Chapter Two Appendix

Enclosure 2.12
USNA Academic Program Executive Review Group (AERG) Report to the Superintendent: *Educating Midshipmen for the Future Fleet*

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Report to the Superintendent

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April 15, 2006

VADM Rodney P. Rempt
Superintendent
United States Naval Academy
121 Blake Road
Annapolis, MD 21402-5000

Dear Admiral Rempt,

On behalf of the Academic Program Executive Review Group (AERG), we are pleased to submit the enclosed report, "Educating Midshipmen for the Future Fleet."

You charged the AERG to consider two broad but basic questions: Is the Naval Academy educating its graduates to meet the requirements of the Naval Service and is it doing so in the most effective and efficient way possible? In addressing these questions, the AERG considered inputs from a wide variety of sources, including senior Fleet leaders at both operational and training commands, USNA alumni, and representatives from both academic and professional divisions at the Academy itself.

As the AERG compiled its findings, it found that many areas it sought to highlight (increasing fleet relevance in the curriculum, fostering critical and creative thinking, focusing on improvements to the core, developing regional and language expertise, etc.) were already the subject of extensive consideration and effort by the Academy's faculty and administration. We commend these groups for their commitment and initiative and hope that the observations, comments, and recommendations presented in the body of our report help to both guide and encourage their ongoing efforts.

Though the AERG did make some specific recommendations on changes to the curriculum, it was the broad consensus of our committee that long-term improvements in the education of midshipmen would ultimately be best enabled by focusing on institutional structure and processes rather than on content alone. No single constituency – neither the Fleet nor the Academy nor this external review board – is capable of independently determining how best to educate midshipmen for the future Fleet. Addressing this challenge is a necessarily collaborative task that must include not only the efforts of committed Naval Academy faculty and administrators but also active and sustained dialog with the greater Navy and Marine Corps. Currently no process for this kind of ongoing cooperation and dialogue exists; creating one is the fundamental recommendation of this report.

On behalf of our AERG colleagues, we commend your efforts to seek continual improvement across the full spectrum of Naval Academy mission areas and thank you for the opportunity you have given us to contribute through our service on this committee. We hope that you will find the enclosed report helpful and that it will provoke debate and spur further progress as the Academy continues to carry out its responsibility to educate midshipmen for the future Fleet.

Admiral Dennis C. Blair, USN (retired)
President, Institute for Defense Analyses

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AERG Mission

In January 2005, the Superintendent of the United States Naval Academy initiated a comprehensive internal review of all facets of the Naval Academy Academic Program. During the summer of that year, he established in parallel an external committee, the Academic Program Executive Review Group (AERG), charged with identifying what the Navy and Marine Corps would require in the education of their junior officers in the 21st century. The AERG was asked to produce a report that could contribute to the establishment of academic policies and objectives to guide the Naval Academy for the first 20-30 years of the 21st Century.

In conducting their study, the AERG was asked to consider two broad but basic questions:

- Is the Naval Academy educating its graduates to meet the requirements of the Naval Service?

- Is it doing so in the most effective and efficient way?

Specific questions the AERG was asked to consider included:[1]

- What expectations does the Naval Service have regarding the educational preparation of Navy and Marine Corps officers graduating from the Naval Academy in the next 20-30 years?

- How well do recent Naval Academy graduates appear to meet those expectations?

- What changes, if any, are recommended in the academic preparation of Academy graduates to better meet the needs of the Naval Service? Are there areas of study that should be added or increased in emphasis? Are there areas of study that should be eliminated or de-emphasized?

- Do Naval Academy graduates still require a firm understanding of the basic principles underlying the complex technologies supporting today's military capabilities? Are there particular areas of emphasis that appear most important?

- Is there a greater need now than in the recent past for Naval Academy graduates to have acquired a broad understanding of the history, culture, geography, language and political structure of regions important to U.S. national security?

[1] Because several major reviews aimed at enhancing the Academy's approach to leadership education had recently been completed, the AERG was asked to avoid devoting too much time to the development of additional initiatives in this area. The relative lack of emphasis on leadership development in this document, however, should not be taken to suggest that committee members do not consider excellence in leadership education to be one of the most important overall objectives of the Naval Academy education. They do.

History – The Fleet and "CURRICULUM 21"

The last comprehensive external review of how the Naval Academy's academic programs might best meet the needs of the future Fleet[2] was a 1997 study known as "CURRICULUM 21."[3] Over the course of five months, an *Extended Team,* consisting of senior leadership from throughout the Naval Service, and a *Core/Support Group,* consisting of Naval Academy faculty and staff, reviewed all aspects of the curriculum as well as midshipman professional life.

In developing their final recommendations, CURRICULUM 21 members identified two key drivers:

- A 1997 Fleet survey conducted expressly for CURRICULUM 21.
- A 1996 Chief of Naval Operations (CNO) Instruction identifying Professional Core Competencies (PCCs) for all future Fleet officers (SECNAVINST 1531.2A).

CURRICULUM 21's "Fleet survey" consisted of a 20-item questionnaire distributed to the Commanding Officers (COs), Command Master Chiefs (CMCs), and Chiefs of the Boat (COBs) of units afloat and ashore via message traffic (members of the Marine Corps were not surveyed).[4] Based on the questionnaires received, respondents were generally convinced that:

- The overall balance of courses between technical, professional, and humanities education at USNA was about right.
- The academic disciplines most necessary to the Fleet matched traditional areas of strength at USNA (Engineering, Mathematics, and Physical, Hard, and Applied Sciences).

With regard to the future, surveyed COs/CMCs/COBs recommended that the Naval Academy:

- Continue to commission officers solely in the Unrestricted Line.

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[2] Throughout this report, the term "Fleet" is used to refer to both the Navy and Marine Corps.
[3] Since "CURRICULUM 21," various other reviews of the Academy's academic programs have been conducted including two Middles States Commission on Higher Education Accreditation Reviews (in 2001 and 2005), an Accreditation Board for Engineering and Technology Review in 2005, and numerous internal curricular self-studies (available at http://intranent.usna.edu/WSE/usnaselfstudy/). CURRICULUM 21, however, was the last review commissioned for the express purpose of identifying *how the Naval Academy might best meet the needs of the future Fleet.*
[4] A total of 445 surveys were received. Response rates averaged 33% and varied from a low of 16.3% for the aviation community to a high of 44.5% for submariners.

- Increase the emphasis on writing composition and digital (vice analog) technologies and systems.

- Review the necessity of celestial navigation and increase the emphasis on satellite and electronic navigation methods.

- Increase the emphasis on IT skills.

- Eliminate or reduce the teaching of steam engineering.

Though cautioning that any attempt to dictate majors quotas would be contrary to promoting positive attitudes among midshipmen about their education and learning, CURRICULUM 21 concluded that the Academy's curriculum was fundamentally sound and that (with the modest changes noted below) it would prepare midshipmen to meet the challenges of the 21st century. With regard to the core curriculum in particular, the committee argued that existing core courses in mathematics, physical sciences, engineering, humanities and the social sciences had strong justification and that the strength of the core program provided the essentials for all midshipmen, regardless of major, to seek entry to any warfare community.[5]

Primary report recommendations included maintaining twenty-one credit-hours of professional development course-work, strengthening the Leadership Development program, and increasing the emphasis on IT skills and written communication. Ultimately, all of these recommendations were implemented directly or adopted after slight modification.

[5] For the purposes of their review, CURRICULUM 21 defined the Academy's academic "core" as "that part of the curriculum which consists of required courses that are essentially common for all midshipmen regardless of major [and] fulfill the general education needs of midshipmen and establish a foundation for their preparation as officers in the Naval Service."

AERG Philosophy

Over the course of its meetings, the AERG developed a set of convictions about education and the Naval Academy that informed its subsequent recommendations. Specifically:

- The Naval Academy is unique not because it is an engineering school but because it is responsible for the foundational education of a large proportion of the future leaders of the Navy and Marine Corps.

- The learning emphasis at the Naval Academy should be on education rather than training. We train for what we know; we educate for what we don't. Equipment, technology and dominant theories of international relations will go through many changes during an Academy graduate's career. Officers with fundamental conceptual knowledge, critical and creative thinking ability, and a commitment to lifelong learning will be best prepared to make the greatest contributions to the Naval Service.

- The Academy should aim to provide an education that will equip its graduates to excel throughout their careers – from their time as tactically-oriented ensigns or second lieutenants to their potential service as senior officers with commensurate high-level staff and command responsibilities. As a recent Summer Study conducted for the Secretary of Defense concluded, the objective of undergraduate education should be to teach future officers to "think creatively, decisively, strategically, flexibly, broadly, and inquisitively."[6]

- The core curriculum at the Naval Academy should equip midshipmen with the intellectual skills necessary to excel in any warfare specialty in the Navy or Marine Corps and should cover the most important basic concepts in the humanities, math, science and engineering, as well as the basic intellectual approaches in these disciplines.

- The core curriculum should be connected to relevant naval issues and should be taught using naval examples wherever possible.

- An inherent tension within the Naval Academy learning environment is the organizational, philosophical, and time-management distinction between military and academic preparation of midshipmen. The military organization led by the Commandant and supervised by mid- and junior-grade Battalion and Company Officers concentrates on planning, organizing, and execution skills; analytical and practical thinking; and dealing with physical/mental stress. The academic organization led by the Academic Dean and Provost and run by a mix of officers and civilian professors concentrates on knowledge principles and ideas, problem solving, critical thinking and analytical abilities. Competent Navy and Marine Corps officers need both sets of skills. Rather than seeking to de-conflict them, the objective of the Naval Academy should be to integrate these two vital aspects of midshipman education.

[6] See 2003 Secretary of Defense Summer Study - "The Military Officer in 2030."

AERG Process

In conducting its review, all or part of the AERG met on eleven separate occasions. Six of these meetings were held at the Institute for Defense Analyses in Alexandria, Virginia; four were held at the United States Naval Academy in Annapolis, Maryland; and one was held by teleconference. During these meetings, the AERG:

- Hosted informal discussions with three groups of USNA alumni (representing junior, mid-grade, and senior non-flag officers) as well as representatives of the Professional Military Professor (PMP) and Company Officer communities to get their perspectives on education and training at the Naval Academy.[7]

- Considered findings from previous curriculum reviews and surveys of Fleet needs (e.g. CURRICULUM 21).

- Reviewed findings from relevant studies conducted by Navy- (e.g. Center for Naval Analyses) and non-Navy-affiliated researchers.

- Collected written responses from Navy Type Commanders (TYCOMs) and the Marine Training and Education Command (TECOM) to a standard question set.[8]

- Held meetings by division with departmental representatives from across the faculty (including the Divisions of Engineering and Weapons, Mathematics and Science, Humanities and Social Sciences, and Professional and Officer Development).[9]

- Held individual roundtable discussions with RDML Jamie Barnett (Director, Naval Education & Training Division, N17) and Dr. Harlan Ullman (Senior Advisor, Center for Naval Analyses) to review future Navy education plans and recent studies of Navy education.[10]

- Discussed the committee's initial findings with regard to military education in Bancroft Hall and the Officer Development Division with VADM (ret) Michael Haskins (Distinguished Chair of Leadership, USNA).

In addition, two of the committee's retired flag officers met separately with Naval Reactors (NR) representatives to discuss NR's concerns with the performance of some recent (non-engineering) Academy graduates in the nuclear training pipeline.

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[7] Each alumni group consisted of four participants – a Marine, a Naval Aviator, a Submariner, and a Surface Warfare Officer – for a total of twelve alumni discussants. A total of five PMPs and three Company Officers participated in informal discussions as well. The AERG considered these sessions informative but neither comprehensive nor statistically valid. For further details, see Appendix 3.
[8] For further details, see Appendix 4.
[9] For further details, see Appendix 5.
[10] Including presentations and discussion time, the AERG spent approximately one-hour with RDML Barnett and 30 minutes with Dr. Ullman.

Comments from the Fleet

Rather than relying on CURRICULUM 21's approach of using a survey of current COs, CMCs, and COBs to develop a sense of how the preparation and performance of Naval Academy graduates was perceived by the Fleet, the AERG elected to seek the opinions of senior leaders of the Naval Services. Relatively open-ended questionnaires were sent to commanders of the Navy's Air, Surface, and Submarine forces and leaders of the Marine Corps' education and personnel organizations.[11] In response, the AERG received the following high-level inputs:[12]

TECHNICAL EDUCATION

- Surface, Air, and Marine Corps commanders believed the Academy's current technical education for all majors was either adequate or more than adequate.

- In contrast, the Submarine community believed that, with the exception of engineering majors, technical education at USNA was inadequate and possibly declining in quality.

- Unlike the Surface, Air, or Marine Corps commanders, leaders of the Submarine force also believed that pursuing a technical degree had a significant positive impact on career retention and success beyond the period of initial training.

- Leaders of the Marine Corps reported improvements in the IT knowledge of midshipmen but wanted to see an even greater emphasis on this area in the future.

- Naval Aviation leaders requested more emphasis on basic typing skills and greater familiarity with common software applications (e.g. MS Word, Excel, PowerPoint).

NON-TECHNICAL EDUCATION

- Surface, Air, and Marine Corps commanders noted that USNA graduates continue to demonstrate inadequate written communication skills.

- Surface and Marine Corps leaders requested greater emphasis on cultural and/or language studies.

PROFESSIONAL EDUCATION

- Submarine, Surface, and Air leaders all request a greater emphasis on Joint and/or Coalition Military Education at the undergraduate level.

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[11] See Appendix 4 for a description of the questionnaire and detailed responses from Fleet commanders.
[12] With the exception of the Submarine Force, TYCOM inputs appeared based largely on anecdotal evidence gathered in response to the AERG request for comments. Systematic assessments by the Surface and Aviation communities and the USMC of the impact of undergraduate education on Fleet performance and/or generation of expectations for undergraduate education appeared to be the exception rather than the rule.

Focus on the Core

In reviewing the extent to which the Naval Academy is producing officers prepared to meet the needs of the 21st century Fleet, the AERG made a conscious decision to focus particular attention on the "core curriculum," the Naval Academy's equivalent of the general education requirement found at most civilian institutions. Representing roughly two-thirds of all classes that a midshipman will take during his or her time at the Naval Academy (approximately 90 of 140 credit hours including professional classes but excluding physical education), the core curriculum is the centerpiece of the Academy education.

The Academy's current core curriculum consists of three areas:

- A *Technical Core* comprised of courses in the disciplines of mathematics, science, and engineering (45-50 semester credit hours depending on major).

- A *Humanities and Social Sciences Core* comprised of courses in the disciplines of political science, history, English, and (for some students) languages (24-32 semester credit hours depending on major).

- An *Officer and Professional Development Core* comprised of courses in professional subjects like seamanship and navigation and courses in the areas of leadership, ethics, character development, and law (21 semester credit hours).

According to the Academy's self-assessment for its 2005 Middle States Commission on Higher Education Academic Program Accreditation Review, this core curriculum serves three main functions:

- Provides a broad technical and liberal arts education experience.

- Lays the general foundation for all USNA majors programs.

- Meets the specific mission goals for the Naval Service.

The AERG believes this definition lacks adequate focus and presents an alternative conception in its discussion of the core in Focus Area 2 below.

In focusing on the core curriculum, the AERG was particularly interested in exploring the issue of *purpose*. For example, should the core curriculum (in particular) be preparing naval officers for successful professional service or should it produce a broadly educated college graduate? In subsequent sections of this report, the AERG will explain why it believes the core curriculum can (and must) do both. What is required is to integrate the courses of the core curriculum so that, taken as a whole, they achieve the objectives of producing midshipmen who are:

- Broadly educated in a Fleet-relevant context.
- Able to handle any warfare specialty.
- Able to think critically and creatively.
- Able to continue learning throughout their careers.
- Able to cope with ambiguity and foresee or adapt to changing circumstances.

A set of specific recommendations related to core *structure*, *process*, *content*, and *pedagogy* that the committee believes would help achieve these goals are presented in detail in subsequent sections of this report.

Six Recommended Areas of Focus

In gathering together the observations, comments, and recommendations that make up the core of this report, the AERG identified six primary "areas of focus." These areas serve as the organizational foundation for the committee's findings.

- **Focus Area 1: Building a Robust and Sustained Connection to the Fleet**
  A clear, robust, sustained connection between the classroom and the Fleet is essential both to engaging students and to ensuring that Academy studies remain timely and relevant.

- **Focus Area 2: The "Core" - Purpose, Structure and Content**
  The core education at USNA should prepare midshipmen to excel as leaders of the Navy and the Marine Corps in any field and at all levels of service.

- **Focus Area 3: Fostering Critical and Creative Thinking and a Commitment to Lifetime Learning**
  The development of critical and creative thinking skills and a commitment to a lifetime of learning should be emphasized (in USNA publications and in the classroom) from day one of plebe year in the core and across the disciplines.

- **Focus Area 4: Developing Language and Regional Expertise**
  Neither fluency in difficult languages nor deep regional expertise can or should be expected of all Academy graduates. However, aggressive initiatives should be developed and appropriately resourced to a) ensure *all* midshipmen understand the importance of cultural understanding in successful military leadership and operations, b) lay the foundation and desire for deeper language and regional understanding throughout an officer's career, and c) allow *those midshipmen who demonstrate an interest in doing so* to pursue an advanced proficiency in language and/or regional studies while at the Naval Academy.

- **Focus Area 5: Promoting Teaching Excellence and Supporting Institutional Research and Assessment**
  The Naval Academy is first and foremost a teaching institution; consequently, it should have the finest possible cadre of professional educators. Additionally, because sustained progress in all aspects of higher education is based on a foundation of broadly collected and rigorous analyzed data, USNA should ensure that institutional and academic research and assessment are adequately resourced, staffed, and emphasized.

- **Focus Area 6: Integrating and Coordinating Institutional Constituencies**
  USNA should enhance the integration of the activities of its major institutional components to better achieve the Academy's mission of preparing midshipmen for the Naval Service.

Focus Area 1: Building a Robust and Sustained Connection to the Fleet

Observations and Comments

A clear, robust, sustained connection between the classroom and the Fleet is essential both to engaging students and to ensuring that Academy studies remain timely and relevant. Taking the initiative to establish this connection is the Academy's responsibility, not the Fleet's. Current Navy directives and policies do not require or specify a strong connection between faculty and administrators at the Naval Academy and the broader research, education, and/or operational communities in the Fleet. Acting on their own initiative, USNA departments vary widely in seeking substantive, relevant and compelling links between their discipline, core or major courses, and the sea service careers that midshipmen embark upon after graduation. This seemed to the committee in many cases a missed opportunity for the Academy to articulate to midshipmen the rationale for their coursework and to lay an enduring foundation for lifelong learning after graduation.

Recommendations

- Take immediate and sustained action to begin building a more robust "connection to the Fleet" that:
    - Encourages midshipmen to feel they joined the Navy their plebe year, not after graduation.[13]
    - Emphasizes shared experiences between the faculty and the Fleet.
    - Better connects the Naval Academy faculty to both the Navy's research and operational communities.
    - Ensures that interactions between faculty and Fleet are formal and sustained (vice ad hoc and occasional) in nature.
    - Is based on a plan that includes identification of specific Fleet organizations to interact with individual Academy departments and mandatory periodic faculty interaction with Fleet elements to develop and refresh their understanding of Fleet activities and needs.[14]

[13] This should not be interpreted as a recommendation to emphasize professional training over education. To the contrary, the AERG believes that the connection the Academy builds to the Fleet should be first and foremost an intellectual one.

[14] "Fleet interaction" need not necessarily mandate going to sea. In addition to seaborne activities, other innovative options and processes should be organized to accomplish the desired integration. The key is for these interactions to be substantial, substantive, and systematically planned.

- Ensure that new initiatives are coordinated with current programs and mandates by conducting and documenting a comprehensive review of existing Navy directives governing Academy relationships to the Fleet.

- If necessary, initiate a SECNAV directive to give every Academy department a Fleet sponsor. This review (and possible directive) should be followed by plans for each department to develop and sustain Fleet interactions (including, at a minimum, periodic detailed curriculum reviews and reviews of faculty exposure to Fleet activities). In support of this planning process, consider organizing (possibly in conjunction with the annual meeting of service academy deans) a forum for sharing best practices on how each of the military academies currently stays connected to its service's broad operational and research communities.

- Encourage wide-spread faculty awareness of the sea services so faculty will teach in a meaningful, compelling and discipline-appropriate manner the relevance of individual curricula to the Navy and Marine Corps mission. For senior faculty (associate and full professors), who are increasingly charged with leadership of the Academy's academic program, this awareness of the needs and missions of the Fleet, and the relevance of their discipline to the sea services, should be a clear career expectation.

- Encourage more meaningful civilian faculty engagement with the operational Fleet through longer, more interactive visits to Fleet units (including those forward-deployed).

- Consider providing incentives for greater faculty research connected to established naval needs across all Naval Academy divisions through additional summer research funding, term-time teaching reductions, and extended TAD rotations with naval research facilities and/or operational units.

- Consider creating an opportunity for joint faculty appointments between the Naval Academy and other Navy/Defense educational institutions (e.g. the Naval War College, the Naval Postgraduate School, the Defense Language Institute, the National Defense University, and other labs and warfare centers).

- Ensure that civilian faculty members have sufficient security clearances (and sufficiently secure facilities) to allow them to engage in applicable Fleet-relevant research and projects.[15]

- Create greater awareness of the sea services among the civilian faculty by promoting greater interaction and cooperation between civilian and military instructors. This

[15] All civilian faculty members at the Naval Academy undergo a basic background check and receive a SECRET-level clearance. However, in some cases, supporting relevant Fleet research and activities may require clearance at the TOP SECRET collateral or SCI level. In terms of facilities, the Academy should have research facilities available that permit at least SECRET-level research and should work to equip these spaces with SIPRNet access to facilitate movement of classified information.

might be achieved through a variety of means including: collaborating on curriculum development; organizing formal civilian-military faculty mentoring pairs (in which military members advise their civilian counterparts on the Fleet-relevance of their subject matter and civilian members advise new officers on effective pedagogic techniques); increasing the number of courses organized around civilian-led multi-section lectures and officer-led discussion sections; and increasing the number of sections team-taught by civilian and military instructors.[16]

- Finally, continue to aggressively pursue an overall 1:1 military-to-civilian faculty ratio. This will require increasing the current military representation in the faculty ranks. To achieve this, the Academy should:

  - Continue and, if possible, expand its highly effective utilization of enlisted Sailors and Marines as teaching/lab assistants.

  - Consider expanding its pool of potential officer instructors by shifting resources from the LEAD to the GET program.

[16] One specific example of how current classes might be combined and team-taught by civilian and military instructors is through combining the current core Professional Development course on Strategy and Tactics (NS310) with the current core History Department course on Naval History. Such a course might combine historical lectures and readings with more discussion/lab sections focusing on contemporary questions and applications and, in the process, might provide an introduction to Joint Professional Military Education (JPME) competencies as requested by multiple Fleet leaders.

Focus Area 2: The 'Core Curriculum' - Purpose, Structure and Content

Observations and Comments

In the course of its review of USNA's academic programs, the AERG came to see the core curriculum as the centerpiece of the Academy academic experience and of crucial importance in preparing midshipmen for Naval Service. The committee elected, therefore, to focus particular attention on understanding the current purpose, structure, and content of the core and on making recommendations about how each of these areas might be clarified and enhanced.

Technically, the Naval Academy's "core" appears to lack a precise definition. In some instances, it is described as a group of courses; in other cases, as a set of competencies. In the Academy's most recent (2005) Middle States Accreditation Review, its purpose is described variously as: 1) to meet the specific mission goals for the Naval Service, 2) to provide a broad technical and liberal arts education experience, and 3) to lay the general foundation for all USNA majors programs. The AERG believes that the purpose of the core education at USNA should be *to prepare midshipmen to excel as leaders of the Navy and the Marine Corps in any field and at all stages of their careers*.

Specific Navy-approved educational and training expectations for USNA do exist, but are not adequate. Originally published as a Secretary of the Navy Instruction (SECNAVINST 1531.2A) in 1996, the so-called "Professional Core Competencies" (PCCs), were last revised in April of 2001 and issued in manual-form by the Chief of Naval Education Training (CNET). In principle, the AERG supports such a document. However, in its current form, the PCC manual does not appear to be the product of a formal, comprehensive undergraduate educational requirements determination process nor do the PCCs themselves appear to be integrated into a career-long Fleet education strategy. The AERG believes this situation should be addressed and makes recommendations on how to do so below.

Currently, the core curriculum at the Academy is owned by the Academic Dean and Provost. Changes to the core curriculum are either proposed through the Faculty Senate Core Curriculum Committee or routed directly to the Academic Dean from academic departments via their respective divisions. Below the level of the Academic Dean, no single Academy administrator is charged with actively managing and overseeing the core. The AERG believes a single official responsible for the core is needed and provides specific recommendations for the responsibilities of such a position in the next section.

With the core curriculum decided by a committee process, and with so many subjects that a midshipman should arguably be aware of, the result has been to fill every period in the midshipmen's schedule during plebe year and to contribute to an overall course load that necessarily limits the amount of time a midshipman can devote to any

given course.[17] The AERG believes that changing the process by which the core is administered will help to address the current overload and makes some specific additional suggestions in regard to "load balancing" below.

With regard to content, the AERG believes that ultimately, core content should be selected and presented with a goal of enabling students to understand how the different disciplines solve problems, how they create knowledge, and why they matter. Conveying why core content matters requires making clear to midshipmen the connection between the material they are exposed to in the core and the experiences they will encounter throughout their career in the Navy or Marine Corps (a concept referred to in this report as 'Fleet-relevance').

Currently, academic departments vary in their commitment to making core curricula relevant to the Fleet. The desire to provide a broadening educational experience is sometimes cited as a reason to limit the emphasis of Fleet relevance in the core and, in some instances, core curricular reform appears to be hampered by the perception that certain courses and/or content are required to maintain ABET accreditation.[18]

Members of the AERG strongly believe that an emphasis on Fleet relevance is entirely compatible with an emphasis on broadening educational experiences in core classes or competencies. Indeed, encouraging midshipmen to understand the inherent connection between the broad educational experiences to which they are exposed and the relevance of these experiences to them as naval officers is essential to exciting and engaging students and fulfilling the Naval Academy's mission.

Recognizing the importance of considering the full spectrum of trade-offs involved in making specific curricular changes to the core, the AERG attempted to avoid focusing too extensively on "puts and takes" at the level of individual competencies. Nevertheless, in the course of the committee's review, three general areas stood out as worthy of particular attention: information technology (IT), cultural studies, and written communication skills.

IT: In the aftermath of Curriculum 21, IT skill development in the core was enhanced through the incorporation of a set of IT-related learning objectives into one of the required electrical engineering core courses. Nevertheless, the current

[17] Over the course of their USNA career, the typical midshipman is required to carry roughly 140 credit hours. This total includes approximately 90 hours in 'academic core courses,' 30 hours in coursework specifically devoted to their academic major, and 21 hours in courses devoted to professional development but excludes time required by mandatory physical education classes. Even so, it is roughly 17% more than the 120-hour required course load at the typical 4-year civilian institution. The AERG is concerned that the limited time students have to devote to any given course may place inadvertent limits on what faculty members believe they can reasonably expect in terms of out-of-classroom work.

[18] Though ABET requirements must certainly be taken into account in designing the core curriculum, it is not clear that these requirements are as restrictive as is often assumed. It is likely that that the main factor limiting flexibility in the Group I core is not ABET as much as a broader divisional desire to maintain engineering degree programs that are widely recognized as among the best in the country.

emphasis on IT skill development appears insufficient relative to the central place of network and computer technology in transforming the current and future Naval Services and joint operations.

CULTURAL STUDIES: All midshipmen should be introduced to the study of languages and culture and understand the importance of cultural understanding in successful military leadership and operations. In addition, the core curriculum should lay the foundation and desire for deeper language and regional understanding throughout an officer's career. However, neither the current Western civilization courses nor any other existing core courses adequately equip or motivate a midshipman to understand non-Western cultures. The virtual absence of cultural studies in the current core curriculum must be addressed.

WRITTEN COMMUNICATIONS: A lack of effective communication skills (particularly written) among newly commissioned former Academy midshipmen is cited as a continuing deficiency by Fleet leaders. Greater attention must be paid to the development of effective written composition skills.

Recommendations in each of these areas are included in the following section.

Recommendations

- Formally define the USNA 'core' as a set of fundamental common core *competencies* rather than as a set of specific classes. The AERG believes it is more important for midshipmen to learn the fundamental intellectual approaches of the humanities and social sciences, engineering, physical sciences, and math, than to take survey courses that skim over many specific subject areas in a particular discipline. It is likely that certain courses will be specifically designed to meet core competency requirements and considered 'core courses.' However, shifting to a competency-based definition may allow for some variation in the actual classes midshipmen pursue and will, in any case, clarify the idea that the purpose of the core is to enable midshipmen to meet a given set of educational objectives rather than to ensure midshipmen simply take a certain set of classes.[19]

- Designate a single individual below the level of the Superintendent and Academic Dean but at least at the Assistant Dean-level to manage the competing claims on the core with appropriate authority and responsibility to ensure strong oversight and coordination. This individual (referred to below as the "Core Curriculum Dean") should be charged with:

[19] Shifting to a competency-based core model might also create an incentive for faculty to consider cross-departmental courses designed to satisfy multiple core competency objectives straddling different disciplines – for example, existing non-core courses on topics like the 'history of science' or the 'history of the IT revolution' might be capable of incorporation into the core in a competency-based system.

  - Formalizing a clear vision of the core curriculum (at a minimum, this vision should include a definition of the core, a statement of core purpose, and a discussion of desired, assessable outcomes).

  - Establishing a set of common core competencies from all disciplines capable of preparing a midshipman for success in any warfare specialty and throughout a Naval or Marine Corps career and then revising the curriculum to achieve them.

  - Developing and employing formal and clearly-defined processes to ensure that core competencies are 1) consistent with the needs and expectations of the Fleet, 2) integrated and balanced within and across divisions, and 3) periodically reviewed and evaluated.

  - Implementing formal processes to monitor the incorporation of core competencies in academic courses and assess the degree to which associated learning objectives are met on an annual basis.

  - Emphasizing the importance of incorporating "Fleet relevance" across the core curriculum through the inclusion of real-world issues and problems into every core course.

  - Ensuring that core courses incorporate the core-related recommendations contained in this report.

- Authorize the Core Curriculum Dean to initiate and approve changes to core content or learning objective guidelines, based on departmental input, and subject to appeal to the Academic Dean and/or Superintendent.

- Require academic advisors and instructors to ensure that midshipmen understand the overarching goals of the core curriculum and how individual core components contribute to the achievement of these goals by:

  - Explaining the overall purpose of the core to midshipmen at the beginning of their plebe academic year.

  - Explaining at the beginning of each core course the purpose and relevance of that course, and how it fits into the overall core purpose.

  - Promulgating the core definition, purpose, and constituent competencies and goals in documents available to and accessed widely by current and prospective students such as the course catalog, admissions guide, and external website.

- Develop Fleet-specific learning materials for core-classes including textbooks, CDs, and/or web-based materials or links.

- Create a cross-divisional working group composed of representatives from Electrical Engineering, Computer Science, and other stakeholders from USNA and the Fleet to reassess what IT competencies should be incorporated into the core and in what form (e.g. introduction of a new course, introduction of new competencies into existing courses, etc.).

- Create a cross-divisional working group composed of representatives of the History, Political Science, Language Studies, English, and Leadership, Ethics, Law, and Character (LELC) departments as well as other interested USNA and Fleet stakeholders to assess what 'cultural knowledge' competencies ought to be required of all officers and how these might best be incorporated into the core (e.g. introduction of a new general HUM/SS course, introduction of a 'cultural studies' elective to be selected from a set of focused alternatives, etc.).[20]

- Establish a communication skills graduation exam based on common Naval Service written and oral tasks – fitness reports, staff papers, exercise briefings, point papers – and provide the resources necessary to adequately prepare midshipmen for the exam.

- Finally, consider the following:

  - Devoting one core English class entirely to composition and increasing the written component of courses across the core curriculum to further promote the development of effective written communication skills. [21]

  - Combining some mathematics modules into science and engineering courses to ensure better integration and sequencing of math learning with science and engineering applications and to allow for a possible reduction in the total number of math courses while teaching all required math proficiencies.

  - Integrating focused cultural and basic language studies into a single interdisciplinary core course (possibly in place of an existing history class).

  - Teaching history from a balanced point of view rather than primarily from an ethical/philosophical perspective. The ethical aspects of a military career are now well addressed by other courses in the curriculum.

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[20] Based on discussions with faculty representatives, several initiatives in these areas – particularly with regard to cultural studies – are already in progress. Such initiatives should be encouraged. Of the various options under consideration, the AERG believes that the most promising are those that attempt to blend an introduction to language and culture in a focused class that examines a particular country or region. Such an approach seems more likely to promote the necessary deep thinking on a particular culture than a broad survey course. It is unlikely that the Academy will be able to successfully identify the "correct" states or regions on which to focus or that the Navy will necessarily assign officers to the region with which they are most familiar. However, the AERG believes that, at the undergraduate level, learning *how to think about other cultures* is as important in the long run as gaining specific knowledge about any given region.

[21] Despite repeated efforts by the academic faculty to improve the written communication skills of Academy graduates, Fleet concern in this area continues.

- Introducing a fixed-wing/helo flying familiarity program along with the current YP program.

- To create more flexibility for these or any other proposed changes to the core (as well as to create additional opportunities for non-class based academically enriching activities[22]), consider modifications to the academic calendar including, for example, the possibility of shifting some of the current term-time professional training course-work (e.g., coursework in seamanship and navigation, naval law, and officer practicums) into a summer or winter inter-term period.

[22] For example, foreign study, language-immersion courses, or extended internships at think tanks or research labs.

Focus Area 3: Fostering Critical and Creative Thinking and a Commitment to Lifetime Learning

Observations and Comments

The commitment of faculty members to developing critical thinking skills and incorporating open-ended problems varies at the Naval Academy across departments and course-levels. Too often, core courses emphasize the mastery of material rather than critical inquiry related to the discipline and, according to some midshipmen and recent graduates, there are still too many examples of "plug and chug" learning in the technical disciplines.

There are very few problems an officer encounters in the fleet or field that are solved by simple formulae. As he or she achieves higher rank, there are none. The development of critical and creative thinking skills should be emphasized (in USNA publications as well as in the classroom) from day one of plebe year in the core and across the disciplines.

As an Academy graduate becomes more senior, the challenges he or she confronts require the ability to use the different intellectual skills of the social sciences, the physical sciences, math, and engineering. Courses taught in both technical and non-technical areas should teach critical thinking as well as conveying subject knowledge and, regardless of discipline, courses must require deep and rigorous analysis.[23] At the Academy, a midshipman should learn to recognize the highest levels of intellectual achievement in all these disciplines and strive to develop the greatest degree of personal competency in each.

Placing a greater emphasis on "deep thinking" will require allowing (and expecting) students to devote more out-of-classroom time to each course than is currently set aside. It will also require conscious, sustained efforts to counter the conformity of thought that strict hierarchical organizations often inadvertently impose. Both of these observations have implications across the full-spectrum of midshipman activities.

In addition to promoting "depth of thought," preparing officers for the future Fleet will require instilling a commitment to "lifetime learning." Academy graduates should see their undergraduate education as a foundation on which they will continue to build throughout their professional careers. The future is, and always has been, uncertain. The best officers in the future Fleet will be those committed to continuously seeking to understand, adapt to, and manage this uncertainty.

All professional educators endorse the importance of producing graduates who are effective critical and creative thinkers committed to a lifetime of learning. However,

[23] In discussions with Naval Reactors, the perception that a lack of rigor in Naval Academy classes was creating difficulties for non-engineering majors in the nuclear power program was cited as a particular concern.

simply acknowledging these goals is not enough. Achieving success in this endeavor must be made a core institutional commitment and sustained, innovative efforts to improve this area of midshipman education must be pursued.

Recommendations:

- Issue periodic guidance (a Commander's Intent) from the Superintendent or Academic Dean emphasizing active learning and interactive classrooms and stressing the importance of developing critical and creative thinking skills and a commitment to lifetime learning.

- At the faculty level, encourage and adequately resource current initiatives like the Faculty Critical Thinking Working Group and ensure that *all* courses – including those taught during plebe year - incorporate some sort of open-ended research/design problem.[24]

    - To aid in accomplishing this, implement an initiative to reduce the long lists of first-order 'knowledge topics' covered in some classes and insert instead specific modules that require deep and critical analysis of a single topic.

- Finally, develop and implement measurable goals and periodic assessments of how well critical and creative thinking skills are being conveyed. Establish these assessments on a course- or class-wide basis and incorporate results into overall assessments of teaching effectiveness.

[24] By 'open-ended' the committee means *problems without clear, definitive answers*. The complexity of the problems presented and the amount of course time devoted to engaging them should be calibrated to the course level (i.e., growing in extent and sophistication as course levels increase). During the plebe year, for example, "deep-thinking" problems may involve a few specific questions introduced through weekly assignments or on exams. By 1/c year, it may involve something like a required 1/c capstone research/design project in all disciplines. The AERG was particularly impressed with the effectiveness of these projects when departments were able to connect students with an external sponsor able to task them with real-world problems.

Focus Area 4: Developing Regional and Language Expertise

Observations and Comments

In the opinion of the AERG, the Naval Academy has convincingly demonstrated that producing the broad foreign language proficiency required in the recent DoD Language Transformation Roadmap during a four-year undergraduate program is impractical. Neither fluency in DoD-investment languages nor detailed regional expertise can or should be expected of all Academy graduates. On the other hand, however, USNA's current approach to language and cultural education (which does not allow most students to study a foreign language during their plebe year, virtually excludes any form of comparative cultural or regional studies from the core curriculum, allows few options for the voluntary pursuit of language proficiency by technical majors, and produces virtually no graduates with advanced proficiency in languages other than Spanish, French, and German) clearly falls far short of what might reasonable be achieved with relatively modest reform.

Recommendations

- As discussed in Focus Area 2, develop and appropriately resource aggressive initiatives to ensure that *all* midshipmen understand the importance of cultural understanding in successful military leadership and operations. These initiatives should also lay the foundation and desire for deeper language and regional understanding throughout an officer's career.

- In addition, take further initiatives to allow *those midshipmen who demonstrate an interest in doing so* to pursue an advanced proficiency in language and/or regional studies while at the Naval Academy and/or during immediate post-commissioning graduate education. Specifically:

  - Establish a graduation track that allows students to develop regional and foreign language expertise in DoD-targeted regions as outlined in ref (r). Elements of this "interdisciplinary regional studies major" should include:

    - Summer immersion programs.

    - Semesters abroad.

    - Language proficiency testing (requiring that students demonstrate proficiency at level 2 for Category I and II languages or level 1 for Category III and IV languages prior to graduation).[25]

  - Seek authorization to disburse Foreign Language Pro Pay to midshipmen demonstrating proficiency in DoD-investment languages.

[25] Separate standards may be required for native-speakers of non-English languages.

- To provide greater opportunities for the pursuit of proficiency in any language, consider:
    - Changing the core and majors curriculum matrices to allow for the initiation or continuation of foreign language studies during plebe year.
    - Creating 'intensive language courses' (e.g. daily meetings, 5-6 credit hours) for targeted Category III and IV languages.[26]
- Develop a program to specifically identify and recruit high school students with special skills in high-demand languages.
- Weight existing language skills – particularly in difficult Category III and IV languages - more heavily than at present in USNA admissions decisions.
- Direct leaders in the Academy's Humanities and Social Sciences (HUM/SS) Division to work with the service Senior Language Authority (SLA) called for in the 2005 Defense Language Transformation Roadmap to determine how best to contribute to DoD-wide cultural and language competency goals.
- Increase institutional support of and take steps to increase student awareness of and participation in opportunities for overseas graduate education through scholarships, fellowships, and grants that promote language acquisition and cultural awareness such as those offered by the Fulbright and Olmsted programs.

[26] One possible model is the 'intensive Arabic' curriculum in the undergraduate program at Georgetown University's School of Foreign Service.

Focus Area 5: Promoting Teaching Excellence and Supporting Institutional Research and Assessment

Observations and Comments

The Naval Academy is first and foremost a teaching institution; consequently, it should have the finest possible cadre of professional educators. One challenge to achieving this goal is presented by the uneven emphasis on teaching pedagogy in civilian postgraduate degree programs.[27] Another comes from the fact that roughly one-third of the Academy's academic faculty consists of military officers who generally rotate to the Academy from non-teaching billets, arrive with little or no prior teaching experience, and stay for no more than two or three years before separating or continuing on to their next assignments. Additionally, few of the military members of the academic faculty have degrees beyond the master's level and some (in particular, military instructors in the Leadership, Ethics, and Law department) have no formal graduate education at all.

USNA currently seeks to promote the development and reward the excellence of its academic faculty in various ways. Though not the only criteria, teaching effectiveness is a primary consideration in hiring, promotion and tenure decisions and demonstrated success in the classroom is necessary for civilian faculty members who desire periodic increases in annual pay. Furthermore, under the leadership of its Director of Teaching and Learning (a senior civilian faculty member), the Academy offers a number of periodic "teaching and learning workshops" (lunchtime seminars on pedagogy conducted by USNA profs and outside speakers) designed to provide a continuous opportunity for faculty to stay abreast of the latest trends in teaching.[28] The AERG believes that these efforts are necessary but not sufficient.

Sustained progress in all aspects of higher education is based on a foundation of broadly collected and rigorous analyzed data, a fact that is already widely recognized at USNA. The Institutional Research Office, for example, provides correlations between Academy graduates and various metrics of success while the Faculty Enhancement Center's Director of Academic Assessment works with the Faculty Senate Assessment Committee to, in the words of the Academy's most recent Middle States Self-Assessment, "facilitate and coordinate the Academy's academic assessment process."[29] The issuance of ACDEANINST 5400.1, "Annual Reporting of Assessment Progress" in 2004 is another sign of the current emphasis being placed in this area.

However, during the AERG's meetings with faculty representatives, it appeared that current assessment of some teaching and learning areas (for example, the

[27] See for example, "At Cross Purposes: What the Experiences of Today's Doctoral Students Reveal about Doctoral Education," a 2001 study of more than 4000 PhD candidates by Chris M. Golde and Timothy M. Dore available at http://www.phd-survey.org/report%20final.pdf.
[28] However, attendance is optional and often light (typically between 20 and 40 members out of a faculty of 600).
[29] See 2005 Middle States Commission on Higher Education Academic Program Accreditation Review Self-Assessment, p. 96.

effectiveness of conveying core competencies) remains immature[30] and very little systematic institutional research appears to be done at USNA on the effectiveness of an Academy education after graduation (for example, by following Academy graduates and analyzing their later experiences in the Navy and Marine Corps).[31]

Recommendations

The AERG recommends that current USNA efforts to promote teaching excellence be enhanced through initiatives in four areas: qualifications, mentoring, rewards and research and assessment. Specifically:

- Require postgraduate education (master's degrees at a minimum) for all officer-instructor billets with the exception of those serving in the Physical Education and Seamanship & Navigation departments.[32]

- Survey current departmental practices for mentoring civilian and military faculty members and, based upon the results, develop and promulgate a set of minimum standards for faculty mentoring.[33]

- Consider increasing the total number of awards given to outstanding instructors on an annual basis.[34]

- Consider whether current institutional education and research and assessment offices are adequately resources, staffed, and empowered to meet the demand for their services and to hold departments and instructors accountable for meeting assessment expectations. In the event they are not, expand capacity. Specific assessment initiatives to consider include:

    - Implementing, at a minimum, a common portion on course-wide exams and Academy-wide student course evaluations in order to:

[30] An observation echoed by the Academy's 2005 Middle States Self-Assessment (see, for example, Standard Fourteen – Assessment of Student Learning).
[31] Some such studies, however, are conducted by external groups like the Center for Naval Analyses (CNA). See for example, refs (e, s, t, and u).
[32] Presently, for example, full time officer–instructors in the Leadership, Ethics, Law, and Character Department are not required to hold a master's degree in a relevant field.
[33] Based on the AERG's discussions with faculty representatives, mentoring programs for both military and civilian faculty members vary greatly between departments. And, while annual award programs typically assure that the very best instructors are recognized, no systematic procedures are in place to identify and/or remediate instructors who are not performing up to their full potential. The AERG believes that effective mentoring of *all faculty* is absolutely essential for ensuring that the institution continues to hire, train, and retain the finest possible educators.
[34] Currently, for example, there are three Academy-wide awards for teaching – one given to a senior civilian faculty member, one given to a senior military faculty member and one given on alternating years to junior civilian and military faculty members. Additional recognition at the academy, divisional and/or departmental levels would help to demonstrate the importance the Academy places on pedagogic excellence.

  - Monitor how expectations with regard to student effort and instructor grading vary across sections and departments.
  - Assess success in meeting educational objectives.
  - Identify possible internal best practices based on comparative performance of USNA sections.

- Considering where possible, the use of nationally standardized exams to allow for tracking of annual student performance (and trends) relative to other institutions.[35]

- Establishing more extensive formal and informal mechanisms for sharing best practices and lessons learned.

- Allocating resources for regular "market surveys" of USNA graduates and their superiors to evaluate success in conveying designated core competencies and to assess the value of Academy educational activities to officers throughout their careers. Survey results should then be integrated with departmental strategic plans for Fleet relevance (recommended in Focus Area 1).

[35] The Academy's Chemistry Department, for example, currently does this through use of a common exam developed by the American Chemical Society.

Focus Area 6: Integrating and Coordinating Institutional Constituencies

Observations and Comments

The three different primary claimants on midshipmen time – the athletic department, the academic departments and the military department – all have worthy goals and believe that they do not have enough time on midshipman schedules to achieve them. However, the AERG believes that the pendulum has currently swung too far against the academic aspects of midshipman education.

Based on their own experience, and in conversations with other graduates, the retired naval officer members of the AERG believe that conveying the junior officer competencies emphasized by the military department of the Academy can be accomplished in less time than is currently allotted, while still teaching midshipmen the necessary skills of time management, teamwork, discipline and small-unit leadership. With more time available, the midshipmen could then be challenged in their core and majors courses to think critically and deeply and to grapple with difficult intellectual problems, developing the kind of intellectual skills that will make them better officers over the course of an entire career.

In addition, the AERG believes that the Superintendent needs to change the character of the discussion among the three claimants on midshipman time from competition to integration of approaches. Currently, minor individual issues generally appear to either be raised to the highest Academy leadership levels for decision or left unresolved. The continual competition for midshipman time by the athletic, academic, and military departments of the Academy interferes with graduating the best ensigns and second lieutenants for the Fleet.

Several action items in the Academy's strategic plan recognize and address this problem, but do not amount to a coherent attempt to integrate all facets of the Naval Academy learning experience. In addition, and perhaps because of this ongoing competition, anecdotal evidence presented during discussions with company officers and members of the academic and professional faculty suggested that midshipmen time remains generally oversubscribed.

Recommendations

- Conduct a formal review of the military training aspects of the Naval Academy. In particular:
    - Consider ways to shift some formal (i.e. classroom-based) professional training outside of the normal academic term in order to reduce the total term-time course load
    - Look for opportunities to formally recognize (through the awarding of stripes)

and provide mentoring for meaningful non-Bancroft leadership opportunities (e.g. as the director of a Midshipmen Action Group program).[36]

- Review all activities under the supervision of the midshipmen striper organization to identify activities that could be reduced in scope or frequency while retaining sufficient activities for effective leadership training.[37]

- To help bridge the distance between Bancroft and the academic side of the Yard:

  - Re-emphasize the responsibility of company officers to promote the pursuit of academic excellence (not just the achievement of minimum standards) in their encouragement of the whole-person development of midshipmen.

  - Consider reinstituting a program to assign senior military or experienced civilian academic faculty members as academic advisors for each company.

- Work to enhance the integration of USNA's various institutional stakeholders and to create a culture which recognizes and respects the fact that the moral, mental, and physical development of midshipmen are all elements of a single mission: to produce "graduates who are dedicated to a career of Naval Service and have potential for future development in mind and character to assume the highest responsibilities of command, citizenship, and government." To facilitate this coordination, the AERG recommends:

  - Requiring the development of coordinated strategic plans down do the departmental level and in cross-divisional areas with a particular emphasis on the concept of "life-long learning" across the disciplines.

[36] The AERG sees no reason such positions could not be opened up to 2/c midshipmen as well as 1/c midshipmen based on merit.

[37] This review should include: parades and non-essential marching and formations; plebe system after either the Army game or end of first semester; mandatory football-centered activities; and other all-Brigade regulated activities. It should also consider whether the current professional emphasis on teaching the skills of a surface warfare (e.g. shiphandling) is justified in light of the minority of midshipmen who will enter that community.

Concluding Thoughts

As the AERG compiled its list of primary recommendations, it found that in many instances, areas it sought to highlight (increasing fleet relevance in the curriculum, fostering critical and creative thinking, focusing on the improvements to the core curriculum, and developing regional and language expertise, for example) were already the subject of extensive consideration and effort by faculty and administration committees. The AERG commends these groups for their commitment and initiative and hopes that the observations, comments, and recommendations presented in this report help to both guide and encourage their ongoing efforts.

Though the AERG made some recommendations on potential curricular changes, the committee ultimately decided that long-term improvements in the education of future officers would be best enabled by focusing on institutional structure and processes rather than on content alone.

Indeed, after 10 months of talking to alumni and faculty, reviewing existing studies and assessments and considering inputs from Fleet commanders, the AERG eventually came to the conclusion that there is currently no rigorous, analytically defensible way to answer the question of whether "the Naval Academy is educating its graduates to meet the requirements of the Naval Service" or the related question of whether it is "doing so in the most effective and efficient way." No single constituency – neither the Fleet nor the Academy nor even an external review board – is capable of doing so alone or through a cursory study.

Instead, determining how best to educate midshipmen to meet the requirements of the future Fleet is a necessarily cooperative task that must include not only committed Naval Academy faculty and administrators but also active and sustained dialog with the operational Navy and Marine Corps. Adequately answering this question requires that these constituencies meet on a regular basis and consistently assess both the changing short-term needs of the Fleet and the extent to which existing objectives are being achieved. Currently no such process exists. Creating one is the fundamental recommendation of this report

APPENDIXES

Guide to Abbreviations and Acronyms

ACDEANINST	Academic Dean and Provost Instruction: Formal guidance on academic affairs and related matters promulgated by the Office of the Naval Academy Academic Dean and Provost
ACSB	Aviation Commander Command Screen Board: The process through which aviators are selected for command tours.
ADHSB	Aviation Department Head Screen Board: The process through which aviators are selected for department head tours.
AERG	Academic Program Executive Review Group: Group of retired senior military officers and professional educators appointed by the Superintendent of the Naval Academy to conduct an external assessment of how well the Academy was preparing midshipmen for the future fleet.
-------	Bancroft Hall: The dormitory that houses the entire Brigade of Midshipmen and the location of Company Officer-led military training and professional development activities.
-------	Category I-IV Languages: A classification code for languages based upon the assessed difficulty of acquisition for native English speakers (higher numbers correlate with higher difficulty).
CMC	Command Master Chief: The senior enlisted representative at a Navy command. The CMC is generally a Master Chief Petty Officer (E-9)
CNA	Center for Naval Analyses: An Alexandria, VA-based federally funded research and development center that conducts studies and analyses for the Navy.
CNATRA	Chief of Naval Aviation Training: The two-star flag officer in charge of all naval aviation training.
CNET	Chief of Naval Education and Training: The three-star flag officer in charge of Navy-wide education and training programs.
CO	Commanding Officer: The officer in charge of a command at sea or ashore. For large ships, submarines, and aviation squadrons, the Commanding Officer is typically a Commander (O-5) or a Captain (O-6).
COB	Chief of the Boat: The senior enlisted representative on the crew of a ship or submarine. The COB is typically a Senior Chief Petty Officer (E-8) or a Master Chief Petty Officer (E-9).
-------	CURRICULUM 21: The last major external review of how Naval Academy curriculum might best meet the needs of the future fleet (conducted in 1997).
DOR	Drop-on-Request: The act of self-withdrawing from a competitive training pipeline like aviation or nuclear power.
GET	Graduate Education + Teaching Program: A relatively new initiative that allows junior officers to earn a 1-year masters degree at a civilian institution in the Washington, DC area following their first tour at sea in exchange for an obligated period of service and a follow-on tour as an instructor at the Naval Academy.
-------	Groups I-V: Organizational term referring to the majors groups of Academic Divisions (for example, the majors in the Division of Engineering and Weapons – Systems Engineering, Electrical Engineering, etc. – are known as Group I majors).
HUM/SS	Humanities and Social Sciences: One of the Naval Academy's three academic divisions. Composed of the Departments of Economics, English, History, Language Studies, and Political Science.
IRAD	Individual Readiness Assessment Designator: A pre-flight school assessment program introduced by the Naval Aviation community to reduce post ascension drop outs.
IT	Information Technology: Systems, processes, and equipment used for transferring, processing, or applying information.

JPME	Joint Professional Military Education: Formal, mandatory professional development curriculum that all officers are required to complete prior to promotion to high rank. JPME course work may be completed by correspondence or in a classroom either in the evening or as part of a full-time program during the day. Classes are run and curriculum is managed by the Naval War College in Newport, RI.
LEAD	Leadership, Education and Development Program: A post-graduate education program in which Navy and Marine Corps junior officers return to the Naval Academy after a first operational tour and earn a 1-year Masters Degree in Leadership and Management before being assigned as a Company Officer in Bancroft Hall for a two-year tour.
LELC	Leadership Ethics Law and Character: Academic department on the professional development side of the Naval Academy house that teaches term time courses on LELC and manages the LEAD program. LELC does not currently offer an undergraduate major or minor but initiatives in this area are being considered.
Lt. Gen.	Lieutenant General: In the context of this report, a three-star Marine Corps general officer (Lieutenant Generals can also come from the Army and Air Force).
Maj. Gen.	Major General: In the context of this report, a two-star Marine Corps general officer (Major Generals can also come from the Army and Air Force).
TECOM	Marine Training and Education Command: Two-star Quantico, Virginia-based command responsible for the coordination of Marine Corps training and education programs.
NAVAIR	Naval Aviation: Overarching authority for Naval Aviation training and education.
NNPP	Naval Nuclear Propulsion Program: Collective term referring to all periods of Naval nuclear propulsion training and education.
NNPS	Naval Nuclear Power School: Charleston, South Carolina-based school responsible for the initial classroom training of nuclear-trained officers and enlisted sailors.
NR	Naval Reactors: Four-star Washington, DC-based command responsible for overseeing the Navy's nuclear propulsion program.
NROTC	Naval Reserve Officer Training Program: One of three main paths for earning a commission in the Navy or Marine Corps in which students attend a civilian university and conduct Naval training and education part time until graduation.
NUPOC	Nuclear Propulsion Officer Candidate: A non-NROTC, non-Academy officer candidate who is receive training as a nuclear surface or submarine officer. NUPOC members attend Officer Candidate School after graduation from college and then enter the nuclear training pipeline.
OCS	Officer Candidate School: One of three primary paths to earning a commission as an officer in the Navy or Marine Corps. Officer Candidates attend OCS after graduating from a civilian college and conduct about three months of intensive training before receiving their commission.
PCC	Professional Core Competencies: A list of training and education objectives required to be conveyed to all future Navy and Marine Corps officers by the Chief of Naval Education and Training.
PLC	Platoon Leader Class: Part of the Marine Corps officer training pipeline.
PMP	Professional Military Professor: A post-command Commander or Captain selected to earn a PhD and serve the rest of his or her career as a faculty member at the Naval Academy.
RDML	Rear Admiral: A one- or two-star Navy flag officer rank.
SECNAV	Secretary of the Navy: Senior civilian in the Navy and Marine Corps. The SECNAV reports directly to the Secretary of Defense.
SIPRNet	Secret Internet Protocol Router Network: Department of Defense information

	network that is separate from the unclassified internet and capable of hosting and transmitting material classified at the SECRET level.
SLA	Senior Language Authority: The senior authority for language programs designated for each service in the Department of Defense's Language Transformation Roadmap.
STA-21 (N)	Seaman-to-Admiral-21 (Nuclear): An enlisted commissioning program for sailors who intend to join the Nuclear Navy.
T&E	Training and Education
TAD	Temporary Active Duty: Duty (usually less than six months in duration) at a command other than a service members permanent duty station. For example, an officer assigned to the Naval Academy could be sent on TAD orders to the Naval War College for three months during the summer intersessional period.
TBS	The Basic School: A six-month professional training school in Quantico, Virginia attended by all Marines regardless of specialty after commissioning and prior to any specialized training.
TRACOM	Aviation Training Commands: Aviation commands responsible for training aviators (vice commands that are responsible for conducting flight operations).
TYCOM	Type Commander: The senior operational commander for a particular branch of service. Some TYCOMs are based in the Atlantic (for example, the Submarine Force TYCOM) while others are based in the Pacific (for example, the Surface and Air TYCOMs).
USNA	United States Naval Academy: Publicly-funded four-year residential military academy in Annapolis, Maryland. One of three main paths to earning a commission in the United States Navy or Marine Corps.
VADM	Vice Admiral: 3-star Navy flag officer rank.

Appendix 2: Selected References

a) Accreditation Board for Engineering and Technology (www.abet.org) Engineering Program Accreditation Review (2005).

b) ACDEANINST 5400.1 "Annual Reporting of Assessment Progress."

c) Attendance and Topics Discussed at Teaching and Learning Workshops 2004-2005.

d) AERG Letter to Faculty Roundtable Representatives (September 2005).

e) Cavalluzzo, Linda C. and Donald J. Cymrot. "A Bottom-Up Assessment of Navy Flagship Schools." Center for Naval Analyses (28 February 1997).

f) CNET Professional Core Competencies (PCCs) Manual (04 April 2001).

g) Curriculum 21 Review (June 1997).

h) "Dean's Guidance 16 November 2005: On Being Learning Focuses – No. 12" (USAFA).

i) Defense Language Transformation Roadmap (www.**defense**link.mil/news/Mar2005/d20050330**roadmap**.pdf).

j) "Definition and Purpose of the Core Curriculum" (Draft Report, October 2005).

k) Golde, Chris M. and Timothy M. Dore. "At Cross Purposes: What the Experiences of Today's Doctoral Students Reveal about Doctoral Education." Pew Charitable Trusts (2001) (http://www.phd-survey.org/report%20final.pdf).

l) List of Topic, Speakers, and Abstracts N-STAR/US Naval Academy Conference (September 2005).

m) Middle States Commission on Higher Education (www.msache.org) Academic Program Accreditation Review (December 2005).

n) Middle States Commission on Higher Education (www.msache.org) Academic Program Accreditation Review (2001) (www.usna.edu/MiddleStates).

o) National Survey of Student Engagement (NSSE) (http://www.indiana.edu/~nsse/).

p) NAVADMIN 044/05 "United States Naval Academy Graduate Education Plus Teaching Program."

q) Naval Total Force Strategy: Education Strategy – Predecisional (November 2005).

r) Options for Developing Regional and Language Expertise Among USNA Graduates (November 2005).

a) Parcell, Ann D. and Martha E. MacIlvaine. "Naval Flight Officer Attrition." Center for Naval Analyses (April 2005).

b) Parcell, Ann D. "Optimizing Officer Accession Sources." Center for Naval Analyses (October 2001).

s) Parcell, Ann D. with Apriel K. Hodari and Robert W. Shuford. "Predictors of Officer Success." Center for Naval Analyses (April 2003).

t) Secretary of Defense 2003 Summer Study: The Military Officer in 2030 (July 2003).

u) SECNAV Instruction 1531.2A – U.S. Naval Academy Curriculum and Admissions Policy (02 February 1996).

v) Secretary of Defense 2003 Summer Study: The Military Officer in 2030 (July 2003).

w) "Starting a Naval Revolution – Education and Learning: The Main Naval Battery for the 21st Century" (Draft Report, November 2004).

x) Superintendent's Letter to AERG Co-Chairs (15 April 2005).

y) Superintendent's Letter to AERG Co-Chairs (02 June 2005).

z) Superintendent's Letter to Academic Dean and Provost (18 January 2005).

aa) USNA Strategic Plan (http://www.usna.edu/StrategicPlan/StrategicPlan.html).

Appendix 3: Discussion Group Composition and Observations

Alumni Discussion Groups

Composition: Three groups (representing junior, mid-grade, and senior non-flag officers) were drawn from USNA and the Navy Staff; each included a mix of genders and majors and representatives from each of the 4 major Fleet warfare communities (surface, air, submarine, and Marine Corps).

Method & Substance: Six members of the AERG met with each of the three discussion groups for one-hour. During roundtable discussions, participants were asked to consider three basic questions: *what* specific Academy-imparted knowledge officer's found most (or least) useful later in their careers, *how* the way they think was (or was not) influenced by the Academy, and what they *wish* they had been exposed to during their time there (both in the sense of specific subject matter and in the sense of "approaches to problem solving").

Note: Discussion group participants did not represent a random or statistically relevant sample nor were they intended to do so.

Observations:

- Discussion group participants perceptions of the importance of the technical education at the Naval Academy appears to vary based on their warfare communities and career stage; in particular, several senior officers noted that while their technical education had been particularly important early in their career, they found themselves drawing more frequently on their humanities and social sciences backgrounds as they became more senior.

- Several participants suggested that there was a general perception that non-technical (and particularly professional) classes were "easier" than those in Group I or II and that this perception had proven true in their personal experiences.

- Discussion group participants frequently praised the Academy for teaching good "study and time management skills" and for helping them learn how to "remember and recall" facts. Participants were less likely to recall the Academy as a place where they developed higher-order skills like creative and critical thinking.

- Participants recalled many cases in which instruction they received at the Naval Academy lacked an apparent context and/or connection to the Fleet.

- Several participants argued that, in light of current and future Fleet needs, greater attention ought to be paid to providing effective cultural awareness and language studies.

Professional Military Professor (PMP) Discussion Group

Composition: One group (consisting of five PMPs) was drawn from the pool of PMP instructors currently assigned to the Naval Academy. One PMP represented each of the Academy's four academic divisions (engineering, math/sciences, humanities/social sciences, and leadership, ethics, and law) with the exception of Group I (engineering) which had two representatives. PMPs came from the surface, submarine, and aviation communities (the Marines do not currently have a PMP program).

Method & Substance: Eight members of the AERG met with the group for one hour. During roundtable discussions, participants were asked to consider 3 basic questions: *what* specific Academy-imparted knowledge officer's found most (or least) useful later in their careers, *how* the way they think was (or was not) influenced by the Academy, and what they *wish* they had been exposed to during their time there (both in the sense of specific subject matter and in the sense of 'approaches to problem solving'). In addition, they were asked to comment specifically on the role of the PMP at the Academy

Note: Discussion group participants did not represent a random or statistically relevant sample nor were they intended to do so.

Observations:

- Formative USNA experiences cited by discussants (rowing, brigade honor committee, summer training) typically did not involve academic endeavors.
- PMPs generally felt that what they brought to the Fleet was a sense of customs, traditions, and values (the underlying culture of the Navy).
- One PMP (an aviator) noted that NAVAIR feels PMPs belong to him but are "on loan" to USNA.
- Discussants felt they stood apart from their civilian academic counterparts in being "unwilling to cede the leadership mission to Bancroft Hall."
- Discussants all stressed importance of critical thinking and argued that it must be seen as a mode of teaching rather than a specific subject.
- Discussants believed that the non-PMP military academic faculty was of uneven quality and that it was important that mentor model and good training and guidance be provided. Their impression, however, was that efforts along these lines varied greatly between different departments.

Company Officer Discussion Group

Composition: One group (consisting of three representatives - a female Marine who had not participated in the LEAD program and who was in her 3rd year as a company officer, a male surface officer who had completed the LEAD program and was in his 1st year as a company officer, and a male surface officer who was still in the LEAD program) were drawn from the current pool of USNA Company Officers.

Method & Substance: One member of the AERG and two members of the AERG staff met with the group for 2.5 hours. No specific question set was distributed in advance.

Note: Discussion group participants did not represent a random or statistically relevant sample nor were they intended to do so.

Observations:

- Discussants viewed their responsibilities as supervising the daily routine of midshipmen within the context of the USNA mission (mentally, morally, and physically) and argued that their focus was on producing future division officers, not future admirals.

- Discussants argued that academics mattered but generally saw a 2.0 GPA as good enough given the many competing demands on the time of midshipmen (and on the time of their company officers).

- Discussants felt they were forced to juggle too many competing demands. The one discussant who had taught a full class as a company officer argued that this had had a significant negative impact on her performance as a company officer. If given the choice, she would not teach.

- Discussants reported that there was no formal means of collecting lessons learned or producing a doctrine of effective leadership in Bancroft; each company officer in effect re-invents the wheel.

- Discussants firmly believed that critical thinking skills were developed in Bancroft as well as in the academic classroom and felt that they (company officers) played a central role in shaping midshipmen into effective future combat leaders.

Appendix 4: TYCOM Surveys

Questions Posed in TYCOMs/TECOM Survey

- Are you satisfied with the academic preparation of the young officers entering the Naval Air Force?
- How well prepared are USNA graduates, as compared to other commissioning sources that provide junior officers to the Naval Air Force?
- From an educational perspective, in what ways are USNA graduates deficient? What do you believe it would take to correct those deficiencies?
- What additional academic preparation would be beneficial to the Naval Air Force?
- How would you gauge the Naval Academy's emphasis on the academic program with its professional education and training components?
- In what ways are line officers in general deficient in professional education and training? Do Naval Academy graduates share these deficiencies? If so, what professional education and training would you recommend that would better prepare officers for your community?
- How would you assess in general your officers' motivation for and attitude towards learning during initial training for your community? How would you compare USNA graduates relative to officers from other commissioning sources?
- Does an officer's academic major appear to affect his/her performance in your community?

TYCOM/TECOM Respondents and Inputs

CHIEF OF NAVAL PERSONNEL

- Chief of Naval Personnel (VADM Hoewing): No personal inputs; recommended that AERG meet with two members of his staff. The AERG met with RDML Jamie Barnett (see below) but was unable to meet with RDML (s) Scott Van Buskirk due to his deployment overseas.
- Director, Naval Education and Training Division, N17 (RDML Jamie Barnett): Met with the committee for 1-hr to present and discuss a pre-decisional draft of the Education Strategy component of the Navy's "Total Force Strategy" plan.

NAVAL SURFACE FORCES

- Commander, Naval Surface Force Pacific (VADM Terrance Etnyre): Provided summary memorandum and sample of actual 'raw' responses from survey of members of the Surface Fleet (no specific details on sample size or methodology).

NAVAL SUBMARINE FORCES

- Commander, Naval Submarine Force Atlantic (VADM Charles L. Munns): Provided highly detailed responses drawing upon extensive statistical analysis of current and historical data tracked by Naval Reactors (NR).

NAVAL AVIATION

- Commander, Naval Air Force Pacific (VADM J. M. Zortman): Provided summary memorandum based on personal impressions, informal survey of Naval Academy graduates who had recently completed their first sea tour, and a review of empirical evidence from recent studies of the comparative performance of Academy graduates in aviation programs.
- Chief of Naval Air Training (RADM George E. Mayer): Provided summary memorandum drawing upon inputs solicited from Training Wing commodores, Instructors, Students, and Staff.

MARINE CORPS

- Deputy Commandant for Manpower and Reserve Affairs (Lt. Gen. H. P. Osman): Presented brief personal impressions (no further details on methodology).
- Commander, Marine Training and Education Command (Maj. Gen. Thomas S. Jones): Provided summary memorandum based on informal survey of members of his command.

Responses - Submarine Force

ACADEMIC

By and large, USNA graduates are highly motivated, dedicated, and adequately prepared to succeed once they report to their first submarine, and compete very favorably with their peers from other accessions sources over the course of a submarine community career.

- Historical data shows that USNA graduates go on to serve as Department Heads, Executive Officer and Commanding Officer in roughly the same percentages as other commissioning sources following successful completion of NNPS.

- In 2004, 11 of the 16 Submarine Force Junior Officers of the Year were USNA graduates.

- USNA graduates are least likely to be relieved for cause during their department head tours. In the past 5 years, the breakdown for performance related early reliefs from various accessions sources is NROTC at 38%, STA-21(N) at 32%, NUPOC at 22%, and USNA at 8%.

- For the 3 current year groups of officers serving as CO's in the Submarine Force, approximately 1/3 (~34) are USNA graduates.

- However, in terms of retaining officers for a naval career, a recent trend shows USNA graduates are now *least likely* (relative to NROTC & NUPOC) to remain in the Navy until retirement eligible:

  - For the last three years, the 0 to 20-year cumulative continuation rates (CCR) are: USNA - 12.0% / NROTC - 12.3% / NUPOC - 13.9% (contrary to our 10-year historical data for the same time frame of USNA - 11.5% / NROTC - 8.0% / NUPOC - 10.7%).

- For USNA graduates in particular, there is a clear distinction in how academic majors perform in the Submarine Force. 358 USNA graduates from the year groups 1985-1987 (the cadre currently serving as COs) entered the submarine force. Of this cohort:

  - 326 graduated with technical degrees; 107 (33%) went on to serve as Department Heads, 47 (14%) went on to serve as Executive Officers, and 33 (10%) went on to serve as Commanding Officers.

  - 32 graduated with non-technical degrees; only 3 (9%) went on to serve as Department Heads, and just 1 (3%) went on to serve as an Executive Officer and Commanding Officer.

- *Moreover, there has been a negative and very troublesome trend in initial nuclear training pipeline performance among USNA graduates*:

  - USNA aggregate attrition from Naval Nuclear Power School (NNPS) has exceeded that of other accession sources over the past five years, and the disparity is growing. Specifically, USNA submarine selectees attrite at 6.0% of incoming year accessions while attrition from other sources has dropped to 1.1%.

  - Extensive and costly additional preparatory courses have been added to better prepare USNA graduates for NNPS. Without these additional courses, academic attrition would be even higher.

  - These results suggest that the technical skills required for success in the Nuclear Navy are not as robust in USNA graduates as in graduates from other commissioning sources.

- Specifically, USNA graduates without technical degrees are not adequately prepared to handle the rigorous technical course of instruction that is required in the NNPP training pipeline:
    - Non-technical USNA majors attrite at 4x the rate of engineering majors and represent nearly 50% of all NNPP pipeline attritions (vice 40.1% for non-engineering technical majors and 11.3% for engineers).
    - Furthermore, NNPP training pipeline performance indicates that the technical content of some of the non-engineering technical degrees, such as Computer Science and Math, is so diluted that their performance in the training pipeline is no better than non-technical degrees.
- As a result, the continued downward trend in the number of midshipmen with technical degrees (currently 57.2% vice the NNPP goal of 65%) is a particular concern for the Submarine Force. USNA would better serve the Submarine Force and NNPP if it were to:
    - Increase the number of students graduating with engineering degrees.
    - Require that non-technical and non-engineering technical majors take more engineering-oriented electives.
    - Consider instituting a system of rewarding midshipmen who are taking more challenging courses of instruction, and deterring those who opt for easier non-technical degrees.

PROFESSIONAL

- SUBMARINE CAPSTONE: USNA provides submarine selectees with one semester of professional development geared towards the Submarine Force in the Submarine Capstone Course.
    - This is more instruction than the other accession sources provide, and provides midshipmen with a feel for what is expected in a division officer.
- JPME: A more pressing military need that can be met at USNA is beginning to satisfy Joint Professional Military Education (JPME) requirements.
    - With regional conflicts in today's global environment, military operations have increasingly become joint-focused.
    - To better understand the concept of joint operations, these topics can be taught at USNA (and in the naval science courses for NROTC).
    - If joint education requirements can begin to be satisfied at USNA, this would better prepare our young officers to operate in a joint environment, and provide an earlier opportunity in their increasingly constrained career path to begin fulfilling joint education requirements.

Responses –Naval Aviation

ACADEMIC

- Technical skills and core academic fundamentals are exceptional.
- Effective written communication, however, is a weakness.
- All officers should be able to type effectively (most hunt-and-peck).
- All officers should have a working knowledge of Microsoft (MS) Power Point, MS Word, and MS Excel (many do not).
- Though academic major may have a bearing on the academic (ground school) portion of aviation training, it has little relevance to the pilot's airborne skills or his/her performance of a ground job in the Fleet.

PROFESSIONAL

- Midshipmen should gain a better understanding of:
    - Career progression in the aviation pipeline (including expectations at each career level, several years' worth of ADHSB and ACSB lessons-learned with examples, and the involvement of CO-level or major-command level reps).
    - Fitness report, enlisted evaluation, and point paper writing.
    - The Sailor's Creed (most young officers have never heard of it).
    - Military etiquette (e.g. the necessity of correcting those who don't salute).
    - Time management/organizational skills.
    - The joint community (rank structures, capabilities, requirements, etc.).
- Recognizes that as an accredited university, USNA cannot devote too much time to professional development; however, believes that the current summer training programs might be modified to include more of the professional development and training components ID'ed above.
- In regard to summer training, notes that there is a difference between preparing an officer for a career in Naval Aviation vs. preparing them to perform in flight school; argues that the current system is geared toward the former and that more impact on flight school performance might be achieved by scheduling mids exclusively for 'cruises' with TRACOMS where the focus could be shifting to the latter.
- Highly recommends that graduates be offered a pass/fail computer-based self-paced "Introduction to Flight" program that includes:
    - Fundamentals in aerodynamics.

  - Meteorology.
  - Basic instrument navigation.
  - Flight rules and regulations.

- Although a previous CNA study indicated that USNA graduates had a measurably lower flight school attrition rate than their ROTC and OCS counterparts, CNATRA believes that this may no longer be the case due to the new IRAD policy and associated high DOR rates for USNA graduates experienced during the past year.

- Though post-IRAD data has not yet been analyzed, command impression is that any initial advantage USNA alums may have in terms of acclimation to the disciplines of military life does not translate into stronger performance in training or in Fleet.

- Aside from the IRAD/DOR discussion above, officers' level of motivation and attitude towards learning during initial training in Naval Aviation is outstanding (however, this appears to be the case regardless of commissioning source).

Response – Surface Force

ACADEMIC

- Technical and professional skills are sound.
- Writing skills, however, are inadequate.
- There is no major difference between USNA graduates and their NROTC/OCS peers. In general, all officers are eager and ready to learn. However:
    - USNA graduates generally arrive with better initial knowledge in the areas of seamanship, naval history, and understanding, and
    - In contrast to USNA officers, some non-USNA, non-technical majors struggle initially with the technical aspects of their jobs and qualifications.
- Academically, regardless of commissioning source, officers need to develop better:
    - Writing skills.
    - Media relations.
    - Concern for the stewardship of resources.
    - Foreign language skills.

PROFESSIONAL

- Professionally, joint, combined and coalition warfare are the way the Navy will fight in the future. The pressure to broaden officers' experience in these areas cannot come too soon in their career. During a Midshipman's summer training, time could and should be designed to allow for more overseas or inter-service endeavors.

Responses - Marine Corps

ACADEMIC

- USNA grads generally well-prepared academically; however, regardless of commissioning source, written communication skills are inadequate and of concern.

- Recent improvements in the IT curriculum are noted and appreciated; further emphasis would be useful.

- There is a compelling need to embrace cultural studies and language skills; Corps intends to aggressively approach both cultural and language studies and "presently view culture with a 'BIG C' and language with 'little l.'" In the future, young officers are going to be assigned to a micro-region at TBS; therefore, it might be helpful to explore the possibility of embracing this growing requirement at the Academy.

- That said, though special training or knowledge in IT or cultural awareness is helpful, the Marine Corps expects they will have to provide much of that education once officers are in the Corps.

PROFESSIONAL

- Young officers from the Academy arrive "hungry to engage and anxious to lead." Motivation is outstanding and performance is generally on par or slightly ahead of their peers in the early stages of their careers.

- USNA grads appear better prepared to take on the rigors of TBS than do those entering via OCC and at roughly the same level of readiness as those entering via NROTC and/or the PLC route; however, by the conclusion of TBS, rough parity is seen across the board.

- USNA grads also generally demonstrate strength in regard to professional T&E relative to their peers, particularly those entering via OCC.

- Academic major generally does not have any impact at TBS. Aviators, however, note that engineering and math/science studies help prepare officers for the rigors of flight school.

Appendix 5: Faculty Roundtables

AERG Approach to Faculty Roundtables

In a letter sent to Division Heads and Department Chairs, the AERG asked Faculty members to consider a set of questions related to current USNA activities in the following areas:

- *Connecting the Core Curriculum to the Fleet*
- *Fostering and Assessing the Development of Critical and Creative Thinking*
- *Encouraging Effective Written and Oral Communications*
- *Developing Core Content and Ensuring Cross-Core Coordination of Core Courses*
- *Encouraging Teaching Excellence*

General Questions Considered by Faculty Reps

- How are core courses developed to be of use to a midshipman in his/her career in the Fleet?
- How are military and civilian faculty members integrated? How do civilian faculty members learn the intellectual requirements of a naval officer and how do they update that knowledge?
- How is critical and creative thinking taught in core and departmental classes?
- How is the development of effective written and oral communication skills promoted?
- What formal and informal mechanisms exist for insuring coordination across the core?
- Is there any course content that should be added to or could be removed from the core? From your departmental offerings?
- Are you satisfied with the current general organization of the core? If not, what would you like to see changed and why?
- What opportunities, if any, are midshipmen given for providing feedback to core (or departmental) course offerings, content and structure?
- What mechanisms, if any, exist to learn about significant curriculum changes at other elite universities and colleges, and to incorporate that information, where relevant, into ongoing assessments and reviews of the Naval Academy's curricula?
- How is 'teaching excellence' assessed, promoted recognized, and rewarded?

Observations from Group I Faculty Meeting

- Evaluation and mentorship of faculty vary across departments.
- Professional Core Competencies (PCCs) cited as basis for determining required elements of core curriculum classes in Group I.
- Informal Fleet interchanges occur with Naval Reactors (NR), Flight School, and the Marine Basic School at Quantico. In general, the relationship with the research community is much stronger than the relationship with the operational community.
- 5 years ago, engaged in major effort called "Technical Core Improvement Group"
- Currently, Group II and II majors take essentially the same technical core but Group I majors take a different set of classes. NOTE: The definition of which classes make up the Group I core seemed based on which classes covered the most PCCs rather than which classes were required of the most Engineering majors (for example, several mechanical engineering courses were required by as many majors as 'core classes' but were not considered part of the 'core.').
- IT elements have been incorporated into one of the required electrical engineering core courses but there is no required, dedicated networking or information assurance course.
- Representatives noted that students are required to select their majors (at the end of their first semester) before taking a single engineering course and expressed interest in an intro-to-engineering module.
- To address the unique needs of their courses, some departments have created their own textbooks. Others argue that this process is too expensive and time-consuming.
- Overall, the department has placed a great deal of emphasis on 1/c Capstone design projects to good effect.

Observations from Group II Faculty Meeting

- Several departments make extensive or partial use of nationally-developed (and nationally comparable) assessments of student knowledge to track trends in student performance across sections and relative to other institutions.

- Evaluation and mentorship of faculty vary across departments.

- Across the division there is a general movement away from purely lecture-driven seminars toward active learning and lab-intensive educational experiences.

- Most of the majors curriculums in Group II are 'vertically integrated' (i.e., later courses build on earlier work).

- There is a sense that the 'stream of feedback' from alumni and the Fleet on what is useful/needed is sporadic/unreliable.

- There is no 'Operations Research' major but there is an 'OR' track in the math department.

Observations from Group III Faculty Meeting

- Though some exceptions exist, the Humanities and Social Sciences Division as a whole does not currently have a good mechanism for gathering continuing feedback and interaction with the Fleet:
    - The officers on the faculty are fine, but have limited Fleet experience, and the qualities that the division's departments teach are more typically used by more senior officers.
    - This was reinforced in AERG focus group discussions where it was the more senior officers who noted the need for the sorts of skill sets that the Humanities and Social Sciences departments provide.
- Some departments see a direct conflict between academic freedom and encouraging a connection between the core curriculum and the Fleet.
    - One member noted, for example, that "there should be no difference between what or how I teach at the Naval Academy than there would be if I were teaching a similar course at Princeton."
- An emphasis on using history as a tool for teaching ethics appears to dominate the Department's approach to history, particularly in their two Western Civilization core courses.
- Many introductory English courses are designed to teach *either* composition *or* literature. USNA's core courses appear to attempt to include both.
- USNA input to the 2005 Defense Language Transformation Roadmap was minimal and the Language Studies Department and Academy administration are skeptical that the goals articulated in that document in regard to language proficiency are realistic or achievable.

Observations from Group IV Faculty Meeting

- Office of the Commandant oversees moral and professional development of midshipmen.

- Commandant works with the Dean to divide up time; believes the time currently devoted to professional development is about right. Sees the time-management challenge coming from 'enrichment activities': extracurricular activities, brigade support activities, clubs, speakers, academic field trips, symposiums, conferences, etc. NOTE: AERG member notes that unlike most civilian schools, some 'enrichment activities' at USNA were mandatory while others were voluntary.

- Seamanship and Navigation department argued that the Fleet Survey conducted for CURRICULUM 21 found that there had been an "erosion of midshipmen mastery of basic skills." Department traces this to students spending "too little time afloat."

- Seamanship and Navigation learning consists of about 20% education and 80% training.

- AERG members expressed concern that training was focused on the skills of the surface navy – what about aviators? Department responded that surface skills are relevant because the Navy fights from the sea.

- New data collection survey initiatives (e.g. "ProDev Career Interest Surveys") were discussed.

- Leadership Ethics Law and Character (LELC) Department discussed evolution of Moral Reasoning core class, noting that the leadership curriculum has been subjected to comprehensive reviews on an almost annual basis for past decade. In general, this was seen as a good thing that had helped to fine tune to the program.

- LELC Department discussed their proposal for a new Leadership/Human Behavior Major (or Minor).

- AERG members expressed concern that Office of the Commandant – and Bancroft Hall in particular – did not have a clear and formal way of assessing how they were doing (at least not in the same sense as most of the academic departments did).