**United States General Accounting Office** 

**GAO** 

Briefing Report to the Chairman, Panel on Military Education, Committee on Armed Services, House of Representatives

March 1991

# AIR FORCE

Status of Recommendations on Officers' Professional Military Education



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United States General Accounting Office Washington, D.C. 20548

National Security and International Affairs Division

B-242181

March 13, 1991

The Honorable Ike Skelton Chairman, Panel on Military Education Committee on Armed Services House of Representatives

Dear Mr. Chairman:

In response to your request, we examined several Department of Defense (DOD) professional military education schools' implementation of selected Phase I recommendations contained in the April 1989 report of the Panel on Military Education. These recommendations were developed to assist DOD in improving its officer professional military education programs. This report deals with the two Phase I U.S. Air Force schools located at Maxwell Air Force Base in Montgomery, Alabama. They are the Air Command and Staff College (intermediate school) and the Air War College (senior school).

As agreed with your Office, we focused our review on the schools' implementation of 31 and 32 selected recommendations, respectively, contained in the Panel report that apply to the two schools.

# Background

A primary objective of the Goldwater-Nichols Reorganization Act of 1986 is to strengthen combined and joint operations of the various military services. To fulfill this objective, the House Armed Services Committee established the Panel on Military Education in November 1987 to report its findings and recommendations regarding the ability of DOD to develop joint specialty officers through its professional military education systems.

The Chairman, Joint Chiefs of Staff, established policies, programs, guidelines, and procedures for coordinating, among other things, the joint professional military education of members of the U.S. armed forces. This guidance is contained in the Military Education Policy Document that was issued in May 1990. Military departments are required to incorporate this guidance into their own professional military education systems. In addition, there are joint professional military education schools which, by law, are fully joint in mission and orientation.

When the Panel reported its findings and recommendations in April 1989, it envisioned that joint education would be an integral part of professional military education and would be implemented in two phases. Phase I would be taught at the intermediate level service schools attended by officers primarily at the rank of major/lieutenant commander or at the senior level service schools attended by officers at the rank of lieutenant colonel/commander and colonel/captain ranks. Phase II, taught at the Armed Forces Staff College in Norfolk, Virginia, would complement Phase I and officers would usually attend it after completing Phase I.

The Air Force offers Phase I professional military education at both its intermediate and senior school. The intermediate school has 133 faculty members and 579 students for academic year 1990-91. The senior school has 64 teaching faculty members and 250 students for academic year 1990-91. The academic year started in August 1990 and is scheduled to end in June 1991.

## Results in Brief

Out of 31 recommendations applicable to the intermediate school, the school reports that it has taken actions to implement or partially implement 30. The intermediate school has no plans to implement one recommendation. This recommendation deals with the use of officer efficiency reports instead of training reports to present a broader measure of an officer's entire performance. The school uses training reports which, according to school officials, effectively reflect a student's academic accomplishments against course objectives. The training report becomes part of an officer's permanent record.

Out of 32 recommendations applicable to the senior school, the school reports that it has taken actions to implement or partially implement 29. The senior school has no plans to implement the remaining three recommendations. The first recommendation requires the use of officer efficiency reports in place of training reports. Like the intermediate school, the senior school uses training reports. School officials stated that training reports are better suited to the academic environment whereas efficiency reports are geared toward a job setting.

The second recommendation deals with the feasibility of establishing a faculty exchange program with the service academies. The commandant of the Air War College stated that the school would not benefit from an exchange program because faculty members from the academies lack necessary expertise in the senior school's curriculum.

The third recommendation requires establishing a distinguished graduate program. The commandant of the school stated that no distinguished graduate program will be established at this time. Revisions in the system that would form the basis for such a program are underway.

Appendix I presents the recommendations pertaining to the intermediate and senior schools, respectively, along with their characterization of the status. It also provides additional details on the actions taken by each school.

# Scope and Methodology

We focused on the Panel recommendations concerning Phase I professional military education and selected the recommendations for which the schools are either directly responsible or play a significant supporting role in their implementation. We interviewed appropriate officials at both schools and asked them to characterize the status of each recommendation, and examined pertinent supporting documents.

In each case where we were told that the schools had implemented or partially implemented a recommendation, we reviewed and analyzed the supporting documentation used in determining their characterization. In addition, we examined their methodology used to produce supporting data. Where additional action was still required, we met with school officials to discuss future plans. We obtained written documents to support those plans whenever possible. In those cases where school officials told us that they had not taken any action in response to a Panel recommendation, we interviewed appropriate officials to obtain their reasons for non-implementation.

We performed our review from July through December 1990 in accordance with generally accepted government auditing standards.

We did not obtain formal comments from the U.S. Air Force. However, we discussed a draft of this report with the commandants of the intermediate and senior schools and other school officials and considered their comments in finalizing this report.

Unless you announce its contents earlier, we plan no further distribution of this report until 30 days from the date of this report. At that time, we will send copies of this report to the Secretary of Defense, the Secretary of the Air Force, the intermediate and senior schools, and appropriate congressional committees. Copies will also be made available to others on request. We are also providing additional reports under separate

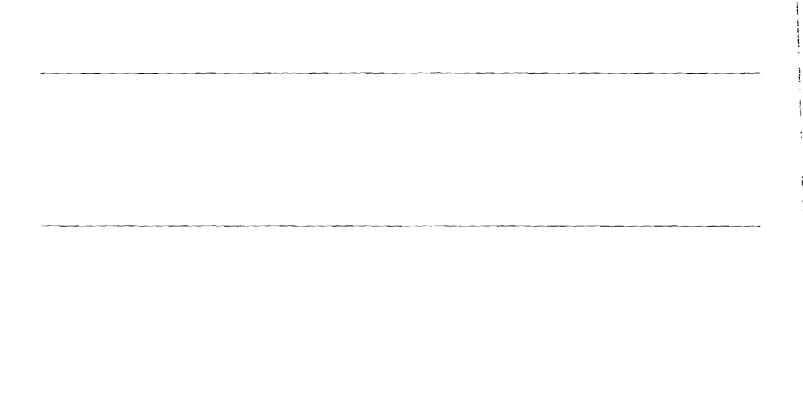
cover on the results of our work at the Army, Navy, and Marine Corps intermediate and senior schools on their implementation of similar Panel recommendations.

Please contact me at (202) 275-3990 if you or your staff have any questions. Other major contributors to this report are listed in appendix II.

Sincerely yours,

Paul L. Jones

Director, Defense Force Management Issues



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### Abbreviations

Armed Forces Staff College
Department of Defense
Joint Chiefs of Staff
Joint Specialty (Specialist) Officer
Military Education Policy Document
professional military education



This appendix contains 36 Panel recommendations and summarizes the schools' actions taken in response to those recommendations. Several of the 36 Panel recommendations are applicable only to either the intermediate or senior school and the applicability is noted in tables I.1 and I.2, which provide a summary of the status of these recommendations.

For purposes of this report, we have numbered each Panel recommendation sequentially, from 1 to 36. We identify the subject area of each recommendation and present the actual wording of each, and the same sequencing, as it appears in the Panel report. After each recommendation, we cross-reference to the location of the recommendation in the Panel report. (For example, Key 2 is the second recommendation in the executive summary that contains the key recommendations. Chapter 4, recommendation 6 is the sixth recommendation in chapter 4.) We also provide the page number where the recommendation can be found in the Panel report.

In most cases, the recommendation appears here exactly as it appears in the Panel report, and school officials have addressed the entire recommendation. In certain recommendations that contain multiple parts, however, we have underlined certain portions to identify the applicable parts that school officials addressed.

Each of the 36 recommendations has next been characterized by the school as implemented, partially implemented, or not implemented. This characterization represents the views of the schools. Non-applicable recommendations have been discussed earlier.

An elaboration of the characterization is provided in the section marked "status." This also represents the views of the schools. In addition, cross-references to related recommendations are provided here when responses are similar.

Table 1.1: Summary of Intermediate School's Implementation of Various Recommendations

No.	Panel report <sup>a</sup>	Subject	Status of recommendations <sup>b</sup>	Page
1	Key 2	Faculty quality		11
2	Key 3	Two-phase education		12
3	Key 5	Strategy focus/military faculty and student mix	NA	13
4	Key 9	Frequency of examinations/papers		13
5	11-4	Senior school focus on national military strategy	NA	15
6	11-5	Faculty teaching strategy	PI	15
7	111-2	Service/joint expertise	1	16
8	III-3	Teaching service/joint systems		17
9	III-6	Military faculty mix	PI	18
10	JII-8	Student mix	PI	19
11	IV-1	Focus of strategy by school		20
12	IV-2	Jointness initiated at intermediate level		21
13	IV-3	Phase I availability to all	<u> </u>	22
14	IV-5	In-residence prerequisite		23
15	IV-6	Service oriented professional military education (PME)		23
16	IV-11	Percent of military faculty mix	PI	24
17	IV-14	Percent of student mix	Pl	25
18	IV-24	Focus on national military strategy	NA	26
19	V-1	Recruiting and maintaining quality faculty		26
20	V-2	Specialists/career educators		27
21	V-3	Former commanders as faculty	· · · · · · · · · · · · · · · · · · ·	27
22	V-4	Faculty development program	PI	28
23	V-5	Cadre of career educators		30
24	V-6	In-residence graduates as faculty	·	31
25	8-V	Retired officers teach without penalty		31
26	V-9	Civilian faculty quality/mix		32
27	V-10	Advanced degrees required for senior school faculty	Pt	33
28	V-11	Hiring quality civilian faculty		33
29	V-12	Student/faculty ratios	PI	34
30	V-13	Faculty exchange with academy	Pi	35
31	V-16	Commandant/president as general/flag officers and involvement in instruction	1	36
32	V-23	Active/passive instruction	PI	36
33	V-24	Rigorous performance standard		38
34	V-25	Evaluation of examinations/ papers		39
35	V-26	Distinguished graduate program	·	39
36	V-27	Officer efficiency reports	NI	40

<sup>a</sup>Key recommendations are those recommendations that the Panel identified as key in the executive summary to its report. Recommendations II-4 and II-5 appear in Panel report chapter II, entitled "Educating Strategists." Recommendations III-2 through III-8 appear in Panel report chapter III, entitled "Educating Strategists." Recommendations III-2 through III-8 appear in Panel report chapter III, entitled "An Expanded Role for Joint Education." Recommendations IV-1 through IV-24 appear in Panel report chapter IV, entitled "Realigning Professional Military Education." Recommendations V-1 through V-27 appear in Panel report chapter V, entitled "Quality."

<sup>b</sup>Status of recommendations:

I = Implemented

PI = Partially implemented

NI = Not implemented

NA = Not applicable

Table 1.2: Summary of Senior School's Implementation of Various Recommendations

No.	Panel report <sup>a</sup>	Subject	Status of recommendations <sup>b</sup>	Page
1	Key 2	Faculty quality		11
2	Key 3	Two-phase education		12
3	Key 5	Strategy focus/military faculty and student mix	Pi	13
1	Key 9	Frequency of examinations/papers		13
5	11-4	Senior school focus on national military strategy	1	15
3	11-5	Faculty teaching strategy	PI	15
7	III-2	Service/joint expertise	1	16
3	III-3	Teaching service/joint systems	NA	17
9	III-6	Military faculty mix	PI	18
10	111-8	Student mix	PI	19
11	IV-1	Focus of strategy by school		20
12	IV-2	Jointness initiated at intermediate level	NA	21
13	IV-3	Phase I availability to all		22
14	IV-5	In-residence prerequisite	NA	23
15	IV-6	Service-oriented professional military education (PME)	1	23
16	IV-11	Percent of military faculty mix	PI	24
17	IV-14	Percent of student mix	Pi	25
18	IV-24	Focus on national military strategy		26
19	V-1	Recruiting and maintaining quality faculty		26
20	V-2	Specialists/career educators	1	27
21	V-3	Former commanders as faculty		27
22	V-4	Faculty development program	1	28
23	V-5	Cadre of career educators		30
24	V-6	In-residence graduates as faculty	NA	31
25	V-8	Retired officers teach without penalty		31
26	V-9	Civilian faculty quality/mix	<u> </u>	32
27	V-10	Advanced degrees required for senior school faculty	PI	33

No.	Panel report <sup>a</sup>	Subject	Status of recommendations <sup>b</sup>	Page
28	V-11	Hiring quality civilian faculty		33
29	V-12	Student/faculty ratios	PI	34
30	V-13	Faculty exchange with academy	NI	35
31	V-16	Commandant/president as general/flag officers and involvement in instruction		36
32	V-23	Active/passive instruction	PI	36
33	V-24	Rigorous performance standard	1	38
34	V-25	Evaluation of examinations/ papers		39
35	V-26	Distinguished graduate program	NI	39
36	V-27	Officer efficiency reports	NI	40

<sup>a</sup>Key recommendations are those recommendations that the Panel identified as key in the executive summary to its report. Recommendations II-4 and II-5 appear in Panel report chapter II, entitled "Educating Strategists." Recommendations III-2 through III-8 appear in Panel report chapter III, entitled "An Expanded Role for Joint Education." Recommendations IV-1 through IV-24 appear in Panel report chapter IV, entitled "Realigning Professional Military Education." Recommendations V-1 through V-27 appear in Panel report chapter V, entitled "Quality."

# Recommendation Number 1

## Faculty Quality

Improve the quality of faculty (1) by amending present law to facilitate hiring civilian faculty and (2) through actions by the Chairman, JCS, and the service chiefs to ensure that only high-quality military officers are assigned to faculties. (Key 2, Panel Report p. 3.)

## Intermediate School Characterization

Implemented.

## Status

The legislative change made through the fiscal year 1990-91 defense authorization act, provided more hiring flexibility and is being used to acquire additional civilian faculty. School officials stated that current faculty screening procedures ensure that only high quality military officers are hired. Candidate selection is based on criteria, including military record of performance, a master's degree, military specialty in a specific area of warfighting or profession of arms, and attendance at an intermediate school, preferably here.

OStatus of recommendations:

I = Implemented

PI = Partially implemented

NI = Not implemented

NA = Not applicable

Senior School Characterization

Implemented.

Status

School officials plan to hire 10 new resident civilian faculty members under the authority created by the fiscal year 1990-91 defense authorization act. Hirings are expected to be completed before the end of academic year 1991-92.

School officials stated that great care is exercised in selecting both military and civilian faculty. Presently, all openings for civilian positions are widely advertised in professional journals, and candidates for positions are carefully screened and interviewed. Military faculty members are also carefully screened and must be approved by the commandant of

the senior school. The commandant may also nominate prospective

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faculty members.

# Recommendation Number 2

Two-Phase Education

Establish a two-phase Joint Specialist Officer (JSO) education process with Phase I taught in service colleges and a follow-on, temporary duty Phase II taught at the Armed Forces Staff College (AFSC). (Key 3, Panel Report p. 3.)

Intermediate School Characterization Implemented.

Status

The intermediate school is certified by the Chairman, Joint Chiefs of Staff (JCS) to teach Phase I. In academic year 1989-90, the school integrated the joint portion of its program into its curriculum, making joint education available to all students.

Senior School Characterization Implemented.

Status

The senior school has implemented Phase I education in a similar manner as the intermediate school.

# Recommendation Number 3

# Strategy Focus/Military Faculty and Student Mix

Senior School Characterization

Partially Implemented.

Status

National military strategy is the primary focus of the school. During academic year 1990-91, about 52 percent will be devoted to national military strategy. This represents an increase from previous academic years.

At the senior service colleges (1) make national military strategy the

faculty and military students. (Key 5, Panel Report p. 5.)

primary focus and (2) increase the mix by service of both the military

Since academic year 1987-88, the school has increased the number of faculty members from the Army and Navy/Marine Corps. As quantified in recommendation 16, the Panel recommends that the percent from the Army and Navy/Marine Corps should be 25 percent each. The school has nearly implemented the MEPD guidance of a combined 25 percent.

Concerning student mix, the Panel quantifies in recommendation 17 that the school should eventually have a 25-percent representation each from the Army and the Navy/Marine Corps. The student body at the school is comprised of 11 percent Army and 8 percent Navy/Marine Corps. Since academic year 1988-89, only the Navy/Marine Corps had a student increase. The school plans to eventually implement the MEPD goal of a combined 25 percent from other services.

# Recommendation Number 4

# Frequency of Examinations/Papers

Require students at both intermediate and senior PME schools to complete frequent essay-type examinations and to write papers and reports that are thoroughly reviewed, critiqued, and graded by faculty. (Key 9, Panel Report p. 7.)

### Intermediate School Characterization

Implemented.

Status

The school tests students on their knowledge and comprehension of concepts and principles throughout the course. Students are evaluated on 8 written examinations as well as oral briefings and contribution to seminar discussions. Students take 5 essay examinations measuring the student's ability to analyze, reason, and formulate valid conclusions and recommendations. Although the students' performance is thoroughly reviewed, critiqued, and feedback is provided by faculty, no letter grades are administered. While the school does not administer letter grades nor does it plan to implement such grades, it does assign one of three categories to each written examination according to the following criteria: superior (top 20 percent), professionally competent (satisfactory), and referral (unsatisfactory). The criteria against which a student's performance in seminars is measured are (1) top 4 (well above standards), (2) professionally competent (meets standards), and (3) needs significant improvement (below standards).

Senior School Characterization Implemented.

Status

Papers, reports, exercises, and essay examinations are part of the evaluation program at the school. Again, while students are thoroughly evaluated on their performance in each of these areas, no letter grades are administered. The school has no plans to adopt letter grades in its evaluation system.

Instead, students' performance is evaluated according to the following grading criteria: superior, excellent, satisfactory, marginal, and unsatisfactory. Students who are evaluated as unsatisfactory are monitored until performance is satisfactory. The school does not award a diploma to students failing to meet all graduation requirements.

# Recommendation Number 5

## Senior School Focus on National Military Strategy

The revamped National War College (or the proposed National Center for Strategic Studies) should focus on national security strategy. The service war colleges should make national military strategy their primary focus and gradually but significantly increase the portion of their curriculum devoted to the subject. (Chapter II, No. 4, Panel Report p. 41.)

Senior School Characterization

Implemented.

Status

For academic year 1990-91, national military strategy comprises about 52 percent of the school's curriculum, making it the primary focus. This represents an increase over previous years.

# Recommendation Number 6

## Faculty Teaching Strategy

The strategy faculty should consist of civilian educators, active duty and retired military specialists, and former senior military officers. To ensure that students have access to the depth of knowledge that only a career of scholarship in a particular area can produce, respected civilian educators who are recognized experts in specific disciplines related to the teaching of strategy should be faculty members at senior schools. Active duty and retired military officers with actual experience in the strategic arena are also needed for strategy instruction. Finally, a few carefully selected retired three- and four-star officers can contribute significantly to the teaching of operational art, campaign analyses, national military strategy, and national security strategy. (Chapter II, No. 5, Panel Report p. 41.)

Intermediate School Characterization Partially Implemented.

#### Status

The intermediate school does not have any three- and four-star generals as permanent members of the faculty. Such officers are brought in as guest lecturers. The civilian and active duty and retired military educators continue to be involved in teaching subjects relating to operational art and strategy.

## Senior School Characterization

Partially Implemented.

#### Status

To ensure the quality of faculty teaching strategy, the school's goal is to hire prominent, experienced civilian educators with doctorates so that there will be one civilian instructor with a doctorate per seminar. Each faculty member is expected to research and publish. The school plans to fill eight additional excepted service positions and two additional visiting professor positions for academic year 1991-92. The quality of military faculty is given the same consideration in that only highly qualified individuals possessing appropriate subject matter expertise are hired. The school has two retired military officers, both with doctorates. Several three- and four-star generals served as guest speakers on strategy throughout the academic year.

## Recommendation Number 7

## Service/Joint Expertise

For joint education to be meaningful and productive, a prerequisite for officers is competence commensurate with their rank in all elements of their own service in professional knowledge and understanding (e.g., in the Navy, surface and aviation and subsurface) as well as demonstrated performance. Also an integral part of joint education is an officer's study of the other services. (Chapter III, No. 2, Panel Report p. 81.)

## Intermediate School Characterization

Implemented.

#### Status

The school's curriculum provides students with service competence commensurate with their rank. The school also covers the five joint curriculum areas outlined in MEPD guidance, including Joint Forces and the Operational Level of War. Organization and Command Relationships,

and Joint Staff Operations. In addition, the warfighting area of instruction focuses on joint operations from an Air Force perspective. These joint courses include the study of Army, Navy, and Marine Corps doctrine and operations.

Senior School Characterization

Implemented.

Status

The senior school's curriculum provides students with service competence as well as an understanding of other services. For example, the forces and capabilities course provides comprehensive coverage of Air Force and other service doctrine, mission, and the capabilities of current and future forces.

## Recommendation Number 8

# Teaching Service/Joint Systems

The service intermediate schools should teach both joint and service systems—organizations, processes, procedures, and staff skills—to all students. This is necessary to meet the Goldwater-Nichols Act requirement to revise the curricula of service schools to strengthen the focus on joint matters and prepare officers for joint duty assignments. (Chapter III, No. 3, Panel Report p. 81.)

Intermediate School Characterization

Implemented.

Status

Before academic year 1988-89, the school had a separate curriculum for officers selected to fill joint assignments. Like the other service intermediate schools, the Air Force intermediate school has since revised its program to provide joint education to all students. Joint education represents about 47 percent of its curriculum. (See recommendation 7 for more information on jointness.)

## Recommendation Number 9

## Military Faculty Mix

The mix of military faculty from each military department is a key factor in joint education. In schools that educate joint specialists, the standard should be equal representation from each of the three military departments. For other schools, representation from each department should eventually be substantially higher than today. These standards should apply to the entire active duty military faculty, not some fraction designated as a nominal "joint education" department. (Chapter III, No. 6, Panel Report p. 82.)

## Intermediate School Characterization

Partially Implemented.

#### Status

The school defines full-time faculty as those individuals whose primary duties are to research and to develop or present academic materials. This follows the definition given in the MEPD. Part-time faculty include non-administrative individuals, such as the Commandant, Directors, and selected members of the special staff who are not directly involved in teaching but who contribute to research and curriculum development.

In recommendation 16, the Panel quantifies military faculty mix. The school has about 5 percent of its full-time and part-time faculty from the Army and another 6 percent from the Navy/Marine Corps for academic year 1990-91. However, the Panel recommends there be a 10-percent faculty representation from each service. By contrast, the MEPD recommends a combined 10 percent from the other services. School officials plan to implement the MEPD goal.

## Senior School Characterization

Partially Implemented

#### Status

Faculty is defined similarly to the intermediate school. The school has about 23 percent of its combined full-time faculty both from the Army and the Navy/Marine Corps for academic year 1990-91. The school plans to implement MEPD guidance, which requires a combined 25-percent faculty representation from the other services.

## Recommendation Number 10

#### Student Mix

The mix of students from each military department is another key factor in joint education. In schools that educate joint specialists, the standard should be equal representation from each of the three military departments. For other schools, representation from each department in the entire student body should eventually be substantially higher than today. In addition, the student body mix should consist of students of equally high caliber from each military department. Finally, each service should provide a representative mix of students from all combat arms branches and warfare specialties. (Chapter III, No. 8, Panel Report p. 82.)

## Intermediate School Characterization

Partially Implemented.

Status

The Panel quantifies student representation from each department in recommendation 17. The school plans to implement MEPD guidance that requires one student from each of the other services—the Army and the Navy/Marine Corps—represented in each of its classes or seminar groups. The Panel recommends two students each from the Army and Navy/Marine Corps. Presently, the school has one Army student in each of its seminars but not from the Navy/Marine Corps.

School officials told us that students from the Army and Navy/Marine Corps are of equal caliber as those from the Air Force. In addition, the services have provided a mix of combat arms branches and warfare specialties for academic year 1990-91.

Senior School Characterization

Partially Implemented.

Status

The Panel quantifies student representation from other services in recommendation 17. However, as stated in recommendation 3, the school has plans to implement the MEPD guidance that is lower than the Panel's goal.

School officials stated that they have received equally high caliber students from the other services in academic year 1990-91. In addition,

school officials noted that the other services have sent students with a representative mix of combat arms branches and warfare specialties.

## Recommendation Number 11

# Focus of Strategy by School

The Secretary of Defense, with the advice and assistance of the Chairman, JCS, should establish a clear, coherent conceptual framework for the PME system. The primary subject matter for PME schools and, consequently, the underlying theme of the PME framework, should be the employment of combat forces, the conduct of war. Each element of the PME framework should be related to the employment of combat forces. The primary focus for each school level should be stated in terms of the three major levels of warfare, that is, tactical, theater (operational), and strategic. Each school level should be responsible for a specific level of warfare as follows:

- Flag/General Office	er National Security Strategy
Senior	National Military Strategy
Intermediate	Combined Arms Operations and Joint
	Operational Art
Primary	Branch of Warfare Specialty

- At the primary level an officer should learn about, in Army terms, his own branch (infantry, armor, artillery, etc.) or in Navy terms, his warfare specialty (surface, aviation, and submarines).
- At the intermediate level, where substantial formal joint professional military education begins, an officer should broaden his knowledge to include both (1) other branches of his own service and how they operate together (what the Army calls "combined arms" operations) and (2) other military services and how they operate together in theater-level warfare (commonly referred to as "operational art"). The service intermediate colleges should focus on joint operations from a service perspective (service headquarters or service component of a unified command); AFSC should focus from a joint perspective (JCS, unified command, or joint task force).
- At the senior level, an officer should broaden his knowledge still further
  to learn about national strategy and the interaction of the services in
  strategic operations. The senior service schools should focus on national

military strategy. The National War College should focus on national security strategy, not only the military element of national power but also the economic, diplomatic, and political elements. Graduates of service war colleges should attend the senior joint school. (Chapter IV, No. 1, Panel Report p. 125.)

Intermediate School Characterization

Implemented.

Status

The Secretary of Defense and the Chairman, JCS, established an educational framework for the PME system. In implementing this framework, the school devotes about 71 percent of its curriculum to warfighting at the operational level, making operational art its primary focus. In addition, about 47 percent of the curriculum is devoted to joint education for academic year 1990-91. This represents an increase from prior years.

Senior School Characterization

Implemented.

Status

The primary focus is national military strategy, which makes up about 52 percent of the curriculum for academic year 1990-91. In addition, for the same year, about 64 percent of the curriculum is devoted to joint education. (See also recommendation 3 for additional details.)

# Recommendation Number 12

## Jointness Initiated at Intermediate Level

Although students should be introduced to joint matters at precommissioning and primary-level schools, it is at the intermediate schools that substantial joint education should begin. (Chapter IV, No. 2, Panel Report p. 126.)

Intermediate School Characterization Implemented.

Status

As stated in recommendation 8, the school abandoned its joint track and now offers joint education to all students. During academic year 1989-90, a total of 382 hours, or 44 percent, was devoted to joint education.

In academic year 1990-91, a total of 403 hours, or 47 percent, will be devoted to joint education.

# Recommendation Number 13

## Phase I Availability to All

The Secretary of Defense, with the advice and assistance of the Chairman, JCS, should establish a two-phase Joint Specialty Officer (JSO) education process. The service colleges should teach Phase I joint education to all students. Building on this foundation, AFSC should teach a follow-on temporary-duty Phase II to graduates of service colleges en route to assignments as joint specialists. Because of the Phase I preparation, Phase II should be shorter and more intense than the current AFSC course. The curricula for the two phases should be as follows:

- Phase I curriculum at service colleges should include: capabilities and limitations, doctrine, organizational concepts, and command and control of forces of all services; joint planning processes and systems; and the role of service component commands as part of a unified command.
- Phase II curriculum at AFSC should build on Phase I and concentrate on the integrated deployment and employment of multi-service forces. The course should provide time for: (a) a detailed survey course in joint doctrine; (b) several extensive case studies or war games that focus on the specifics of joint warfare and that involve theaters of war set in both developed and underdeveloped regions; (c) increasing the understanding of the four service cultures; and (d) most important, developing joint attitudes and perspectives. (Chapter IV, No. 3, Panel Report p. 126.)

Intermediate School Characterization Implemented.

Status

The school's curricula includes those components that were not offered in prior academic years. Further, the school now exceeds the phase I requirements.

Senior School Characterization Implemented.

Status

As with the intermediate school, this school has also adopted the components recommended by the Panel.

# Recommendation Number 14

## In-Residence Prerequisite

In-residence service intermediate education should be a prerequisite for attendance at AFSC to ensure that students are already competent in their own service, that they have acquired basic staff skills, and that they have achieved a minimal level of education in joint matters. (Chapter IV, No. 5, Panel Report p. 127.)

## Intermediate School Characterization

Implemented.

#### Status

At the time of our review, the Air Force only planned to send in-residence graduates to AFSC. However, in January 1991, the school received approval from the Chairman, JCS, to send students who had completed their Phase I requirements in non-resident and correspondence courses to AFSC starting in June 1991.

The in-residence curriculum taught at the school ensures students are competent in their own service as well as in joint matters.

## Recommendation Number 15

#### Service-Oriented PME

Service schools provide valuable service-oriented PME and they should be preserved. Service schools and joint tracks should not be accredited for joint specialist education. (Chapter IV, No. 6, Panel Report p. 127.)

## Intermediate School Characterization

Implemented.

#### Status

School officials agree that the service focus should be preserved. The school offered two educational tracks in academic year 1988-89. One

was a core track attended by all students and the other was a joint education track offered only to select students. This approach was abolished in academic year 1989-90 and all students now receive service specific and joint education, which is certified for Phase I of joint PME.

Senior School Characterization

Implemented.

Status

As discussed above, the school has also preserved its focus on service-oriented education and no longer offers a joint track to select students. All students now receive service specific and joint education, which has been certified for Phase I of joint PME.

# Recommendation Number 16

# Percent of Military Faculty Mix

For the service schools, the Chairman, JCS, should develop a phased plan to meet the following standards:

- The senior service schools should have military faculty mixes approximating 10 percent from each of the two non-host military departments by academic year 1989-90 and 25 percent by academic year 1995-96.
- The intermediate service schools should have military faculty mixes approximating 10 percent from each of the two non-host military departments by academic year 1990-91 and 15 percent by academic year 1995-96. (Chapter IV, No. 11, Panel Report p. 127.)

Intermediate School Characterization

Partially Implemented.

Status

As stated in recommendation 9, school officials have implemented the MEPD requirements of 5 percent each (a combined 10 percent) from the Army and the Navy/Marine Corps instead of the Panel's goals of 10 percent from each department.

Senior School Characterization Partially Implemented.

Status

As stated in recommendation 9, this school also plans to implement MEPD guidance instead of Panel guidance at this time.

## Recommendation Number 17

### Percent of Student Mix

For the service schools, the Chairman, JCS, should develop a phased plan to meet the following standards:

- The senior service schools should have student body mixes approximating 10 percent from each of the two non-host military departments by academic year 1989-90 and 25 percent by academic year 1995-96.
- The intermediate schools should have student body mixes of one officer
  from each of the two non-host military departments per student seminar
  by academic year 1990-91 and two officers per seminar by academic
  year 1995-96. Eventually, each military department should be represented by at least three students in each intermediate school seminar.
  (Chapter IV, No. 14, Panel Report p. 128.)

Intermediate School Characterization Partially Implemented.

Status

While there is one Army student in each seminar, the school does not meet Panel requirements for the Navy/Marine Corps students. For academic year 1992-93, school officials plan to have one officer each from the Army and the Navy/Marine Corps in each seminar.

Senior School Characterization

Partially Implemented.

Status

As stated in recommendation 3, the school plans to implement MEPD guidance instead of the Panel's recommendation.

# Recommendation Number 18

Focus on National Military Strategy The senior service colleges should make national military strategy their primary focus. (Chapter IV, No. 24, Panel Report p. 130.)

Senior School Characterization

Implemented.

Status

For details of actions taken, see discussion under recommendations 3, 5, and 11.

## Recommendation Number 19

Recruiting and Maintaining Quality Faculty Faculty is the key element in determining the quality of education in PME schools. To develop an outstanding faculty, the impetus must start at the top. The Chairman, JCS, and the service chiefs must place a very high priority on recruiting and maintaining highly qualified faculty to teach at both joint and service PME colleges. (Chapter V, No. 1, Panel Report p. 167.)

Intermediate School Characterization

Implemented.

Status

The Chairman, JCS, has developed policy that is being followed by the school to recruit and maintain a highly qualified faculty. Recruiting and maintaining quality faculty are a high priority. (Additional details on improving faculty quality are provided in recommendations 1 and 26.)

Senior School Characterization Implemented.

Status

The school has also implemented JCS policy by placing a high priority on recruiting and maintaining quality faculty. (Additional details on improving faculty quality are provided in recommendations 1 and 26.)

# Recommendation Number 20

## Specialists/Career Educators

The military faculty should include three groups: officers with current, credible credentials in operations; specialists in important functional areas; and career educators. Incentives must exist to attract outstanding military officers in each of these groups. (Chapter V, No. 2, Panel Report p. 167.)

## Intermediate School Characterization

Implemented.

#### Status

The school's military faculty comes from each of the above three groups. The school hires officers who are experts or specialists in their career fields in operations or combat support. In addition, the school has three career educators for academic year 1990-91.

No up-front incentives are offered to attend the school. Among the incentives the school offers once faculty members are assigned include enhanced promotion opportunities and quality assignments after faculty tours are completed.

## Senior School Characterization

Implemented.

#### Status

The school has faculty representing all groups with 5 members being career educators for academic year 1990-91. The school offers the same incentives as offered by the intermediate school. However, no incentives exist to attract any of the groups to teach at the senior school.

# Recommendation Number 21

# Former Commanders as Faculty

Service chiefs should ensure that more former commanders who have clear potential for further promotion and for command assignments serve on PME faculties. Their teaching tours should be relatively short and should not preclude them from competing for command and key

staff positions; rather, a faculty assignment should enhance their competitiveness. (Chapter V, No. 3, Panel Report p. 167.)

## Intermediate School Characterization

Implemented.

Status

Former commanders comprise 16 percent of the school's faculty for academic year 1990-91. The average teaching tour is 3 years. All 11 eligible faculty members with prior command experience were promoted to lieutenant colonel during their teaching tour.

Senior School Characterization

Implemented.

Status

Former commanders comprise 62 percent of the senior school's military faculty for academic year 1990-91. The senior school faculty also has tour lengths of 3 years. During academic years 1988-89 and 1989-90, about 54 percent of eligible officers were promoted from lieutenant colonel to colonel.

# Recommendation Number 22

# Faculty Development Program

The services should develop programs to qualify military faculty members to ensure they are prepared professionally. These programs could include prior graduate education, faculty conferences, and sabbaticals at other institutions. Those military faculty who lack education or teaching experience need the opportunity to participate in a faculty development program to enhance their knowledge and teaching skills prior to assuming responsibilities in the classroom. The panel opposes the widespread practice of retaining graduating officers as faculty for the following year. Graduating students should have additional experience prior to teaching. (Chapter V, No. 4, Panel Report p. 167.)

Intermediate School Characterization Partially Implemented.

Status

The school has a faculty development program that includes an orientation course and a 3-1/2 week academic instructor school where new

faculty receive practical classroom preparation in a realistic environment. In addition, weekly faculty development sessions combining both faculty instructors and curriculum developers present an ongoing opportunity to discuss methods of optimizing lesson objectives.

School officials stated that about 10 to 15 percent of graduating students are usually retained for faculty duty each year. However, about 41 percent of the current faculty for academic year 1990-91 are graduates of the prior academic year. School officials said that hiring new faculty from the graduating class provides for the maximum productivity of personnel resources and diligent expenditures of scarce funds. Graduates, they said, are usually "experts" in their field and have had the "broadening experience" of the college, and usually exhibit a concern and enthusiasm in faculty positions unlike the more senior faculty members brought in from other assignments.

Senior School Characterization Implemented.

Status

Professional development is a top priority at the school, which seeks to provide greater opportunity for faculty research and development. All new faculty members are required to attend a specially tailored orientation course to develop or enhance their teaching skills before entering the classroom. Case study methodology is taught as a part of the new faculty orientation. In addition, supervisors visit classrooms throughout the year to evaluate the faculty and provide feedback concerning their performance.

Three graduating officers (5 percent) were retained from academic year 1989-90 for faculty duty. All have a master's degree and prior teaching experience in areas such as pilot training, platform teaching, and teaching at a learning center. In addition, six graduates from the class were retained to fill the command chair positions and will serve as part-time faculty members for 1 year. The command chair positions are designed to be filled by new graduates who will serve as liaisons between their commands and the school in addition to speaking and teaching.

## Recommendation Number 23

#### Cadre of Career Educators

The services should develop a cadre of career educators for PME institutions similar to those at West Point. They should have an academic foundation, preferably a doctorate, in the area they are to teach as well as an exemplary military record based on solid performance. Military educators and functional area specialists should be given the opportunity to strengthen their academic credential, and the careers of the former should be managed like those of other "professional" groups in the military. (Chapter V, No. 5, Panel Report p. 167.)

### Intermediate School Characterization

Implemented.

#### Status

The school defines career educators as those individuals who have served primarily as an education and training officer throughout their entire military career. For academic year 1990-91, the school has 3 career educators. Two have doctoral degrees and the other a master's degree. Military educators are expected to continue to strengthen their credentials through publishing, attending conferences, and continuing education.

The school does not offer military career educators promotional opportunities and quality assignments similar to other professionals (legal and medical). They are competitive with the military officers who have operational and functional area specialties.

## Senior School Characterization

Implemented.

#### Status

The school has 5 career educators at the school. Three have a master's degree and the other two possess doctoral degrees. Military educators are expected to continue to strengthen their credentials through publishing, attending conferences, and continuing education.

The school does not offer military career educators promotional opportunities and quality assignments similar to other professionals (legal and medical). They are competitive with the military officers who have operational and functional area specialties.

# Recommendation Number 24

# In-Residence Graduates as Faculty

As a goal, about 75 percent of the military faculty at the intermediate schools should be graduates of an in-residence intermediate (or higher) school and should have an advanced degree. (Chapter V, No. 6, Panel Report p. 167.)

## Intermediate School Characterization

Implemented.

#### Status

For academic year 1990-91, approximately 88 percent of the school's faculty were graduates of an in-residence intermediate school and had advanced degrees.

# Recommendation Number 25

## Retired Officers Teach Without Penalty

Selected retired officers, particularly senior general and flag officers, could contribute appreciably to the teaching of operational art and military strategy at the war colleges. The dual compensation law should be amended to waive the financial penalties these officers incur by serving their country again. (Chapter V, No. 8, Panel Report pp. 167-68.)

## Senior School Characterization

Implemented.

#### Status

Although the dual compensation law was not amended, for academic year 1990-91, two full-time faculty members at the school are retired military officers. In addition, retired general/flag officers are often guest lecturers at the school in both core and advanced studies. These individuals teach operational art and military strategy. The retired officers were not affected by the financial penalties under the level compensation law since they were not hired as full-time faculty.

## Recommendation Number 26

## Civilian Faculty Quality/ Mix

The PME faculty should have a high-quality civilian component in order for PME schools to attain a genuine "graduate" level of education. The civilian faculty should be a mixture of experienced, well-respected individuals of national stature, who, in combination with outstanding younger Ph.D.s, will provide balance, expertise, and continuity. Civilian professors must continue to research and publish not only to keep themselves in the forefront of their academic field, but also to ensure their academic credibility. The panel believes that civilian faculty are particularly important at senior colleges, where they should make up a substantial portion, perhaps around one-third, of the faculty. (Chapter V, No. 9, Panel Report p. 168.)

## Intermediate School Characterization

Implemented.

Status

All three civilian professors have doctorates and continue to research and publish. Although the school currently has only one teaching civilian position authorized, it has requested five additional excepted service civilian professor positions. The additional civilian faculty positions will provide subject matter expertise, continuity, teaching, research, and publication opportunities. In addition, school officials said that their presence and effort should enhance faculty stature and prestige.

Senior School Characterization

Implemented.

Status

School officials said that their criteria for selecting civilian faculty members ensure the highest level of professional and academic expertise. Applicants are evaluated primarily on the basis of professional credentials (record, expertise, reputation), scholarly activity (research, publication, participation in professional organizations), teaching ability (supervisors' recommendations, classroom presentations, student evaluations, subject matter expertise, capacity to stimulate critical thinking), and personal attributes (integrity, initiative, cooperation).

School officials said further that they seek to have a mix of established scholars and younger, rising scholars. They must have a doctorate or equivalent professional experience, have at least 5 years of teaching and research experience, and have extensive general knowledge rather than be specialists. All are required to research and publish.

Approximately 34 percent of the school's faculty in academic year 1990-91 is comprised of civilian members. This represents an increase from the previous year.

# Recommendation Number 27

## Advanced Degrees Required for Senior School Faculty

As a goal, all members of the faculty at senior schools should have advanced degrees. The panel believes that a doctorate is desirable. (Chapter V, No. 10, Panel Report p. 168.)

## Senior School Characterization

Partially Implemented.

#### Status

About 91 percent (20 of 22) of civilian faculty members possess doctoral degrees. About 88 percent of the total military faculty (52 of 59), have either doctorates or master's degrees. The school seeks to bring in outstanding faculty members with both academic and operational/specialist backgrounds to provide the best possible combination of experience for teaching at this level.

## Recommendation Number 28

# Hiring Quality Civilian Faculty

Stronger incentives are also needed to attract a high-quality civilian faculty. The law should be amended to give the Secretary of Defense and each service secretary the same flexibility in employing and compensating civilian faculty that the Secretary of the Navy currently has under 10 USC 7478. (Chapter V, No. 11, Panel Report p. 168.)

Intermediate School Characterization Implemented.

Status

As stated in recommendations 1 and 26, the fiscal year 1990-91 defense authorization act was changed to provide more hiring flexibility.

Senior School Characterization

Implemented.

Status

As stated in recommendations 1 and 26, the fiscal year 1990-91 defense authorization act allows more hiring flexibility.

## Recommendation Number 29

## Student/Faculty Ratios

The student/faculty ratios at the professional military institutions should be sufficiently low to allow time for faculty development programs, research, and writing. The panel envisions a range between 3 and 4 to 1, with the lower ratios at the senior schools. The panel also recommends that additional faculty, principally civilian, be provided to the National Defense University schools and that the Secretary of Defense, with the advice of the Chairman, JCS, assure the comparability of the joint and service school student/faculty ratios. (Chapter V, No. 12, Panel Report p. 168.)

Intermediate School Characterization

Partially Implemented.

Status

When the Panel reviewed the student to faculty ratio in March 1988, the ratio was 4.7 to 1. Since then, the ratio has been reduced due to additional Army and Navy/Marine Corps faculty members. For academic year 1990-91, the school's ratio is 4.4 to 1. The planned addition of five civilian professors during academic year 1991-92 will enable the school to lower its ratio.

Senior School Characterization

Partially Implemented.

#### Status

The student/faculty ratio for academic year 1990-91 is 3.9 to 1. This represents a lower ratio than the previous academic year. Included in this ratio are part-time faculty members who teach and participate in curriculum development, research, and student counseling. The planned addition of five civilian faculty members in academic year 1991-92 will further reduce the ratio to 3.6 to 1.

## Recommendation Number 30

## Faculty Exchange With Academy

The services should study the feasibility of improving their faculties by using members of the service academy faculties on an exchange basis to teach at PME institutions. (Chapter V, No. 13, Panel Report p. 168.)

### Intermediate School Characterization

Partially Implemented.

#### Status

One faculty member from the Air Force Academy is currently enrolled at the intermediate school and will begin teaching after graduating in academic year 1991-92. The exchange between the service school and the Academy is a one-way exchange since there is no intermediate school faculty member teaching at the Academy.

### Senior School Characterization

Not Implemented

### Status

The school does not have a faculty exchange program with service academies. School officials said no faculty exchange program exists because Academy faculty does not possess the comparable expertise that matches the senior school curriculum.

## Recommendation Number 31

Commandant/President as General/Flag Officers and Involvement in Instruction Ideally, the commandants or presidents should be general/flag officers with promotion potential, some expertise in education, and operational knowledge. They should become actively involved in teaching the student body. (Chapter V, No. 16, Panel Report p. 168.)

Intermediate School Characterization

Implemented.

Status

Each of the three previous intermediate school commandants was promoted to major general. Each commandant possessed a wide variety of operational and command experience and some educational expertise. The present commandant lectures frequently on contemporary subjects dealing with geo-political affairs, U.S. contributions to international stability, and leadership and command principles. The commandant also participates in seminar discussions, exercises, and wargame simulations throughout the year.

Senior School Characterization

Implemented.

Status

The present school commandant was promoted from brigadier general to major general and became the vice commandant of the Air University having jurisdiction over both the intermediate and the senior school. The commandant possesses the requisite operational experience and some educational expertise. In addition, he is actively involved in the teaching process throughout the academic year from developing curricula to participating in seminars.

## Recommendation Number 32

Active/Passive Instruction

The Chairman, JCS, and service chiefs should review the current methods of instruction at PME schools to reduce significantly the curriculum that is being taught by passive methods (e.g., lectures, films). PME

education should involve study, research, writing, reading, and seminar activity—and, in order to promote academic achievement, students should be graded. The commendably low 10-percent passive education for the Army Command and General Staff College sets a goal for the other schools. (Chapter V. No. 23, Panel Report p. 169.)

### Intermediate School Characterization

Partially Implemented.

Status

The school defines active learning as time spent studying, researching, writing, and seminar activity. For academic year 1990-91, about 65 percent of the curriculum will be taught using the active learning method. The school has implemented a number of curriculum changes requiring greater use of active learning methods. These include the addition of homework lessons, case study analyses, computer-assisted simulation, and leading seminar discussions. The school defines passive learning as time spent in auditorium lectures. The passive learning method is used 35 percent of the time.

The school does not administer letter grades nor does it plan to implement letter grades. However, students' performance is evaluated according to the following grading criteria:

- Superior: Students who exceed the expectations for satisfactory completion of course materials.
- Professionally competent/average: Students who satisfactorily meet pre-established criteria for satisfactory comprehension of certain course materials.
- Referral/failed: Students who failed to meet criteria established for professionally competent.

School officials stated that the emphasis at the school is on operational competence, which is not necessarily captured in letter grades.

Senior School Characterization Partially Implemented.

Status

About 77 percent of the instruction at the senior school is active. Student preparation time and reading assignments have been increased from prior years to reflect the active learning methodology being used to teach the academic year 1990-91 curriculum. There is also an increased emphasis on methodologies, such as case studies and presentations, that

require active student participation. The school does not administer letter grades nor does it plan to do so.

## Recommendation Number 33

### Rigorous Performance Standard

The Chairman, JCS, and each service chief should establish rigorous standards of academic performance. The panel defines academic rigor to include a challenging curriculum, student accountability for mastering this curriculum, and established standards against which student performance is measured. (Chapter V, No. 24, Panel Report p. 169.)

### Intermediate School Characterization

Implemented.

### Status

The school does not administer letter grades nor does it plan to implement letter grades. (Subsequent to its April 1989 report, the Panel asked the services to adopt letter grades as part of the rigor instituted in their schools.) It has, however, adopted the rigorous standards of academic performance and established standards to measure students' performance. Students are held accountable for mastering the curriculum. To graduate, students must demonstrate that they have satisfactorily completed the course requirements.

### Senior School Characterization

Implemented.

### Status

Although the school evaluates students against rigorous academic standards, it does not administer letter grades and has no plans to adopt them at this time. Subsequent to its April 1989 report, the Panel asked the services to adopt letter grades as part of the rigor instituted in their schools. An evaluation chief has been hired to further refine the school's evaluation system. Reading as well as written requirements have been increased, and student performance has been evaluated on examinations, papers, exercises, and daily class participation.

## Recommendation Number 34

## Evaluation of Examinations/Papers

All intermediate- and senior-level PME schools should require students to take frequent essay type examinations and to write papers and reports that are thoroughly reviewed, critiqued, and graded by the faculty. Examinations should test the student's knowledge, his ability to think, and how well he can synthesize and articulate solutions, both oral and written. (Chapter V. No. 25, Panel Report pp. 169-70.)

### Intermediate School Characterization

Implemented.

### Status

Actions taken under this recommendation are discussed in recommendations 4 and 33.

### Senior School Characterization

Implemented.

### Status

Actions taken under this recommendation are discussed in recommendations 4 and 33.

## Recommendation Number 35

### Distinguished Graduate Program

All PME schools should have distinguished graduate programs. These programs should single out those officers with superior intellectual abilities for positions where they can be best utilized in the service, in the joint system, and in the national command structure. (Chapter V, No. 26, Panel Report p. 170.)

### Intermediate School Characterization

Implemented.

Status

The school expanded the special recognition program in 1984 prior to the Panel report, to recognize more than just the top 10 percent (distinguished graduate) by adding a new distinction, "Top Third." Distinguished graduates are selected on the basis of top performer points awarded from four separate sources: peer group, faculty instructor, examinations, and squadron commander.

Senior School Characterization

Not Implemented.

Status

The school does not have a distinguished graduate program. The commandant of the school stated that no program will be established at this time. School officials said that they must first refine the evaluation program to attain the level of objectivity that could form the basis of a credible distinguished graduate program.

## Recommendation Number 36

Officer Efficiency Reports

The Chairman, JCS, and the service chiefs should give serious consideration to using officer efficiency reports rather than training reports for PME institutions. (Chapter V, No. 27, Panel Report p. 170.)

Intermediate School Characterization Not Implemented.

Status

The school has no plans to use officer efficiency reports at this time. It uses training reports for student academic accomplishments, which it feels are equally effective. These training reports become part of an officer's permanent record.

Senior School Characterization Not Implemented.

Status

The school has no plans to use officer efficiency reports at this time. It uses training reports for student academic accomplishment. School officials stated that training reports are geared more toward a school setting, whereas the officer efficiency reports are better suited to an

operational environment. Training reports become part of an officer's permanent record.

## Major Contributors to This Report

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# Glossary

Intermediate Service School	This is generally the third level of an officer's formal PME and officers with about 10 to 15 years of military experience attend one of the four intermediate schools. (These schools are the U.S. Marine Corps Command and Staff College in Quantico, Virginia; the College of Naval Command and Staff in Newport, Rhode Island; the U.S. Army Command and General Staff College at Fort Leavenworth, Kansas; and the U.S. Air Force Command and Staff College at Air University, Maxwell Air Force Base, Montgomery, Alabama.) An officer is usually at the major rank in the Army, Air Force, and Marine Corps or lieutenant commander in the Navy. At the intermediate level, the focus is on several branches of the same service as well as on the operations of other services.
Joint Professional Military Education	This education encompasses an officer's knowledge of the use of land, sea, and air forces to achieve a military objective. It also includes different aspects of strategic operations and planning, command and control of combat operations under a combined command, communications, intelligence, and campaign planning. Joint education emphasizes the study of these areas and others from the perspectives of the Army, Navy, Air Force, and Marine Corps services.
Joint School	Joint PME from a joint perspective is taught at the schools of the National Defense University located at Fort McNair in Washington, D.C., and another location in Norfolk, Virginia. For the most part, officers attending a joint school will have already attended an intermediate and/or senior service school.
Joint Specialty Officer	An officer who is educated and experienced in the formulation of strategy and combined military operations to achieve national security objectives.
Operational Art	The employment of military forces to attain strategic goals in a theater of war or theater of operations through the design, organization, and conduct of campaigns and major operations.
Phase I	That portion of joint education that is incorporated into the curricula of intermediate and senior level service colleges.

#### Glossary

### Senior Service School

This level is normally attended by lieutenant colonels and colonels in the Army, Air Force, and Marine Corps and by Navy commanders and captains with about 16 to 23 years of military service. The senior service schools generally offer an education in strategy. (The four senior level schools are the College of Naval Warfare in Newport, Rhode Island; the Army War College at Carlisle Barracks, Pennsylvania; the Air War College at Air University, Maxwell Air Force Base, Montgomery, Alabama; and the Marine Corps Art of War Studies program in Quantico, Virginia.)

### Service School

One of the individual Army, Navy, Air Force, or Marine Corps intermediate or senior PME institutions.

### Strategy

National military strategy is the art and science of employing the armed forces of a nation to secure the objectives of national policy by applying force or the threat of force. National security strategy is the art and science of developing and using the political, economic, and psychological powers of a nation, together with its armed forces, during peace and war, to secure national objectives.

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