern.

Skill Mismatch

A Service that teaches a service member one skill and then uses that individual in a job requiring another skill may have wasted the time and resources devoted to teaching the unused skill. Mismatches occur for two main reasons:

- o it is difficult to predict reenlistments, separations from the service, and school attrition in each skill. Inaccuracy in such predictions cause imprecise statements of training requirements and, ultimately, the wrong distribution of newly-trained personnel.
- o inadequacies in the personnel assignment system can lead to overages and shortages of certain specialties in various commands.

Some skill mismatch is impossible to eradicate entirely; some can be alleviated by improved personnel management.

The proportion of service members serving in jobs calling for their primary or secondary skills provides one indicator of how well the Services are using the output of their training establishment. Further, skill mismatch provides an indicator of how necessary it was for its members to learn the skills they learned.

Because of the broadening requirements that increase with experience and greater responsibilities, skill mismatch as a measure of efficiency is probably most meaningful when applied to service members in their first term of service.

The table below shows for the Army, Marine Corps, and Air Force the percentage of first-term 1/ enlisted personnel who were serving in a job calling for their primary 3-digit DOD occupation code 2/ as of June 1976.

- 1/ First-term is defined here as Army and Marine Corps enlisted personnel with less than 3 years of total active Federal service, and Air Force enlisted personnel with less than 4 years of total active Federal service.
- 2/ For definitions of DOD occupation codes, see Occupational Conversion Table, DOD 1312.1-E, DA Pam 611-12, dated March 1974.

% Serving in Primary Occupation

Army	90.9
USMC	85.1
Air Force	98.6

Navy figures on skill mismatch are not shown because of definitional problems that preclude comparisons. The Marine Corps percentage is lowest primarily because several thousand first-termers carry a primary MOS of infantryman yet are assigned to guard duties such as those at embassies, reflecting an unavoidable mismatch.

The table below shows not only the percentage serving in their primary occupational code, but the percentage serving in their secondary occupational code as well.

	<u>% Serving in Primary</u>	<u>% Serving in Secondary</u>	<u>Total</u>
Army	90.9	2.1	93.0
USMC	85.1	1.0	86.0
Air Force	98.6	0.6	99.2

The inherent weakness in the above data stems from the possibility that an individual trained in one skill may, after serving in a job calling for another occupational code, have his primary occupational code changed to reflect the job he is in. The extent to which such changes occur depends primarily upon the authority granted to local commanders to alter occupational specialties.

Percent of the Force in Training

The time and money spent to train a service member represent an investment in that individual. The payoff of the investment is realized in the form of productive time on the job after training. It is the goal of DOD to provide an individual only the minimum amount of training needed to attain a desired level of proficiency.

An undertrained individual is less productive than one properly trained. Further, the undertrained individual

creates a drain on his unit's readiness since part of the unit's time and resources must be diverted to teaching him what he needs to know.

On the other hand, if a Service gives an individual too much training, it overinvests in him at the expense of potentially productive time on the job. Such overtraining carries with it a significant personnel management drawback: it may create in an individual an expectation of a more demanding job than is eventually obtained -- leading to frustration. Such frustration can in turn lead to decreased retention rates.

Currently available data do not allow DOD to measure economically the average proportion of an individual's total service time spent in training. But, a related measure, the percent of the force in training, provides some insight into the proportion of an individual's total service time that is spent in training. The percent of the force in training represents a cross-sectional look at the problem.

There is no objective percent that each Service is driving toward. The "right" percent in any year will be determined by such external factors as the number of losses to the force, number of non-prior service accessions, re-enlistment rates, and force structure or composition changes.

The table below shows for FY 1977 the percent of the total active duty man-years of each Service programmed to undergo each category of training.

Student Loads as Percent of Total Active Duty Military Strength

	<u>Recruit</u>	<u>Initial Skill</u>	<u>Other Skill</u>	<u>Officer Acquisition</u>	<u>Flight</u>	<u>Professional Development</u>	<u>Total a/</u>
Army	3.2	4.3	1.7	0.6	0.1	0.5	10.4
Navy	3.7	3.8	3.2	1.1	0.3	0.4	12.5
Marine Corps	6.4	4.6	1.0	0.2	0.4	0.4	13.0
Air Force	1.7	3.7	1.1	0.9	0.3	0.8	8.6
DOD	3.2	4.0	1.9	0.8	0.2	0.5	10.7

a/ Due to rounding, some rows do not add to total.

Recruit and Initial Skill Training loads account for about two-thirds of the total training loads, about 7.2% of the entire 2.1 million military man-years. Other Skill Training is the next largest category; its loads represent about 1.9% of the military force. ^{1/}

Primarily because of a relatively low Air Force turnover rate in its enlisted force, a lower percentage of the Air Force strength is spent in training in any year. High reenlistment rates and long lengths of enlistment mean fewer losses and, consequently, fewer recruits to train each year. A relatively short 6-week Recruit Training course also contributes to the Air Force's low (1.7%) percentage in Recruit Training.

Despite the fact that the Marine Corps sends a smaller percentage of its Recruit Training graduates to Initial Skill Training than the other Services, the Marine Corps has a higher proportion of its force engaged in Initial Skill Training. This is the case because those Marines who go on to Initial Skill Training attend relatively long courses and because enlisted Marine turnover is relatively high.

The Navy has the highest percentage in Other Skill Training because much of the training similar to that the other Services do in Initial Skill Training is done by the Navy in Other Skill Training (which is made up of the two Military Manpower Training Report categories of Skill Progression Training and Functional Training and consists of training provided subsequent to Initial Skill Training).

A smaller percentage of Marines are engaged in Officer Acquisition Training simply because the bulk of that category is made up of Service academy cadets and midshipmen.

The Air Force figure for Professional Development Education shows an apparent higher level of participation than the other Services. However, much of the difference is caused by the fact that the Air Force, because of its mission, has a higher proportion of officers than the other Services; its percentage of total officer strength in Professional

^{1/} See the FY 1977 Military Manpower Training Report for the definitions of each category of training as well as the loads used to compute percents. Total man-years are from the FY 1977 President's Budget.

Development Education, in which almost all students are officers, is only slightly higher than Army's. In addition, Air Force Professional Development Education, because of differing course content and method of management, includes some types of training carried in other Services in other categories or classified as on-the-job training.

The above table and discussion are intended to be illustrative. It is possible to array the data in more detail and for several years in order to allow a more comprehensive analysis.

MEASURING EFFECTIVENESS OF MILITARY TRAINING PROGRAMS

The sole objective of individual training for military personnel is to produce knowledgeable, disciplined, dedicated service members who are capable of functioning effectively in the military job structure and contributing to the combat capability and mission readiness of military units. The measure of training effectiveness, then, is the degree to which individual training meets this objective; the ultimate measure is combat success.

The DOD readiness reporting system classifies military organizations by their state of mission readiness -- fully ready, not ready, or at some defined intermediate point. The state of training of individuals within an organization is one of the many criteria used to arrive at composite unit readiness ratings. However, the state of training is expressed as the percentage of personnel qualified in the occupational specialty called for by their job. This measure has only a limited value in making definitive judgments which are relevant to training managers. It does not, for example, discriminate between deficiencies in the training system and deficiencies in the personnel assignment system, nor does it identify the particular occupational specialties in which the inadequacy occurs or isolate ways in which individual training may be ineffective. This does not mean that deficiencies which can be traced to ineffective training are not identified and reported for correction through other channels; it merely means that the readiness reporting system is of limited usefulness by itself in measuring the effectiveness of individual training.

Some indications about the effectiveness of individual training can be gained from the results of tests periodically given to service members in the field to determine their skill qualification and their eligibility for promotion. Consistent good performance on such tests in a given skill may reflect the success of individual training in preparing students for their subsequent duties. Conversely, weak performance in certain phases of a test may reflect deficiencies in a training course. A considerable amount of useful information about the effectiveness of individual training may be gained through this means. However, results may be biased by such factors as the length of time which has intervened since the training was completed and job experience which may or may not have reinforced the training.

The most direct way to judge the effectiveness of training is to measure the ability of students in particular courses to perform the tasks they will be required to do in future assignments. Virtually all individual training includes testing to determine if the student has the required knowledge to perform the tasks essential to his future job. A large part of this testing is performance-based -- that is, it is hands-on testing to determine, for example, whether the student can detect and correct a fault in an electronic circuit, type a given number of words per minute with an acceptable number of errors, or fire a qualifying score with a weapon. Military training is conducted on a pass-fail basis. If the student can perform the required tasks, he proceeds and eventually graduates; if he cannot, he is either retrained, enrolled in a different type of training, or discharged.

If a given course is properly designed and the testing procedure is a reasonable proxy of future tasks, the fact that a student is allowed to graduate is strong evidence that the training received was effective. However, this can be considered a true indicator of effectiveness only if procedures exist to assure that the training is fully relevant to job requirements. This, in turn, requires the existence of a job task analysis research effort and a training management system with the following characteristics:

- Courses are designed to teach only those tasks which, based upon objective field research and analysis of tasks needed to be performed, the graduate will use and which can most efficiently and effectively be taught in a formal training course.
- Tests, the prerequisite for graduation, are accurate indicators of the ability to perform the required tasks.

All of the Military Services have systems for training analysis and planning, usually called Instructional Systems Development, or ISD, which are intended to provide these characteristics. The ISD process, when properly applied in designing or restructuring a course, begins with a detailed survey of tasks actually performed on the job. Through analysis of the survey data, the training manager identifies the tasks which must be performed by most or all personnel in the given specialty. A training strategy is then devised

for teaching the required skills in the most effective way. Tasks which can be efficiently and effectively taught on the job are not included in formal classroom training. The effectiveness of the training strategy is evaluated through testing, performance-based whenever possible, to determine whether the student has mastered the required tasks and should be allowed to graduate. The course is also frequently evaluated through feedback from the field, which may be in the form of field visits, questionnaires filled out by past graduates or supervisors, or communications from the field about the adequacy of training.

To the degree that these procedures are followed properly, one can feel confident that individual training is effective in meeting its objectives. However, as is clear from the foregoing discussion, procedures do not measure training effectiveness as precisely as can be done for training efficiency.

Force readiness, though difficult to quantify meaningfully, is constantly assessed at least subjectively within the Department of Defense. Judgments about the effectiveness of training in peacetime are therefore largely subjective. It does not follow that these judgments are not valid or useful simply because they are not quantitatively based. Unlike the civil sector, a military service is both the trainer and employer of its personnel; field commanders can detect deficiencies in training and take action to have them corrected by the training manager.

A lack of quantitative measures of training effectiveness, then, does not imply that ineffectiveness cannot be detected or corrected. It does mean, however, that strong managerial emphasis must be placed on conscientious application of procedures designed to maintain the effectiveness of training.

It would be appropriate at this point to re-emphasize the interlocking nature of efficiency and effectiveness. The term "efficiency", as used here, describes the relationship between the cost and the output of military training. The term "effectiveness" describes the relationship between the output of training and the valid requirement for that output. For example, the number of dollars required to produce a graduate of recruit training (given some standard graduation criteria) is a measure of efficiency. The match between the skills a graduate learns and those that he actually uses on the job is an indicator of the effectiveness

of his training. How well the individual learns to do those skills also weighs in the effectiveness determination. When resource allocations or other management actions change the quality of a graduate, the relative efficiency of the organization before and after the change becomes ambiguous because we are no longer measuring the cost of a standard unit of output.

If there is slack capacity in a training activity -- if, for example, the activity is overstaffed -- this slack capacity can be removed without changing the effectiveness of the training output. On the other hand, if the activity is already operating at optimum efficiency, resource reductions can only be made by lowering the effectiveness of the training and accepting some degradation in the quality of the output. In this case, the lower cost per graduate is meaningless unless full account is taken of the price expected in decreased effectiveness of the graduate. Similarly, if resource allocations are increased to compensate for a perceived deficiency in training effectiveness, the higher cost per graduate is ambiguous unless the value of the additional increment of effectiveness can be measured.

Training management decisions must therefore be made with the probable effects on both cost and effectiveness in mind. While the value of a change in effectiveness is difficult to quantify, it is possible, within limits, to measure the value of a change in cost. This, in turn, improves the basis for judging the wisdom of a proposed change in training. For example, it might be proposed that a course should be shortened by eliminating certain subject matter and reducing the cost per graduate by \$500. The problem can then be posed this way: is the cost to the receiving unit, in terms of readiness, supervisory time, etc., greater than \$500? Or is this a genuine economy? While there are remaining unknowns, the problem for the decision-maker is at least partially simplified, and the trade-off between cost and effectiveness is made more explicit.

AN ASSESSMENT OF THE RELATION OF FORMAL INDIVIDUAL
TRAINING AND ON-THE-JOB TRAINING

In requesting this report, the Committee stated that the study on which the request is based "should also include an assessment of the relation of classroom training to improved on-the-job training". This section of the report undertakes to provide this assessment.

For clarity, the term "individual training" is used here rather than "classroom training" to delineate the training of individual military trainees and students in formal courses conducted by organizations whose predominant mission is training. Individual training includes training given in the classroom, but also includes training conducted in shops, laboratories, on weapons ranges, and in other non-classroom settings. The term "on-the-job training", or OJT, is used here in a broad sense to encompass the training of individuals which is carried out in operational units. The method of conduct of OJT, so defined, varies considerably. At one end of the spectrum, an individual may simply be assigned to a job in a unit and learn the necessary job skills by performing them. At the other end of the spectrum, the training may be formally conducted by the unit as the main activity of the trainee; OJT, in this case, is really individual training transferred from the training establishment to the operational unit. Most OJT, however, is conducted as a combination of guided learning, frequently using prepared learning materials, and job experience. Under these definitions, the major distinction between individual training and OJT is whether the training is conducted centrally by the training establishment or by operational units.

Most of the debate over the proper relationship between individual training and OJT is involved with alternative methods of training recent graduates of recruit training. However, it should be understood that every individual who enters an operational unit, regardless of the extent of his previous training, requires experience in the job to become fully proficient. For example, a newly commissioned officer, even though his preparatory training may have been excellent, is not fully qualified for leadership responsibilities until he has had some practical experience in leading. Furthermore, the process of learning through experience continues throughout a service member's career and substitutes for additional formal individual training which might otherwise be required.

A. ALLOCATING TRAINING BETWEEN INDIVIDUAL TRAINING AND OJT

The primary purpose of all military training, however it is conducted, is to man forces capable of executing wartime missions. Many U.S. operational units must maintain a very high state of readiness in order to be able to engage in combat operations with little or no warning. If an early warning and time for an extended period for mobilization and training could be assured before forces were committed to combat, the military training system could be structured with more emphasis given to economy and less to combat readiness. In the present state of the world, however, readiness of operational units must be given primary consideration. This fact is of overriding importance in considering the appropriate relationship of individual training and OJT.

In general, it is Department of Defense policy that learning objectives which can be accomplished more economically in the operational unit, and without unacceptable degradation of unit readiness, should be provided as OJT rather than as individual training. In practice, the training manager, in applying this policy to training in specific job skills, has three possible general training strategies:

- Achieve all of the learning objectives through individual training, bringing the student to the apprentice level before assignment to an operational unit; the student then continues to learn through job performance.
- Design the training to be conducted entirely as OJT with no individual training.
- Design the training so that tasks which can efficiently and effectively be learned through OJT are provided by the operational unit and the remainder become the basis for the individual training course.

The decision on which of these strategies to adopt varies among skills and depends on the following factors:

- The impact on the mission readiness of units which would conduct the OJT.

- The availability in operational units of qualified supervisors and training equipment needed to conduct effective training.
- The nature of the learning objectives.
- The criticality of the tasks. Important tasks such as marksmanship are always part of individual training.

With regard to the third factor, the nature of the learning objectives, the choice between individual training and OJT is strongly influenced by the complexity of the job in question and the amount and depth of subject matter the student must master in order to be a useful member of an operational unit. Many military jobs are quite complex and require an in-depth understanding of principles and concepts. The technical knowledge required for these jobs is most effectively and efficiently taught in the individual training environment. Other military jobs are less complex and can be learned, at least in part, through observation and repeated performance under supervision; training for jobs of this type is more adaptable to learning through OJT. Most military jobs, however, fall between these two extremes; the optimum training strategy for these jobs is a combination of a short, well-engineered individual training course followed by learning on the job.

The process generally used to determine the appropriate mix of individual training and OJT for a given specialty is the Instructional Systems Development (ISD) procedure described earlier in this report. The ISD process, through analysis of tasks performed in the field, identifies learning objectives and develops a training strategy. With due consideration to the factors discussed above, a decision is made as to which learning objectives are most efficiently and effectively taught in individual training and which can be assigned to OJT.

B. ADVANTAGES AND DISADVANTAGES OF OJT

OJT has important advantages when it can be used as a full or partial substitute for individual training. In deciding on a training strategy for a particular specialty, the training manager must weigh these advantages against the disadvantages and limitations of OJT.

The primary advantage of OJT as a substitute for individual training is that it allows the allocation of fewer resources to individual training activities. The resulting reduction in student strength is an important consideration here, since student pay and support costs make up a substantial part of total training costs. The use of OJT also allows some utilization of trainees in performing limited tasks in operational units while still in training status.

On the other hand, on-the-job training is not "free" and can be very costly. More individual training reduces the time needed for OJT and, consequently, the total training time needed to produce a productive service member. If a greater portion of the training is conducted in OJT, the total time required to make a service member productive is usually increased. The differential time during which the OJT trainee is not a useful asset may be appreciably longer than the time which would have been required to complete individual training. In addition, current law restricts the deployment of new recruits who have had less than 12 weeks of training; consequently, some OJT trainees could not deploy with their units in an emergency.

An additional cost is also imposed by shifting to OJT because of the effect such a shift has on unit readiness. Additional trained personnel are required in the unit to maintain a given level of readiness, since the trainees are less than fully productive themselves and supervisory and productive effort would be lost to the design and conduct of OJT. If the additional trained personnel cannot be made available, as is frequently the case, the end result is degraded unit readiness. This consideration is particularly important in the Navy; living accommodations aboard ship are generally not available for additional personnel and all crew members must participate in the maintenance and operation of the ship.

OJT is difficult to adapt to the more complex skills or to skills which are distributed on the basis of one or two spaces per operational unit or ship. OJT is also a dubious training method in skills which involve handling dangerous materials or expensive equipment.

The goal with regard to the mix between OJT and individual training is to minimize the total cost of maintaining the necessary number of personnel at the level of proficiency

needed to keep operational units at the required state of readiness. Potential savings from reduced individual training must be weighed against the costs of increasing the amount of OJT.

C. THE INDIVIDUAL TRAINING/OJT MIX IN PRACTICE

The amount of OJT currently used as a full substitute for initial skill training of enlisted personnel is relatively limited, for reasons explained above. The following proportions reflect the quantity of active force graduates of recruit training the Services believe they will be able to assign directly to units in FY 1977: Army, 4 percent; Marine Corps, 25 percent; and Air Force, 9 percent. The Navy does not ordinarily send recruit training graduates direct to operational assignments. However, about 40 percent receive only very short apprenticeship training courses (about two weeks in length). This training is intended to give the graduates only the minimal skills needed to allow them to be useful aboard ship.

A considerable proportion of the jobs to which personnel who do not attend initial skill training are assigned are those in which the individuals have civilian-acquired skills -- for example, drivers of certain types of vehicles, audio-visual specialists, or bandsmen. Other jobs filled by OJT personnel are generally non-complex jobs, such as supply handlers, which are adaptable to learning through job experience reinforced by formal or informal instruction in the unit.

In the more complex specialties, such as electronics technician or medical laboratory technician, in which the student must learn principles, concepts, and difficult technical operations, training is most effectively conducted through individual training. Even so, the graduate must further improve his skills through actual job experience before he can be considered fully qualified.

Training for most specialties can be most efficiently and effectively conducted by a combination of individual training and subsequent OJT in an operational unit. The following examples illustrate three ways in which individual training and OJT can be combined in this training strategy.

The Army's training program for Infantryman, Military Occupational Specialty 11B, is an example of the effective

and efficient use of both individual training and OJT. There are 27 different jobs in the Infantryman specialty, such as TOW crewman, DRAGON crewman, M60 machine gunner, radio operator, scout and squad gunner, all of which require a certain degree of both job knowledge and skill proficiency. No single soldier will encounter all of these jobs during his first enlistment, so it is unnecessary to train him in all of them. Instead, the Army individual training program provides basic individual training in the tasks that are common to all of the jobs in the Infantryman specialty and leaves those job-peculiar skills needed beyond the common tasks to be trained on the job.

The Infantry School develops training materials used in the Infantryman OJT program. Training materials, such as Training Extension Courses, Soldier's Manuals, and Army Training and Evaluation Programs, provide the instructional materials the units need to provide effective and efficient OJT. The proper combination of guided training of the soldier in his unit and learning through experience on the job ensures that the combat arms soldier is trained to be an integral member of a crew or team at the same time he masters his individual skills.

As another example, the Air Force is testing a revised training program for aircraft maintenance apprentices. Under the revised training program, an airman entering the aircraft maintenance specialty, following recruit training, would be given formal individual training to provide the minimum essential job knowledge needed for all types of aircraft weapon systems. This would be followed by specific aircraft system training by a Field Training Detachment located at an operational base. Applicable technical manuals and checklists would be used to train the student on the specific type of aircraft he will later be expected to maintain. Following training in the Field Training Detachment, the individual would continue to develop and perfect his skills while working on his job.

The 40 percent of Navy recruit training graduates who attend only the short apprenticeship training courses receive most of their training through OJT aboard ship. Most of the personnel who fill positions in such skills as boatswain's mate, signalman and quartermaster are trained by this method rather than through extensive formal individual training.

This training strategy minimizes time in individual training and maximizes time available to perform necessary shipboard tasks.

D. SUMMARY

The proper relationship between individual training and OJT for a particular specialty depends on the ability of operational units to conduct OJT without undue interference with their primary missions and on the nature of the learning objectives, particularly their relative complexity. The determination of the proper balance between the two methods must be made through a careful analysis of the requirements of each type of job and through decisions on the most efficient and effective teaching strategy in each case. In most cases, the best teaching strategy is to divide the learning experience between individual training and OJT.

APPENDIX A

Attrition and Course Length: Their Effects on Cost Per Graduate and Cost Per Student Man-Year

Because student pay represents much of total training cost, the length of time it takes to teach a skill is important. Changes in course length are reflected differently in cost per student man-year and cost per graduate. For example, in halving the length of a course one halves the number of student man-years. If, at the same time, instructor costs and other support costs are proportionately reduced, the cost per student man-year remains the same while the cost per graduate is cut in half. If instructor costs and other support costs are reduced by less than a proportional amount (a more likely assumption), the cost per student man-year rises while the cost per graduate still declines.

Consider the following illustrative example. A Service has a requirement for 1200 graduates a year from a particular course. The course is taught with twelve classes a year with each class in session for one month. There are 100 students and 20 instructors for each class. Further, there are 52 support personnel devoted to the support of the course. In addition to supervisory personnel and school administrators, support personnel include those who operate and maintain equipment used in training and who run the housing, dining facilities, commissary, hospital, and other support activities. While these figures were chosen for their ease in illustrating a point, they are close to the actual student, instructor, and support manpower relationships in much enlisted training.

Assume, for the moment, that by eliminating some marginal course content and by using classroom time more efficiently, it is possible to reduce the length of each of these 12 courses from one month to $\frac{3}{4}$ of a month. There are two hypothetical options:

- o teach the 12 classes in 9 months.
- o reorganize into 16 classes of 75 students each, teaching year-around. Eliminate $\frac{1}{4}$ of the instructor jobs, and $\frac{1}{4}$ (or a smaller proportion) of the support jobs.

It would be wasteful to have instructors teaching for only 9 months of the year. Spreading the teaching load over an entire year saves not only instructors but support personnel whose numbers should be related to the average number of students on the installation. (For simplicity, this example ignores annual leave which affects manpower requirements.)

The following table provides a look at the before and after details of the change assuming that the loads are spread over the entire year, and that support manpower is reduced in proportion to the student load reduction:

	<u>Before</u>	<u>After</u>
Graduates Per Year	1,200	1,200
Course Length	1 month	3/4 month
Classes Per Year	12	16
Students Per Class (also student man-years)	100	75
Instructors Per Class (also instructor man-years)	20	15
Support Personnel Per Class (also support man-years)	52	39
Total Man-years	172	129

Because courses continue throughout the year, the annual student, instructor and support man-years equal the per-course figures above. Therefore, after the course-length reduction the school produces the same number of graduates with fewer instructors -- but the biggest savings come from student and support manpower. After the reduction the school is able to produce the 1200 graduates with the expenditure of only 129 man-years compared with 172 man-years before the change.

This example is useful to demonstrate how such a course-length reduction will affect the cost per graduate as well as the cost per student man-year. To simplify,

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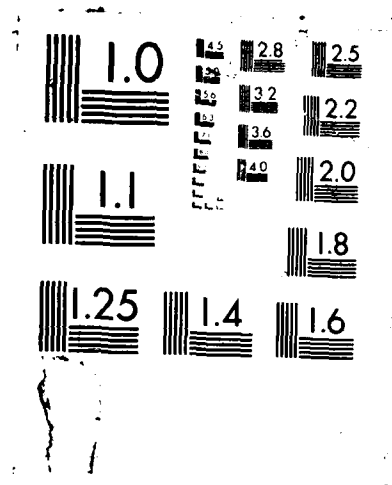
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the example deals only with manpower costs, assuming that all students cost \$10,000 a man-year and that all instructors and support personnel cost \$15,000 a man-year. The table below shows the cost per graduate and the cost per student man-year both before and after the course-length change:

	<u>Before</u>	<u>After</u>
Student Cost	\$1,000,000	\$750,000
Instructor Cost	300,000	225,000
Support Cost	780,000	585,000
Total Cost	\$2,080,000	\$1,560,000
Cost Per Graduate	\$1,733	\$1,300
Cost Per Student Man-Year	\$20,800	\$20,800

Despite the significant decrease in total cost and cost per graduate, the cost per student man-year shows no improvement. If one were to assess the change in efficiency of this organization solely on cost per student man-year he would come to the erroneous conclusion that there had been no increase in efficiency. This example emphasizes the danger of basing judgments on a single measure, particularly when that measure does not include an output element.

Cost per graduate and cost per student man-year yield even more divergent results when support reductions are less than proportionate to the student load reductions. Because there is a fixed component of supporting manpower, support reductions almost always occur at a lesser rate than student load reductions. Conversely, when student loads go up, support manpower goes up at a lesser rate.

The table below uses the previous example to show the effect on manpower if it is assumed that the 25% student load reduction generates only a 12.5% support reduction:

	<u>Before</u>	<u>After</u>
Graduates Per Year	1,200	1,200
Course Length	1 month	3/4 month
Classes Per Year	12	16
Students Per Class (also student man-years)	100	75
Instructors Per Class (also instructor man-years)	20	15
Support Personnel Per Class (also support man-years)	52	45
Total Man-years	172	135

In this case, the shortened course length saved only 37 man-years (172 less 135) compared with 43 man-years in the case of proportionate support reductions.

As the table below shows, when course-length changes cause student man-year changes and, at the same time, support costs are reduced by less than a proportionate amount, cost per student man-year can actually increase while cost per graduate decreases:

	<u>Before</u>	<u>After</u>
Student Cost	\$1,000,000	\$ 750,000
Instructor Cost	300,000	225,000
Support Cost	780,000	675,000
Total	\$2,080,000	\$1,650,000
Cost Per Graduate	\$1,733	\$1,375
Cost Per Student Man-year	\$20,800	\$22,000

In this example the cost per graduate improves by \$358 while the cost per student man-year actually worsens by \$1,200.

Although attrition rates are dependent upon external factors such as the quality of student input to a course, the rates are an essential adjunct to analysis based upon cost per student man-year. A declining cost per student man-year is no bargain if it results from more and more students failing to complete their training successfully. Cost per graduate will reflect changes in costs due to changes in attrition rates; cost per student man-year may not.

The same example can be used to illustrate the effect attrition has on cost per graduate and cost per student man-year. Again, 12 one-month courses are taught with the objective of producing 1200 graduates a year. In the left-hand column below there is no attrition; all the other variables are the same as in the previous example. In the right-hand column it is assumed that 10 out of every 100 students who begin the course fail to complete it. It is further assumed that those who fail the course drop out at a constant rate over the duration of the course. Therefore, in order to produce 1200 graduates, 1320 students must begin the course each year. With the uniform rate of drop-out, the average number of students in a course rises to 105. The table below reflects the details of the course with and without attrition:

	<u>No Attrition</u>	<u>10% Attrition</u>
Graduates Per Year	1,200	1,200
Course Length	1 month	1 month
Classes Per Year	12	12
Students Per Class (Average) (also equals student man-years)	100	105
Instructor Per Class (also equals instructor man-years)	20	21
Support Personnel (also equals support man-years)	52	55
Total Man-years	172	181

The increase in average class size from 100 to 105 students warrants 1 additional instructor and about 3 additional support personnel (the precisely proportionate support increase would be 2.6 man-years).

The table below uses this example to show the effects of attrition both on the cost per graduate and the cost per student man-year. Again, for simplicity the example deals only with manpower costs, assuming that all students cost \$10,000 a man-year and that instructors and support personnel all cost \$15,000.

	<u>No Attrition</u>	<u>10% Attrition</u>
Student Cost	\$1,000,000	\$1,050,000
Instructor Cost	300,000	315,000
Support Cost	780,000	819,000 ^{1/}
Total Cost	\$2,080,000	\$2,184,000
Cost Per Graduate	\$1,733	\$1,820
Cost Per Student Man-year	\$20,800	\$20,800

^{1/} Based upon 54.6 support personnel, an increase exactly proportionate to the student load increase from 100 to 105.

In this case, the increased attrition has no effect on the cost per student man-year, while the cost per graduate figure shows an increase, reflecting the cost of the additional resources that are required but do not increase the output.

Carrying through the previous alternate case where support costs change only at half the proportionate change in student load, the 10% attrition raises the cost per graduate to \$1803 while the cost per student man-year actually declines to \$20,614. Again, the cost per graduate figure reflects the increased efficiency while the cost per student man-year masks it.

Attrition rates are not necessarily good or bad.
There is no optimal percent. They are most necessary,
however, as an adjunct to cost per student man-year analysis.

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