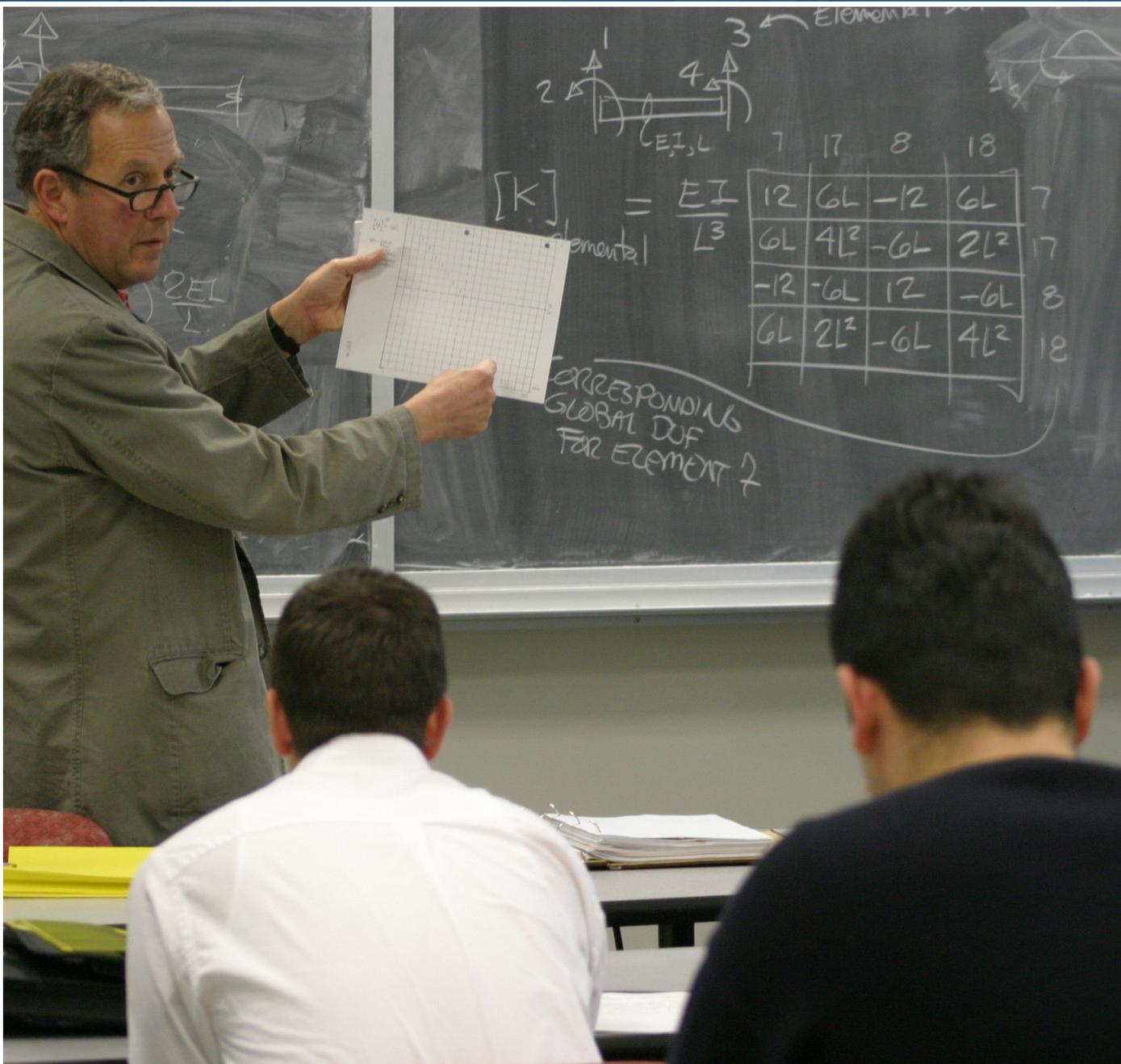


EDUCATIONAL EFFECTIVENESS REVIEW

WESTERN ASSOCIATION OF SCHOOLS AND COLLEGES

NAVAL POSTGRADUATE SCHOOL



100 YEARS OF RELEVANCE AND EXCELLENCE
EDUCATION AND RESEARCH SERVING NATIONAL SECURITY



EDUCATIONAL EFFECTIVENESS REVIEW

AUGUST 2010



NAVAL POSTGRADUATE SCHOOL

100 YEARS OF RELEVANCE AND EXCELLENCE:
EDUCATION AND RESEARCH SERVING NATIONAL SECURITY

MISSION

NPS provides high-quality, relevant and unique advanced education and research programs that increase the combat effectiveness of the Naval Services, other Armed Forces of the United States and our partners, to enhance our national security.

VISION

As a naval/defense-oriented research university, the Naval Postgraduate School will operate as a geographically distributed educational system that provides a broad range of high-quality graduate education in support of national and international security.

EDUCATIONAL EFFECTIVENESS REVIEW

Submitted to The Senior Commission of the Western Association for Schools and Colleges

Table of Contents

I.	Introduction	1
II.	Theme One: Strategic Planning for the Next Century	2
	Institutional Strategic Plan: <i>Vision for a New Century</i>	2
	Overview	2
	Naval Inspector General Review	3
	Peer Analysis Study	4
	Academic Quality Metrics	4
	Academic Program Review.....	4
	Planning and Budgeting.....	5
	Space Allocation and Planning	5
	Institutional Advancement: Expanding NPS Visibility	6
	Overview.....	6
	Alumni Relations	6
	Marketing, Media and Community Relations.....	7
	Photography and Videography.....	7
	Print Communications/Publications.....	8
	Web-based Communications.....	8
	Linking Planning with Actions: Institutional Examples	9
	Increasing Relevance in Foreign Area Officer Education.....	9
	Building Capacity in High-Performance Computing	9
	Free Electron Laser and Segmented Mirror Telescope	10
	NPS Visibility in the National Capitol Region	10
	Expanding Ph.D. Enrollments.....	11
	Linking Planning with Actions: Programmatic Examples	11
	Moving to the Open Source Community	11
	Moving from Classroom to Innovative Learning Spaces	12
	Cybersecurity	12
	Critical Infrastructure Protection	13
	Establishing Partnerships to Increase Educational Opportunities	13
	Conclusion	14
III.	Theme Two: Integrating a Campus-Wide Program of Improvement	14
	Promoting Educational Effectiveness through Continuous Improvement in Academic Programs	14

	Academic Programs – Organization and Formal Review Processes	16
	Curriculum Review	17
	Academic Program Review.....	18
	New Program Review	18
	Organizing for Educational Effectiveness – the EESG	18
	Focus Areas – Campus EE Programs and Initiatives	20
	NPS Review and Assessment Program.....	20
	NPS Academic Measures and Metrics Program	22
	Extending Direct Assessments — The Capstone Initiative	24
	Student Engagement Initiative.....	26
	Leveraging Professional Accreditation Practices Across the Campus.....	28
	Promoting Excellence in Teaching to Advance Learning – The PETAL Program	30
	Distance Learning Education at NPS – Same Quality, Delivered Worldwide.....	32
	Conclusion	35
IV.	Theme Three: Supporting an Evolving Academic Enterprise	35
	Prior Studies	35
	Kuali Financial System (KFS)	37
	Administrative Reorganization	38
	FY10 and FY11 Resource Allocation Processes	38
	Space Allocation and Planning	40
	Strategic Planning Metrics, Self-Benchmarking and Discovery Process with Peer Institutions	40
	Information Technology and Communications Services	40
	Institutional Advancement	41
	Dudley Knox Library.....	42
	Customer Satisfaction	42
	Conclusion	44
V.	Concluding Thoughts: Examining the Educational Effectiveness Process	45

I. INTRODUCTION

With this submission to the Senior Commission of the Western Association for Schools and Colleges (WASC), the Naval Postgraduate School (NPS) reports on the final stage of reaccreditation, the Educational Effectiveness Review (EER). This reaccreditation effort began in 2006 with submission of the *NPS Proposal*. The second stage, *Capacity and Preparatory Review* (CPR) consisted of a *CPR Report*, submitted in December 2008 and a subsequent site visit in March 2009.

The *EER Report* is arranged around three themes first described in the *NPS Proposal*:

- One: Strategic Planning for the Next Century
- Two: Integrating a Campus-Wide Program of Improvement
- Three: Supporting an Evolving Academic Enterprise

These same themes were also used to organize the *CPR Report*, with a focus on operational systems and support for each of these areas. For the *EER Report*, the focus shifts to reviewing and analyzing results of the organization's efforts to achieve its educational objectives.

THEME ONE: STRATEGIC PLANNING FOR THE NEXT CENTURY

Strategic planning has been ongoing at NPS for several years and most recently culminating with publication of a new strategic plan (*Vision for a New Century*) in 2008 and quarterly meetings of the Strategic Planning Council since 2009. The history of planning efforts was completely described in the *CPR Report*. Following the March 2009 visit, a faculty committee (see Appendix 4 for list of committee members) began review of the results. The Theme One chapter details the committee's analysis.

THEME TWO: INTEGRATING A CAMPUS-WIDE PROGRAM OF IMPROVEMENT

Well before the CPR visit, NPS initiated efforts aimed at preparing for the EER. Preliminary meetings began in March

2008 with official establishment in January 2009 of the Educational Effectiveness Steering Group (EESG). Since that time, the EESG has acted both to provide leadership and coordination for the upcoming visit and to serve as an advisory committee to the campus on educational effectiveness activities and practices.

Theme Two is the heart of the *EER Report*. Its focus is on assessment of student learning outcomes, curricula and program review, and faculty development. Throughout the past year and a half, the EESG has collected data and evidence regarding assessment processes at NPS, made recommendations for improvements and has overseen an increased effort to document activities already adopted. This section highlights the committee's view of current practices and future directions for this area.

THEME THREE: SUPPORTING AN EVOLVING ACADEMIC ENTERPRISE

Assessing the ability of support services to meet institutional requirements during a time of expansion in educational and research programs was the task of the Theme Three faculty working group. To provide information and feedback on support services, a Customer Satisfaction survey was issued in 2009. Data from that survey were supplemented by faculty and staff focus groups convened in 2010. Results of these data collection efforts were analyzed by the faculty working group and their evaluation and recommendations form the basis for this section.

Following the theme chapters is *Examining the Educational Effectiveness Process*. This chapter forms the integrative element required by the current *WASC Handbook* and provides an overview of the impact that the accreditation process and the EER has had on the campus. A discussion on the importance of sustainability of these efforts is also included.

Finally, the report contains a number of appendices:

- *Appendix 1* lists each recommendation from the visiting WASC CPR team's report and the NPS response.

Many of these recommendations are addressed more fully within the theme chapters, but this appendix provides a general summary of responses.

- *Appendix 2* is the electronic data portfolio and two inventories required by WASC: the Summary Data Form, the *Inventory of Educational Effectiveness Indicators*; and the *Inventory of Concurrent Accreditation and Key Performance Indicators*.
- *Appendix 3* addresses changes in Criteria for Review (CFR) recently introduced by WASC in its *Standards of Accreditation*. Included in this section is WASC's *Table A* (provided 7/17/08), which lists each of 21 CFR modifications and a set of self-assessment queries. These queries are addressed by focusing on current campus plans or proposed actions to align practices and policies with the revised criteria. This appendix also addresses three topics that WASC recently added to its "Institutional Review Process." Included here is WASC's *Table B* (also provided 7/17/08), which lists the new topics (i.e., "Student Success," "Program Reviews," and "Sustainability of Effectiveness Plans") and poses institutional questions for each. Evidence from this report and/or the *CPR Report* is cited as answers

for these questions.

- *Appendix 4* lists the membership of the NPS Accreditation Steering Committee and members of each theme's Task Force.
- *Appendix 5* provides a copy of all references, to documents, data and web sites cited within the text.

About this Report:

References to documents in support of the text are identified by a number in parenthesis ().

References to Criteria for Review (CFR) are noted within brackets [] as appropriate. The theme one section of this report provides a brief overview of how NPS developed its strategic plan with special emphasis given to actions taken since submitting the *CPR Report*. Highlights of this development include a very positive external review of the NPS strategic planning process by the Naval Inspector General, development and implementation of new academic quality metrics, and budgeting and space allocation linked more fully with strategic initiatives. This section also summarizes many efforts to expand NPS visibility and describes several new initiatives that are aligned with the strategic plan.

II. THEME ONE: STRATEGIC PLANNING FOR THE NEXT CENTURY

INSTITUTIONAL STRATEGIC PLAN: VISION FOR A NEW CENTURY

Overview

The NPS Strategic Plan, *Vision for a New Century*, was developed over a two-year period (2006-2007). This development effort incorporates findings from accreditation reviews, key objectives for national security strategies, as well as the relevancy of stated educational and research outcomes to the

defense mission [CFR 1.2, 4.1, 4.2].

The plan has four goals:

- 1) To sustain continuous improvement in the quality and relevance of our graduate education and research programs;
- 2) To extend education to the total force and to our global partners;
- 3) To broaden research in national security;

- 4) To seek operational excellence in financial, business, administrative and support areas.

Vision for a New Century was informed through two internal initiatives:

- 1) An assessment that was undertaken by the Executive Council asking each major division within the university to present its most important issues;
- 2) A survey that was distributed to all faculty and staff requesting individual responses to questions on strengths, weaknesses, opportunities and threats (SWOT).

The NPS WASC Steering Committee compiled and reviewed data from that survey [CFR 4.3, 4.5]. A small team developed an initial draft strategic plan for review by the campus community. The draft was eventually finalized through dynamic campus conversations and resulted in a distillation of the unique mission and priorities of NPS as a flagship educational institution. The plan was finalized in 2008, culminating in endorsement by the campus, the Board of Advisors, the Secretary of the Navy, the Chief of Naval Operations, and the Advanced Education Review Board (the Navy's bi-annual higher education review body). The plan frames academic planning and resource allocation, and continues to be informed by periodic assessment of institutional processes and programs [CFR 1.2, 4.2].

The Strategic Planning Council (SPC), a group formed by the President and Executive Vice President/Provost (EVP) in 2008, is comprised of administration and faculty representatives [CFR 1.2, 4.2]. The SPC meets quarterly to review strategic plan implementation and any emerging or changing institutional priorities and/or resources. Institutional metrics, updated each year, were developed to provide measures of progress. The President or Executive Vice President/Provost meet with leaders of each of the areas annually to provide opportunity for one-on-one discussions of progress. Each year a day-long, off-site SPC meeting is held to allow in-depth review and discussion of plan progress; three such meetings have been held to date. All SPC meeting summa-

“The Naval Postgraduate School’s strategic planning process provides an important blueprint for the institution’s future, and clearly shows its aspirations for continued academic excellence and responsiveness to the Navy’s requirements.”

Vice Adm. Mark Ferguson
Deputy Chief of Naval Operations
Manpower, Personnel,
Training and Education

ries are provided on a common internal web site to permit tracking of SPC agenda items, obstacles to progress, and any changes in contextual conditions that might affect plan progress.

To ensure alignment of institutional processes with strategic plan goals, each major administrative and academic area was asked to develop strategic plans and concomitant metrics. For example, the School of International Graduate Studies (SIGS) conducted a full day, off-site strategic planning meeting with its senior stakeholders to engage in a SWOT analysis of departments and the School and to draft its strategic plan. They reviewed the School vision, discussed challenges and opportunities for achieving that vision and for improving programs and intra-School operations.

Naval Inspector General Review

In addition to the institutional self-study undertaken for accreditation and strategic planning purposes, the Naval Inspector General conducted a comprehensive review of the institution in August 2009, covering everything from mission definition, compliance with regulations, effectiveness of support services, [CFR 2.13] and strategic planning. The previous report was completed in 1999 and a number of areas were identified for improvement. The 2009 final report was a gratifying endorsement of NPS’ improvement efforts in those and other areas. The report commended the strategic

planning process in particular as a model the Department of Navy (DoN) should consider adopting. “NPS has a robust strategic planning process that is, in our opinion, a model process.” (1).

“NPS has a robust strategic planning process that is, in our opinion, a model process.”

Vice Adm. Anthony L. Winns
Naval Inspector General

Peer Analysis Study

In direct support of NPS strategic planning goals one and four, a study was commissioned in 2008 to determine appropriate peer institutions, and to provide macro-level measures of comparability and tracking relative to institutional progress within a context of peer institutions. In addition, several schools, for example SIGS and the Graduate School of Business and Public Policy (GSBPP), have conducted their own studies to determine appropriate peer and aspirant institutions. The Integrated Postsecondary Education System (IPEDS) of the National Center for Education Statistics was the source of much of the data used in the study. Some additional data were collected from the *U.S. News and World Report* online edition of *Best Graduate Schools*.

The study (2) identified 15 institutions that are appropriate for NPS to use as comparison universities. Student, staff and faculty profile information was provided as well as information about facilities, finance, and research activity. In addition, a variety of ratios were provided in the areas of staffing, financial, research, and facilities. The peer analysis data, compared against NPS metrics, have been used to identify areas for further review. For example, salaries for full professors are among the lowest of 15 peers. While salaries at NPS are capped by federal regulations, other avenues are being explored to further compensate senior faculty such as Distinguished Faculty and Chair stipends. Similarly, as discussed in

more detail below, facilities data from the study led to efforts at NPS to better inventory and account for its usage of space.

Academic Quality Metrics

Academic quality is an important theme permeating the NPS strategic plan and central to goal one. The EVP and Deans worked together to develop a common set of metrics to assess academic quality. Because metrics are difficult to collect through self-reporting mechanisms and individual inquiries to peer institutions, another benchmarking study was commissioned and completed in 2009 (3). All data were collected through publicly available sources using web-crawling tools as well as through subscriptions with large database services. The data provided included faculty scholarship, external funding, and citation activity, all valuable to track NPS progress over time. In addition, the study results are being used to define peers at the program level utilized during academic program review to identify appropriate external reviewers.

With regard to scholarship, data on journal publications, citations, books (academic and commercial press sources), research grants, and awards (nearly 2,500 award categories) were collected. All data are externally available and do not rely on faculty self-reporting. Nearly 200,000 faculty members are included in the search, representing almost 400 colleges and universities.

While the study defines individual faculty member activity as the unit of analysis, the data are aggregated by program. As NPS works to gain recognition for its research programs, these academic quality measures will be used to identify how often faculty are cited – a measure of reputation and impact — and to evaluate how NPS programs compare to national medians in grants, awards, publications and citations.

Academic Program Review

A new Academic Program Review process was established in 2007; the Computer Science department was first to be reviewed. [CFR 2.7] Three reviews were completed in 2009

“Keeping our strategic plan current and relevant is driven by establishing a peer group of institutions and developing a series of performance metrics that are monitored on an ongoing basis. Tracking our progress over time creates a sense of momentum that keeps our institution focused on our plan goals.”

Daniel T. Oliver
President
Naval Postgraduate School

(Physics, National Security Affairs, and Oceanography) and three are planned for 2010 (Meteorology, Mathematics, and Defense Analysis). While this process is described in greater detail under theme two, it is important to reference this process as an integral element of institutional strategic planning. For example, external review of SIGS' National Security Affairs department showed that “the caliber of both the faculty and the program is impressively high.” It recommended, however, careful strategic planning regarding faculty workload to ensure that the department continues to excel at NPS' mission of top-tier national security graduate education and research. The issue of faculty workload, a focus of SIGS most recent strategic planning off-site meeting, is being incorporated into the School's and National Security Affairs Department's strategic planning.

Planning and Budgeting

To support the School's fourth strategic planning goal, a new planning and budgeting process was established for fiscal year 2010 (4) which serves as a bellwether of actual requirements and future needs relative to plan goals. From this, a fuller picture of resources needed to accelerate progress to achieving plan goals also emerged. Whereas the institution had to accept a \$4.4 million budget cut this year, the process presented more relevant information about how to imple-

ment those cuts. A complete description of NPS funding is described in the *CPR Report*, page 14 (5).

A new Resource Planning and Management Office is being established for fiscal year 2011 that will more fully institutionalize the budgeting process and align resources with strategic planning. Departments will submit budget plans annually that will incorporate all ongoing funds and plan reviews will include alignment with NPS and unit strategic plan goals and objectives. A number of areas submit end-of-year expenditure reports with documentation of accomplishments/impact, with pre-determined metrics used to help define accomplishments. This process is being institutionalized throughout the university, and end-of-year reports will also be used to assess changes in conditions that should be used to recalibrate resource allocation for the subsequent year.

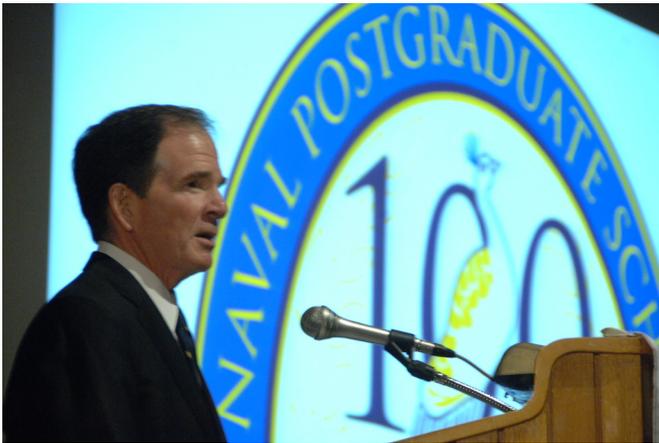
“External review is the cornerstone of American higher education. At the Naval Postgraduate School, we value continued external review through curricular and academic program review.”

Dr. Leonard Ferrari
Executive Vice President
and Provost
Naval Postgraduate School

Space Allocation and Planning

Space allocation and integration with strategic planning has been uneven in previous years but is key to all four strategic planning goals. In 2009, a firm was engaged to develop a space inventory tool and guidelines for space allocation decisions (6).

The Peer Analysis Study provided facilities information on nine of 15 institutions defined as appropriate comparisons for NPS. This information was part of the Society of College and University Planning multi-year study on facilities and



those data are now being used to benchmark NPS with the nine institutions for which data are available.

The space assessment study concluded that while there is some modest amount of underutilized space on campus, there is not enough space to meet future needs if teaching and research activity growth continues at the current trajectory. Space management remains a critical issue, particularly for schools such as SIGS that have experienced increases in student numbers, faculty, and research funding with almost no change in their allocation of space on campus. The benchmarking exercise will help to inform space planning. Space allocation has been centralized under the EVP as NPS reassigns existing space to its highest priorities.

INSTITUTIONAL ADVANCEMENT: EXPANDING NPS VISIBILITY

Overview

Communication is central to helping NPS obtain resources needed to advance its strategic plan. In January 2007, Institutional Advancement (IA) became part of the directorate of Information Resources, headed by the Vice President for Information Resources and Chief Information Officer (CIO). The strategic direction for Institutional Advancement was to:

- 1) Increase numbers and types of advancement publications and multimedia products;
- 2) Increase NPS name recognition in the defense, contractor and international, national and homeland security arenas;

- 3) Create an office organization in line with those of other research universities.

This direction resulted from feedback from both external and internal constituents that NPS was not well known within the Department of Defense (DoD), resulting in increased difficulties maintaining and finding new funding. Further evidence of this lack of visibility occurred during the 2005 Base Realignment and Closure (BRAC) process, which found NPS considered for closure in part due to a lack of understanding in the DoN of the institution's function in both research and graduate education. Prior to 2007, advancement consisted primarily of public affairs and was inconsistently supported by leadership. Since 2007, advancement has been supplemented to include all areas typically found in a research institution with the exception of fund-raising which is prohibited by the federal law governing NPS.

Institutional Advancement consists of alumni relations and communications including media and community relations, publications, videography, photography and Internet. In 2009, the Protocol Office was placed under Institutional Advancement to improve coordination of important campus events, visits, calendaring of events and communications databases.

Alumni Relations

Alumni Relations has the responsibility to keep alumni current about NPS and to engage them in the life of the campus. Alumni engagement has included participation in alumni events, reunion weekends, Centennial events, participation in the online alumni community, and making relevant campus publications and communications available to alumni. In addition, the Office of Institutional Research routinely surveys alumni cohorts about the impact of their NPS education. Alumni Relations also works with the NPS Foundation to support its efforts.

Recent accomplishments include:

- Centennial celebration including year-long calendar of events, tours, open houses, lectures, etc. (7)

- Online Alumni Community – 5,000 members added since 2007
- Alumni access to library databases in association with Dudley Knox Library – more than 1,400 participants
- Creation of NPS merchandise in association with NPS Foundation - approximately \$35,000 sold last year
- Alumni events after each NPS graduation – 1,200 annually at four events
- Hall of Fame and Distinguished Alumni awards
- Alumni events in San Diego, Annapolis, Washington D.C., etc.
- Attendance and staffing booths at major naval and technical conferences: Armed Forces Communications and Electronics Association, National Helicopter Association, Tailhook, etc.

Marketing, Media and Community Relations

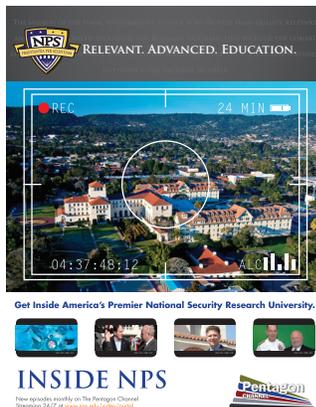
Marketing, Media and Community Relations promotes NPS through local, national, DoD and DoN media. Media relations is responsible for assisting faculty with media contacts, seeking new venues for articles about NPS and working with Navy public affairs. Community Relations supports ongoing development of partnerships with other DoD, higher education and research institutions as well as government agencies located within the Monterey Bay area, strengthening relationships between NPS and residents of the peninsula.

Recent accomplishments include:

- Development of a NPS brand and production of presentation materials, letterhead, electronic templates, etc.
- Design of conference booth displays
- National media campaign: newspaper (46 articles), television (25 interviews) and radio (18 interviews) in 2009; also 20 Internet posts and 8 magazine articles/interviews

“The Naval Postgraduate School is the anchor for our advanced education in the Navy, and in many ways the military ... The exchange of ideas, the exposure to a broader perspective, to technology and research, is absolutely vital for our young officers, both ours as well as the international officers who are here ... It taught me how to frame very difficult problems, how to look at big challenges in different ways ... It was the total experience that taught me what education was all about.”

Adm. Michael Mullen
Chairman, Joint Chiefs of Staff
NPS Alumni 1985



- Regular mailings to government officials and flag officers of all services
- Increased communication with local government and higher education officials through local Chamber of Commerce and Monterey County initiatives
- Annual community event: Concert on the Lawn (2,000 to 3,000 attendees)

Photography and Videography

Photography and Videography covers special events related to communications and publications.

Recent accomplishments include:

- Monthly Pentagon Channel program broadcast to one million DoD viewers (8)
- Consistent cycling of new photographs highlighting faculty research posted on Internet and Intranet
- Video interviews with important campus visitors (<http://www.nps.edu/video/portal>)
- NPS video and command brief distributed to government, military and higher education leaders, and posted on Internet (<http://www.nps.edu/About/Publications/NPSpublications.html>)

Print Communications/Publications

Print Communications/Publications include production and distribution of the quarterly magazine *In Review*, the NPS *Annual Report*, the monthly campus newspaper *Update NPS*, the *National Security News*, as well as a range of specialty/media items.

Recent accomplishments include:

- Professionalization of all publications in graphics design and printing quality (9)
- Quarterly magazine *In Review*, revamped in 2009 and put on a regular quarterly production schedule; distributed to 1,000 military, government and higher education leaders quarterly and twice yearly to all registered with the Alumni Online Community; posted on the Internet (10)
- Monthly campus newspaper, *Update NPS* (11)
- Auxiliary materials including *Fact Book at a Glance*, *Fact Sheet*, brochures, programs, etc. (<http://www.nps.edu/About/index.html>)
- *Viewbook*
- Submissions to NavNews and other military journals and news sites; postings average two per month

Web-based Communications

Web-based Communications includes both Internet and Intranet, and managerial tasks related to campus-wide implementation of the Web Content Management project, including updates of sites and links and content control for campus schools, centers, institutes and departments.

Recent accomplishments include:

- Implementation of new Web Content Management system with re-designed home page together with the hiring of a Web Content Manager
- Creation/maintenance of over 50 pages of general NPS information on the Internet
- Increased focus on campus events and accomplishments, and faculty research
- Required keywords on all web pages resulting in greater pick-up by search engines (e.g. Google)
- Establishment of NPS presence on social networking sites including Twitter, Facebook, LinkedIn
- Creation/maintenance of news media page as a one-stop location for key stories and video links



LINKING PLANNING WITH ACTIONS: INSTITUTIONAL EXAMPLES

Increasing Relevance in Foreign Area Officer Education

Goals one and two of *Vision for a New Century* state that the university's mission is to provide high-quality graduate education that is relevant and responsive to rapid changes in national security and available in geographically distributed locations. [CFR 2.7] Recognizing that a pressing need of the DoD in the current security environment is to create and sustain a growing cadre of Foreign Area Officers (FAOs) — military officers educated in politics, economics, languages and cultures of foreign countries — SIGS worked with the DoN and the Air Force to revamp FAO education to incorporate in-country cultural immersion and language acquisition, thereby substantially increasing the quality, value and impact of NPS educational programs for national security. SIGS also worked with the DoD to create the Joint Foreign Area Officer Skill Sustainment Pilot Program (JFSSPP) to retain the educational skill base of current FAOs stationed abroad and to improve education of FAOs in residence at NPS. The JFSSPP includes FAOweb, an online portal that provides sustainment skills made up of distance learning modules, language courses, and a range of professional networking features that allow FAOs across the globe and across the four services — Army, Navy, Air Force and Ma-



rines — to connect on many different levels. FAOs stationed in Afghanistan and Pakistan requested early access to the site to share lessons learned and best practices among FAOs in those countries and to help prepare those due to arrive in the Afghanistan-Pakistan region.

Building Capacity in High-Performance Computing

The new Information Technology Strategic Plan, *Advancing the Mission*, identified a need to establish centralized campus resources in high-performance computing (HPC) in support of *Vision for a New Century*. [CFR 3.7] While individual faculty members often are able to acquire smaller-scale HPC equipment through research grants, this equipment often is not available as an institutional resource to other faculty members or students. As a result, the IT Task Force, an advisory body to the Vice President for Information Resources and CIO that is representative of all major administrative and academic units and campus constituent groups, recommended that the institution establish a university HPC resource. The Executive Vice President/Provost agreed to participate in discussions with industry representatives to explore how such an effort might be undertaken. With the Vice President for Research and the Vice President of Information Resources and CIO, a plan was developed to acquire a major HPC cluster.

Since HPC was recognized through the planning process as an important priority for the campus, resources were identified and space was allocated quickly. The supercomputer was installed in early 2009 and a public ceremony celebrated the event. This expanded HPC capacity also served as a catalyst for faculty members with smaller HPC clusters to request centralized housing and maintenance of their equipment, providing an opportunity to save on electrical and cooling costs, as well as staffing.

“The 10.7 teraflop Sun cluster is an important first step in establishing high performance computing capacity at NPS. High performance computing is a crucial element in the NPS research program - assisting recruitment of world-class faculty, applications for competitive grants, and providing our students with leading edge technologies as part of their educational experience at NPS.”

Dr. Karl Van Bibber
Vice President and Dean of Research
Naval Postgraduate School



Free Electron Laser and Segmented Mirror Telescope

In support of NPS strategic goals, NPS faculty members pursue cutting-edge technologies that support both faculty-student research and DoD priorities. The Physics Department recently acquired Stanford University’s Free Electron Laser (FEL). Research initiatives will study physical fundamentals and test the effectiveness of the FEL as a precursor to development of DoD directed energy weapons. The Department of Mechanical and Aerospace Engineering acquired a Segmented Mirror Telescope from the National Reconnaissance Office. The Spacecraft Research and Design Center

will house this state-of-the-art laboratory where faculty and students will pursue hands-on investigations of engineering principles and design applications that support DoD requirements for future development of imaging telescope technology.

NPS Visibility in the National Capitol Region

The CPR Report recommended that NPS take action so the institution is not “the best kept secret.” As NPS celebrates its Centennial year, it is more important than ever that institutional visibility is leveraged in the most effective way possible. An entire program of events was developed for the Centennial, with a campus kick-off weekend in May 2009. However, since so many of NPS stakeholders and sponsors are located in Washington, D.C., this area was targeted for specific attention as well. Two events were planned to coincide with the fall Board of Advisors meetings which is normally held in Washington, D.C. The NPS Centennial outreach event was held all day at the Office of Naval Research, the same location as the NPS Board of Advisors meeting. Along with general information about NPS, over 20 faculty and students featured their research projects at the showcase. Invited guests included research and education program sponsors.

A second event was held on the last day of the Board of Advisors meeting and included a reception at the Army Navy Country Club, and featured the same poster showcase with faculty and students. The event was hosted by the Chief of Naval Operations and was extremely well attended by DoD leaders, international defense ministry representatives, fed-



eral agency leaders, and alumni. The event itself, as well as many photographs, video clips, and articles written about it, provided a rich opportunity to showcase NPS academic strengths to sponsors and stakeholders who may not have the opportunity to travel to Monterey.

Expanding Ph.D. Enrollments

Vision for a New Century calls for increasing Ph.D. enrollments as part of an overall strategy to enhance NPS' basic research programs and capabilities and to meet national needs for doctoral education in critical USN and DoD areas. Deans and faculty leaders came together to brainstorm how this initiative might be accelerated without hindering the institution's core master's level education program. Several recommendations were made and acted upon immediately:

- Fellowships for the multi-institutional National Security Institute (NPS, University of California-Santa Barbara, Lawrence Livermore National Laboratory) were developed
- A new research assistant work-study program was established (12)
- The DoN needs officers with significant academic expertise in security studies through a multi-disciplinary course of study based upon the traditional disciplinary fields of Political Science, History, and Economics, so a new Ph.D. program in National Security Affairs was developed.



torates awarded per year has grown from seven to 20 in the same time period. Expansion of enrollments at this level has a number of positive consequences for building academic quality: recruitment and retention of world-class faculty members, giving faculty members the opportunity to teach doctoral level students and work on research projects, allowing master's level students to interact with doctoral students and perhaps collaborate on research projects, and expanding the academic visibility of NPS as a doctoral institution.

LINKING PLANNING WITH ACTIONS: PROGRAMMATIC EXAMPLES

Moving to the Open Source Community

In the IT Strategic Plan, *Advancing the Mission*, the campus is urged to move away from proprietary vendor solutions and engage the open source community in support of NPS strategic planning goal four. [CFR 3.7] This recommendation was based on increasingly high costs of vendor licenses and software and the inflexibility of many proprietary products. The IT Task Force, which oversaw development of the IT Strategic Plan, saw many benefits in open source products, both in academic and administrative technology arenas. [CFR 3.11] While a number of actions were taken, the move to an open source learning management system is of particular relevance for the NPS strategic plan's goal of expanding outreach. The current proprietary learning management system is extremely costly and complex to maintain with regard to distance learning requirements.

An eight-member faculty committee was established to rec-

“Increasing Ph.D. enrollments is one of the single most important initiatives an institution can undertake to build academic quality.”

Dr. Karl Van Bibber
Vice President and Dean of Research
Naval Postgraduate School

As a result, from 2006 through 2009, Ph.D. enrollments at NPS have grown from 43 to 71, and the number of doc-



commend a more effective online collaborative learning space that offered NPS faculty a wide range of course-building and collaboration tools. [CFR 3.11] The group recommended an open source solution which will save the institution approximately \$295,000 (current cost of the learning management system) annually, and permit a more scalable and responsive learning management system for the future. The system requires no licensing costs and supports a number of initiatives previously not supported (e.g. non-traditional “classes” such as research sites, project sites, short courses, cross-institutional classes and projects). In addition, professors can grant guests access into the system and generally have more say in the types of tools they can use (96 different tools are available and can be changed at any time because they are all open source). The system will be more responsive since it will be hosted locally, and has the capability of supporting alumni access.

Transition to the new learning management system will be completed by the end of 2010 and will integrate with the student information system and provide seamless support of student academic progress and course learning. Early user satisfaction surveys show that close to 90 percent of students and all faculty early adopters prefer the open source system to the legacy system.

Moving from Classroom to Innovative Learning Spaces

NPS faculty members are early and enthusiastic adopters of educational technology tools and provide ongoing guidance

to Information Technology and Communication Services (ITACS) staff about improving support of education. [CFR 3.7] Recently, a partnership between ITACS and an academic department, Operations Research, resulted in an innovative design of an experimental learning space based on a model that was developed at MIT several years ago. The pilot space is called Technology Enhanced Active Learning (TEAL), and reconfigures conventional classroom space to provide round tables to encourage discussion, multiple collaborative technology systems to promote working on problems in groups during traditional classroom time, and high-speed internet connectivity to access global educational resources, including video-conferencing. The room is designed to take advantage of peer teaching and collaboration experiences for knowledge creation. The new learning space was completed in January 2010 and is a good example of an effective partnership between an academic department and ITACS to improve teaching and learning



in support of the NPS strategic planning goals one and four.

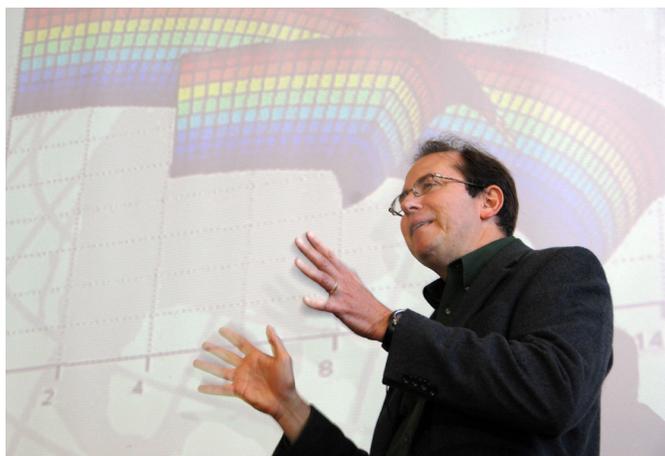
Cybersecurity

The DoN and DoD have declared cybersecurity as an area of primary concern. NPS has an extensive history in cybersecurity (tracing back to the 1960s) and is active today with both degree and research programs at classification levels up to the TS/SCI level. Using October (National Cybersecurity Awareness Month) 2009 as a catalyst, the campus developed a month-long agenda to heighten awareness about the im-

portance of cybersecurity. Four faculty experts led brown-bag seminars throughout the month, and ITACS sponsored a public lecture on cybersecurity by a leading industry executive from Symantec. The month concluded with a Cyber Summit, an all-day meeting where eleven faculty from seven departments presented overviews of their cyber work.

Following the Cyber Summit, a small group of faculty leaders continued working to develop an umbrella proposal that will leverage departmental strengths into an NPS strategy. They inventoried all cybersecurity research and education programs (see information dominance tab of www.nps.edu/cebrowski), and are exploring design of a basic cyber course and basic cyber certificate for all NPS students, and a coordinated multi-discipline program for masters' degrees in cyber areas. Individual departments are also establishing new curricula, mostly in the form of certificate programs. A large research proposal is being formulated as well, drawing from expertise represented at the Cyber Summit. These efforts directly support NPS strategic planning goals one, two and three.

One of our prominent examples of current cybersecurity research and education is our Center for Information Security Studies and Research (CISR). The CISR mission is to address the Information Assurance (IA) needs of the DoD and other federal agencies. This is accomplished through a major research program and a series of course, certificate, and degree offerings through the Computer Science (CS)



department. CISR was established in 1990 and serves over 400 students per year. It supports more graduate thesis research in IA than any other US institution. In 2009, NPS was designated by National Security Agency and the Department of Homeland Security as an IA Center for Academic Excellence-Research as well as re-designated as a National Center of Academic Excellence in Information Assurance Education for the academic years 2009-2015.

Critical Infrastructure Protection

In addition to cybersecurity, other priorities in our national defense agenda are being addressed at NPS through establishment of centers that target specific areas. (13) An example of such a center is the newly established Center for Infrastructure Defense in the Operations Research (OR) department. The center aims to develop new theoretical and applied analysis techniques to understand (1) how regional and national infrastructure systems will respond in the face of major disruptions, whether caused by deliberate (e.g., sabotage, vandalism, terrorism) or non-deliberate (accident, failure, natural disaster) events; and (2) to discover how best to deploy limited defensive resources (for hardening, redundancy, or capacity expansion) to make these systems resilient to such disruptions. The Center provides a venue for research, postdoctoral, and doctoral studies, and creates a new community of experts and scholars in this crucial area of national interest. The Center draws faculty from multiple departments across NPS and supports NPS strategic planning goals one and three.

Establishing Partnerships to Increase Educational Opportunities

NPS has a number of new initiatives to extend education to the total force and our global partners, and to broaden research in national security (strategic planning goals two and three). NPS has recently received federal permission to enroll defense civilians into NPS degree programs. The Graduate School of Business and Public Policy is completing a partnership with

Virginia Tech in the Washington DC area, in which GSBPP will provide the defense-related courses to a dual EMBA program aimed at federal and civilian workers. The GSBPP-Virginia Tech relationship will be used as a model for partnerships with universities in San Diego, the greater Los Angeles area, and additional areas on the East Coast.

GSBPP is also taking specific actions to educate our global partners. For example, GSBPP and the Information Systems (IS) department are currently working with the German-Jordanian University in Amman to establish a dual-degree program to educate government workers and officers in the Jordanian Armed Forces and eventually the larger Gulf region under the guidance of the DoD and Department of State. This program is embedded within a larger initiative called Leadership and Education for Arab Development and Security. This program also contains research, consulting, and professional development initiatives. The CS department is also contributing cybersecurity certificates to this program.

CONCLUSION

NPS has a rich 100-year history of providing academic leadership to the DoD. Our strategic plan embraces that his-



tory and has helped focus efforts on campus. This report contains a number of examples that provide a glimpse of how the strategic plan is informing activity on campus. Other parts of this report provide additional details.

III. THEME TWO: INTEGRATING A CAMPUS-WIDE PROGRAM OF IMPROVEMENT

PROMOTING EDUCATIONAL EFFECTIVENESS THROUGH CONTINUOUS IMPROVEMENT IN ACADEMIC PROGRAMS

The 2008 WASC Handbook defined the standard for Educational Effectiveness (EE) by stating that “The institution evidences clear and appropriate educational objectives and design at the institutional and program level. The institution employs processes of review, including collection and use of

data, which ensure delivery of programs and learner accomplishments at a level of performance appropriate for the degree or certificate.”

Initiatives under Theme Two have been guided by WASC’s standards, objectives set forth in the *NPS Proposal*, and feedback received during the March 2009 Capacity and Preparatory review. “Continuous improvement” is relevant to all aspects of university operations and practices; however, in this Theme Two section, the focus is on the educational effectiveness of the university’s academic/educational programs

and related initiatives and advances that have occurred during the WASC reaccreditation process. NPS has used WASC re-accreditation as both a framework and a motivation for developing, advancing and extending EE practices across campus. [CFR 1.9]

The 2006 *NPS Proposal*, (14, page 12) included NPS objectives for advancing educational effectiveness, including:

- **Assessment:** Enhancing and developing new EE assessment mechanisms and processes
- **Program Review:** Improving and institutionalizing curriculum and academic program review processes
- **Faculty Development:** Enhancing faculty development programs, connected to assessment
- **Academic Measurement:** Developing and coordinating measures and metrics for academic program oversight and management
- **Distance Learning:** Assuring educational effectiveness in NPS' growing slate of distance learning programs
- **Integration:** Developing a coordinated framework for educational effectiveness, program review and assessment, to inform decision-making and resource allocation.

The report of the WASC team following the CPR review noted areas of strength related to Theme Two, providing commendations with respect to 1) mission focus, innovation and quality of academic programs, 2) NPS' assessment and review process and the robust culture of review, and 3) NPS' and the faculty's dedication to academic and professional success of its students. (15, Page 17)

The report of the WASC team from the CPR also made a number of recommendations related to Theme Two: (15, Pages 18-19)

- **Student Learning:** Continue collection of student learning evidence where it is happening already, and bring remaining departments along in the development of those processes

- **Documentation:** Establish a program of documenting these efforts, such that appropriate results can be folded into various review processes seamlessly rather than reinvented at each juncture
- **Coordination of Evidence:** Consider what evidence could be used across most or all review processes (e.g., external program accreditation, curriculum review, program review, WASC review) and document that evidence in such a way that it is accessible
- **Direct Measures:** Implement a policy that requires all programs to employ direct measures of student learning and to report on data gathered through the assessment process
- **Program Improvements:** Examine student work that is gathered for the assessments and the changes that have been implemented as a result of the assessment process
- **Faculty Development:** Document innovative faculty development through PETAL and how that development has affected pedagogy.

The remainder of this Theme Two essay discusses specific programs and initiatives that highlight NPS' efforts both to satisfy the objectives set in the WASC proposal and to be responsive to recommendations received from WASC during the process. [CFR 1.9] The remaining Theme Two sections are organized as follows:

- **Academic Programs – Organization and Formal Review Processes:** NPS' academic program organizational structure is somewhat unique, leading to formal program review processes that operate in parallel
- **Organizing for Educational Effectiveness – the EESG:** A discussion of the establishment and workings of the Educational Effectiveness Steering Group, NPS' committee charged with oversight of EE practices in academic programs
- **Focus Areas – Campus EE Programs and Initiatives:** Highlights of selected areas of NPS emphasis, im-

proved or initiated during the WASC re-accreditation process, intended to advance NPS' accomplishment of its WASC proposal objectives and respond to WASC recommendations.

- *NPS Review and Assessment Program*
- *NPS Academic Measures and Metrics Program*
- *Extending Direct Assessments – The Capstone Initiative*
- *Student Engagement Initiative*
- *Leveraging Professional Accreditation Practices Across the Campus*
- *Promoting Excellence in Teaching to Advance Learning – The PETAL Program*
- *Distance Learning Education at NPS – Same Quality, Delivered Worldwide*

ACADEMIC PROGRAMS – ORGANIZATION AND FORMAL REVIEW PROCESSES

The organizational structure of NPS academic programs is unique — a matrix of academic curricula and academic degrees in which students complete programs of study that simultaneously must satisfy both curriculum requirements and degree requirements — leading to formal program review processes that operate in parallel. [CFR 1.1, 2.6]

At NPS, a *curriculum* is a defined program of study leading to advanced knowledge and learning in a defined field. Requirements of a curriculum are focused on educational objectives and outcomes of an identified sponsor and/or student community. These educational requirements of a curriculum are overseen by a Program Officer, Academic Associate, faculty, and academic departments. A *degree program* is a defined program of academic study leading to knowledge and learning focused within an academic discipline. Educational requirements of a degree program are overseen by the faculty, academic departments and Academic Council. Although there is always much overlap, some program requirements



may exist to satisfy degree requirements, others to satisfy curriculum requirements. [CFR 2.2, 2.4, 2.6]

There are a variety of interrelationships between curricula and degree programs: Several curricula may be housed within the same degree program, so students enrolled in different curricula earn the same degree (e.g., an MBA degree is awarded to students in Financial Management, Acquisition Management, and Logistics Management curricula). Or a single curriculum may permit alternative programs of study that emphasize different academic disciplines and lead to alternative degrees (e.g., students in the Combat Systems curriculum may potentially earn one of five different degrees, including MS degrees in Mechanical Engineering, Electrical Engineering or Applied Physics). And sometimes there is a simple one-to-one relationship between a curriculum and a degree (e.g., the Human Systems Integration curriculum leads to the MS in Human Systems Integration). The matrix organization underlying NPS' academic programs, and the unique relationships between NPS' curricula and degrees, can be seen graphically in a crosswalk between the two. (16) [CFR 2.4, 2.6, 3.2, 3.3]

The dual structure of NPS' academic programs helps to explain why some unique academic roles/positions exist at NPS (e.g., Director of Programs, Program Officers, Academic Associates), while other academic positions follow a traditional university organization (e.g., deans, department chairs). Academic review and assessment activities rely heavily on both the distinct and conventional positions, each with

its own responsibilities. Both curricular and degree programs are ultimately overseen by the Vice Provost for Academic Affairs. NPS academic oversight positions are reviewed in the appendix. (17) [CFR 2.1, 3.1, 3.2, 3.3, 4.8]

This dual structure also helps explain the university's formal review processes: the Curriculum Review (CR) process focuses on individual curricular programs of study and therefore aligns most directly with the curricular organization; the Academic Program Review (APR) process aligns more directly with academic departments; the New Program Review (NPR) process is applicable to new academic degree, curricular or certificate programs that may be proposed for adoption. (18-21) [CFR 4.1, 4.6]

Each of NPS' three program reviews is concerned with the quality, relevance and capacity of our academic programs. [CFR 2.7] Each is designed to assure NPS' academic programs support the mission of the university, meet needs of students and sponsors, and are of high academic quality; but each also has its own emphasis and purpose.

Curriculum Review

The Curriculum Review process flows from the university's mission and is, perhaps, unique. The mission of NPS is to provide advanced professional studies at the graduate level for military officers and defense officials from all services and other nations. To accomplish that mission, educational programs are structured around specialized programs of study

NPS' Curriculum Review program has resulted in tangible improvements to educational offerings

Enhancements to the review and monitoring process:

"A post-graduation survey will be instituted by Commander, Navy Meteorology and Oceanography Command, with assistance from the NPS METOC program office and METOC Professional Development Center...to determine if desired program outcomes are being met in the long term."

From the January 09 biennial review of the Meteorology and Oceanography (METOC) programs

Incorporation of new, externally-recognized qualifications and educational items:

"NPS shall incorporate Information Technology Infrastructure Library and Information Technology Systems Framework into ISO program courses"

From the July 09 biennial review of the Information Systems and Operations (ISO) Programs

Ensuring NPS education programs remains relevant to real-world needs:

"NPS will work with the JCS/J6 staff to institutionalize a process for connecting student thesis research to current command and control issues in the combatant commands, services and other government agencies."

From the October 09 biennial review of the Joint Command, Control, Communications, Computers and Intelligence (C4I) Systems program

(curricula) that fulfill present and future graduate education needs of the defense community. The various curricula are designed to educate students in specific Educational Skill Requirements (ESRs) — developed by NPS in conjunction with curriculum sponsors — which define the knowledge and skills a graduate should possess to function effectively as a professional in a specialized field.

Every two years, content of each curriculum is reviewed, beginning with a process for validating joint stakeholder requirements and ESRs, reviewing degree requirements, proposing new ESRs, if necessary, and conducting an assessment of the design and execution of existing curriculum, culminating in an on-site final curriculum review with the sponsor. The CR process additionally examines a department's foundation for providing a quality program, including issues related to faculty, research programs, and resources. (22, 23, 24) [CFR 4.7, 4.8]

Academic Program Review

While the CR process focuses on individual curricula, with review by external curriculum sponsors, Academic Program Reviews — conducted approximately every six years — focus on academic departments, with review by external



academic peers from an associated discipline. [CFR 2.7] The purpose of the APR is to foster academic excellence by assessing the quality and relevance of NPS education and research programs, to improve quality of every department, and to provide guidance for administrative decisions in support of continual improvement. The APR also informs NPS administration and other program stakeholders with respect to overall quality and direction of the research, scholarship, and creative activity of faculty; the quality of the department's graduate programs; the adequacy of the department's administrative and support functions and sufficiency of resources; and the department's alignment with NPS strategic goals. (24-28) [CFR 4.7, 4.8]

New Program Review

NPS must remain flexible and adaptable in developing new academic programs. Initiatives for new academic programs can come from campus leaders, from schools and departments to advance their academic disciplines, or from requirements identified by DoD or DoN sponsors. The New Program Review process assures that both academic standards and resource infrastructures are sufficient to ensure quality and success of a new program. NPR addresses strategic, academic, programmatic, support and resource elements of proposed programs. New programs are reviewed at the Department, School and University level. The final stage in review and acceptance of the academic merits of a new program is the NPS Academic Council. The final stage in review and acceptance of the strategic and business case merits of a new program is the NPS Provost Council. (29, 30) [CFR 4.7, 4.8]

ORGANIZING FOR EDUCATIONAL EFFECTIVENESS – THE EESG

NPS has recognized the need for a university organization to be the focal point and coordinating mechanism for advancing EE practices in academic programs. The Educational Effectiveness Steering Group (EESG) has been established for this purpose. The EESG evolved from two previous groups

NPS' Academic Program Reviews have resulted in tangible improvements to departments and programs

Faculty Development and Mentoring:

“Growth in Tenure-track faculty has occurred in recent years and is anticipated to continue to ensure competent coverage of new subjects added to the curriculum....Faculty development appears to be in transition....See a need to move toward a more structured mentoring/development program...”

From the May 09 National Security Affairs Department APR

The National Security Affairs Department has now instituted a formal mentoring program for all new assistant professors, to remain as standard department practice.

Faculty Recruiting:

“In order to develop a critical mass, one or better two MEMS (Micro Electro Mechanical Systems) specialists should be hired. With strong, worldwide demand for leaders in MEMS attractive offers have to be made...Unfortunately, the review committee has not seen the necessary activities and efforts for recruiting such leading specialists.”

From the June 09 Physics Department APR

The Physics Department has now been actively hiring in the MEMS and Material Sciences areas, with two new Assistant Professors, one in MEMS, one in Materials, coming aboard academic year 2011.

– the Learning Assessments Task Force (LATF) and the Ad Hoc Educational Effectiveness Group (AHEEG) – established earlier for related purposes. (5, Page 25) [CFR 2.7, 3.11, 4.7, 4.8]

Shortly after the acceptance of NPS' WASC *Proposal* (December 2006), the Learning Assessments Task Force (LATF) was established (March 2007) to provide an initial evaluation of academic review and assessment practices across the university. In November 2007, the LATF reported on four broad questions concerning NPS' educational processes: 1) How do we know we are teaching the right material? 2) How do we know we are teaching it well? 3) How do we know

our students are learning it? 4) Are our feedback mechanisms adequate and do they work? The LATF provided an initial picture of the range, variety and scope of NPS' review and assessment practices. (31)

Following the report of the LATF, NPS assembled the AHEEG (February 2008) to develop the university's approach to enhancing its academic review and assessment systems. The group identified additional steps for the university, with the first being a more comprehensive inventory of NPS' review and assessment systems and practices. An effort related to this followed with an Academic Policies Survey (May 2008). Survey findings document EE practices across

NPS Schools and departments related to faculty policies, program review and learning assessment. (32) As reported in NPS' CPR Report, broad findings followed from efforts of the LATF and the AHEEG, characterizing NPS' review and assessments activities with respect to breadth, variety, excellence, learning outcomes, distribution and documentation. (5, Pages 25-26)

The Educational Effectiveness Steering Group evolved directly from the AHEEG, contains similar campus representation, and was effectively operating prior to its official establishment in January 2009. The charter for the EESG notes a dual role at NPS: first, to provide directions for educational effectiveness activities at NPS, and second, to provide oversight for the Educational Effectiveness Review by WASC.

Tasks of the EESG include:

- Act as an advisory committee to NPS administration concerning educational effectiveness activities and practices at the university.
- Act as a review committee for consideration of new educational effectiveness initiatives at NPS.
- Provide leadership and coordination of the preparation of the NPS educational effectiveness self-study the WASC educational effectiveness campus visit.

Although establishment of the EESG, and its predecessor groups, has been motivated in part by the WASC process, the EESG now exists as the permanent NPS committee charged with leadership, advocacy and coordination of EE initiatives



related to NPS' academic programs. Membership includes five faculty representatives from NPS' schools and academic departments and five from NPS' academic support units. (33) By design, the EESG is connected to the wider campus in several ways: 1) EESG members represent their schools/ departments, 2) All academic departments have established faculty points of contact for EE initiatives who work with the EESG, 3) The Vice Provost for Academic Affairs chairs the EESG and has concomitant responsibility for academic EE and program review and assessment.

During this WASC reaccreditation review the EESG's activities have been centered in two areas.

- 1) Department EE Programs: EESG specifies a common framework and sets expectations for department-level academic review and assessment programs and practices;
- 2) Campus EE Focus Areas: EESG identifies and leads specific campus initiatives directed toward advancing academic program EE at NPS.

The remaining Theme Two sections of this report discuss a number of activities, representing recent areas of EESG and campus attention.

FOCUS AREAS –CAMPUS EE PROGRAMS AND INITIATIVES

NPS Review and Assessment Program

Early in the WASC process, EESG effort was focused on documenting, inventorying, and identifying the status of all review and assessment practices in NPS' academic departments. This has evolved to establishing a common framework and set of processes for coordinating campus review and assessment practices, called the Review and Assessment Program (RAP). (34) [CFR 2.7]

The broad objective of the RAP is to coordinate review and assessment practices in academic departments, with the goal of advancing educational effectiveness. The RAP has three main components: 1) a common NPS framework for

NPS REVIEW AND ASSESSMENT PROGRAM FRAMEWORK

AREAS	ELEMENTS	EXPECTATIONS	EXAMPLES Practices / Evidence
Program Oversight	Review and Assessment Responsibility	<ul style="list-style-type: none"> • NPS & Academic Departments define RAP roles and responsibilities 	<ul style="list-style-type: none"> • EESG • Faculty Handbook • CPR Report
	Faculty Positions	<ul style="list-style-type: none"> • All departments assign faculty to NPS academic program oversight positions 	<ul style="list-style-type: none"> • Associate Chair Instruction • Academic Associates • Program Officers
Program Design	Program context: NPS Mission and Strategy	<ul style="list-style-type: none"> • Academic programs, and their objectives, are consistent with NPS' mission and strategy, and NPS academic standards 	<ul style="list-style-type: none"> • New Program Review • Academic Council
	Program Objectives / Goals	<ul style="list-style-type: none"> • Objectives/goals are stated for all degree and/or curricular programs 	<ul style="list-style-type: none"> • Curriculum objectives or purpose stated in the NPS catalog
	Program Outcomes	<ul style="list-style-type: none"> • Curriculum Educational Skills Requirements 	<ul style="list-style-type: none"> • Degree Accreditation Outcomes
	Program Components	<ul style="list-style-type: none"> • Program components are designed to support and satisfy stated program objectives and outcomes 	<ul style="list-style-type: none"> • Program/Curriculum Mapping • Curriculum Matrix
	Program Courses	<ul style="list-style-type: none"> • All program courses have stated objectives, related to program objectives 	<ul style="list-style-type: none"> • Course Journals • Course Mapping
Program Review	Program Review - University	<ul style="list-style-type: none"> • CR occurs for curricula on two-year cycle • APR occurs for Departments on six-year cycle 	<ul style="list-style-type: none"> • Curriculum Review • Academic Program Review
	Program Review - Department	<ul style="list-style-type: none"> • Ongoing, systematic program review occurs internal to the department • Department has standing positions and processes to perform this 	<ul style="list-style-type: none"> • Department Curriculum Committee • Academic Associates meetings
Program Assessment	Assessment Plans	<ul style="list-style-type: none"> • Review and assessment plans are kept for all departments 	<ul style="list-style-type: none"> • Dept RAP Sheets
	Program Assessment Information	<ul style="list-style-type: none"> • At the department and/or curriculum level, programs systematically collect and utilize program assessment information from four stakeholder groups: Faculty, Students, Alumni, Program Sponsors or Employers 	<ul style="list-style-type: none"> • Student Surveys • Sponsor Visits • Section Leaders • Sponsor Chairs • Alumni Survey • Faculty Survey
	Faculty Assessment	<ul style="list-style-type: none"> • All departments have systematic processes for evaluating faculty performance, development and advancement 	<ul style="list-style-type: none"> • Faculty Activity Reports (FARs) • Faculty Annual Review • Faculty Reappointment Review
	Teaching Assessment	<ul style="list-style-type: none"> • All departments systematically evaluate faculty in their teaching role 	<ul style="list-style-type: none"> • Student Opinion Forms (SOF) • Classroom observation • Course Journals
	Program Learning Outcomes Assessment	<ul style="list-style-type: none"> • At the department, degree, and/or curriculum level, programs employ direct measures of student learning outcomes 	<ul style="list-style-type: none"> • Capstone Assessment • Professional Examinations • Embedded Assessments • Employer Assessments • Assessment Maps
	Course Outcomes Assessment	<ul style="list-style-type: none"> • Accomplishment of Course Learning Outcomes assessed at the course level 	<ul style="list-style-type: none"> • Course/Faculty specific • PETAL Initiative
Program Improvement	Results from Review and Assessment Practices	<ul style="list-style-type: none"> • All departments document and report changes & improvements to their academic programs resulting from their review and assessment process 	<ul style="list-style-type: none"> • Annual Record of Program Changes/Improvement. • CR and APR Action Items

discussing department review and assessment of academic programs; 2) a setting of campus-wide expectations for department RAP practices; and 3) a process for departments, in conjunction with the EESG, toward further development of review and assessment practices in the departments. The table on the previous page provides an overview of the RAP program, its framework and current expectations for the implementation of RAP practices within academic departments. [CFR 1.1, 1.8, 2.3, 2.4]

Although review and assessment activities have existed in academic departments for many years, the EESG now coordinates and supports further development of review and assessment activities in departments. The program has evolved to include periodic interactions between the EESG and the departments to advance RAP. As part of NPS' annual planning cycle, the EESG meets each year to review the status of program review and assessment activities across campus. The EESG identifies and recommends:

- 1) focus areas for advancing EE in the academic programs
- 2) expectations for department review and assessment practices

As an example, discussed more below, Capstone Assessment was set as a major focus area during the past year, with the expectation that all programs not already doing so would implement some form of capstone assessment in 2010.

Additionally, EESG representatives meet each year with department leaders for the purpose of reviewing the state of the department's RAP practices. This was initiated in January/February 2009 and continued in February/March 2010. The 2009 meetings led to an inventory of RAP practices by department. The EESG works with each department concerning the status and development of their RAP, with the departments/EESG keeping a record of the department practices on the "RAP Sheet". The RAP Sheet mirrors the elements described above in the RAP framework, tracking status at the department and individual curriculum level. (35) NPS believes the ultimate test of effectiveness of review and assessment of the

academic programs is that programmatic improvements result. Each Department now keeps and reports a summary of program changes/improvements that have occurred, triggered by its RAP processes. (36) [CFR 4.3]

NPS Academic Measures and Metrics Program

For many years, NPS has been working towards the development and implementation of its strategic plan, with consistent effort to develop measures and metrics assessing the effectiveness of NPS programs and operations in light of its strategic directions. A subset of NPS' broader metrics program has been the development of measures and metrics directly related to academic programs, for the purpose of guiding academic operations toward educational effectiveness. This section of the report provides an update on the Academic Measures/Metrics Program (AMP), as it has developed over the course of NPS' WASC reaccreditation engagement. [CFR 4.4]

The fundamental purpose of the AMP is to provide support for evidence-based decision-making associated with the academic programs at NPS. NPS endorses the WASC ideal of a "culture of inquiry and evidence" underlying educational effectiveness. The goal of AMP is to provide for systematic assembly of evidence on all aspects of academic programs and academic operations in order to provide for effective program review as well as effective resourcing and management of academic programs. To develop a framework for organizing AMP, a needs analysis was conducted that focused on processes related to academic program planning, budgeting, resourcing, assessment and review, informed by metrics programs at peer institutions.

The outcomes of the AMP effort have been:

- A conceptual modeling of NPS' academic operations (37)
- A conceptual framework for academic measures/metrics information
- An academic measurements and metrics plan (38)

ACADEMIC MEASURES & METRICS PROGRAM		
CATEGORY	SUB-CATEGORY	MEASURES/METRICS (Selected Examples)
Student Related	Student Admissions / Inputs	<ul style="list-style-type: none"> ✦ Navy quotas ✦ Quota fills
	Student Quality	<ul style="list-style-type: none"> ✦ Academic Profile Code (APC) ✦ Priors masters degree
	Student Enrollment	<ul style="list-style-type: none"> ✦ Enrollment statistics by degree type, programs, service, diversity, etc.
	Student Completions	<ul style="list-style-type: none"> ✦ Graduation rates ✦ On-time graduation
	Student Outcomes	<ul style="list-style-type: none"> ✦ Quality Point Ratings (QPRs) ✦ Capstone assessments ✦ Employer, Sponsor assessments
	Student Engagement	<ul style="list-style-type: none"> ✦ Challenge/Effort ✦ Student/Faculty Interaction ✦ Satisfaction/Gains
Instruction Related	Instruction Activity	<ul style="list-style-type: none"> ✦ Courses statistics provided by degree type, program type, mode, funding, etc.
	Instruction Faculty	<ul style="list-style-type: none"> ✦ Courses provided by faculty category and type
	Instruction Cost	<ul style="list-style-type: none"> ✦ Cost per student per year ✦ Cost per course
	Instruction Productivity	<ul style="list-style-type: none"> ✦ Class size ✦ Student load ✦ Student credit hours
	Instruction Quality	<ul style="list-style-type: none"> ✦ Student Opinion Forms ✦ Grade distribution
Curriculum Related	Curricular Statistics	<ul style="list-style-type: none"> ✦ Curriculum numbers ✦ Curricular range ✦ Curricular size/length ✦ Curricular flexibility
	Program Review Activity	<ul style="list-style-type: none"> ✦ Curriculum Review Completion ✦ Academic Program Review Completion
	Curricular Cost	<ul style="list-style-type: none"> ✦ Cost per curriculum
	Curriculum Relevance	<ul style="list-style-type: none"> ✦ Defense/Security relevance
Faculty Related	Faculty Demographics	<ul style="list-style-type: none"> ✦ Categories: TT, NTT, Military ✦ Credentials: PhD, MS
	Faculty Workload	<ul style="list-style-type: none"> ✦ Faculty activities-proportion ✦ Faculty teaching loads
	Faculty Funding	<ul style="list-style-type: none"> ✦ Faculty sources of support
	Faculty Progression	<ul style="list-style-type: none"> ✦ Hiring, retention
	Faculty Scholarship	<ul style="list-style-type: none"> ✦ Publications/Presentations ✦ Research Funding

AMP: Student Credit Hours: Monitoring Student Workload

The requirements for some NPS students to complete professional education concurrent with their academic programs at NPS, NPS' desire to provide academic programs that fully satisfy student and sponsor objectives, as well as individual students' desire to make full use of their time at NPS, all put pressure on student loads. Yet student learning potentially suffers with excessive loads. NPS academic policy requires review for student loads in excess of 17 credit hours unless part of an approved curriculum. And, though not expressed as official policy, about 16 credit hours per quarter is the norm. To guard against excessive workloads, one academic measure NPS tracks is average student credit hours. The overall average quarterly academic credit load for students in NPS' full-time resident program is 15.3, with some variance across different programs - students in GSOIS programs being on the higher side (16.2) and GSEAS programs on the lower (14.9). NPS monitors this value to guard against workloads undermining learning. [CFR 2.9, 2.10]

- A further development of NPS' academic information systems
- A portfolio of academic reports and analyses.

AMP represents a continuing program to ensure that NPS is collecting, analyzing and providing the necessary information to support its processes for reviewing and managing its academic programs. The development of this framework has been a joint effort of numerous NPS units, including the EESG, Academic Affairs, Institutional Research, Academic Administration, Academic Planning, the Center for Educational Design, Development, and Distribution, as well as NPS graduate schools and academic departments. The ultimate outcome is a comprehensive and coordinated framework, for measures and metrics associated with academic programs, designed to support NPS evidence-based decision-making. For illustration, the table below provides an extract of the framework. [CFR 3.8]

Extending Direct Assessments – The Capstone Initiative

A commendation from the WASC review team during the CPR noted that “NPS has a robust culture of review” (5, Page 17), but recommended that “NPS should continue the collection of student learning evidence where it happens already, and bring remaining departments along in the de-

velopment of those processes” (5, Page 13). Additionally, the CPR Report (pp. 11-12) encouraged expanded coordination, documentation and use of direct measures of student learning. This section briefly reports on the use of direct measures of student learning, but describes more thoroughly NPS Capstone Assessment Initiative designed to coordinate and extend direct learning outcome assessment across campus. [CFR 2.8, 2.9, 2.10]

Direct Assessments of Student Outcomes

Led by practices in those programs covered by professional accreditations, NPS has evolved toward increased use of direct assessments of program learning outcomes. Among NPS' 15 departments, direct assessments of outcomes are now employed in all, with different instruments and approaches in use. Practices differ across departments, having been developed at the department level, tailored to their needs. Some examples include:

- Thesis assessment rating the accomplishment of program outcomes (Electrical and Computer Engineering)
- Student success on professional examinations (Mechanical and Aerospace)
- Course-embedded assessments (Graduate School of Business and Public Policy)
- External review of students' work against program out-

comes (National Security Affairs)

- Publication of student research efforts (Operations Research)
- Employer assessments of the impact of NPS' education on graduates' job performance (Mechanical and Aerospace Engineering)
- Faculty review of student thesis presentations (Oceanography)
- External review of thesis presentation (Manpower Systems Analysis Curriculum)

The most consistent practice of direct assessment of student outcomes occurs systematically in all departments. All departments/programs have Curriculum Committees, which bring together department/program faculty on a continuing basis to monitor program effectiveness internally. Faculty membership on Curriculum Committees may vary across departments, but generally include those faculty with recognized program and/or course responsibilities, such as Department Chair, Associate Chair for Instruction, Academic Associates, Program Officers, faculty area leads, and Course Coordinators. One role of the Curriculum Committee is assessment of the effectiveness of courses and curriculum, based on their direct involvement and observation of students. One example of the workings of Curriculum Committees may be the observation of students insufficiently prepared in earlier courses for success in follow-on course work. Appropriate remedies may be improving earlier topic coverage, altering faculty assignments, or rearranging course sequencing.

Capstone Activities and Capstone Assessment

As a graduate research university, NPS academic policy requires that all degree programs include a "thesis or equivalent" as a masters degree requirement (39, sec. 5.2). [CFR 1.7] The thesis is the dominant form of capstone at NPS in 75% of curricula, while most other curricula employ a capstone project, often team-based, as an alternative. A few curricula, typically

in the National Security Affairs Department, permit a comprehensive examination in lieu of either a thesis or a capstone project. The objective of the capstone is to be a culminating learning event that integrates earlier components of students' programs, and that requires original, analytical and critical thinking. [CFR 2.2] At the master's level at NPS, the capstone is recognized as a major component of students' learning experience for directly involving students in research and inquiry activities associated with their academic fields. The requirement for, and purpose of, the capstone are expressed in the curricular learning objectives (typically ESRs). (40)

The capstone event in NPS programs presents a distinctive opportunity for assessing program outcomes and student learning. Initiated first by the Electrical and Computer Engineering Department, and extending in succeeding years to departments such as Mechanical and Aerospace Engineering, Systems Engineering, and Operations Research, NPS departments have engaged in formal capstone assessment for over a decade.

During this WASC accreditation review, NPS set campus-wide capstone assessment as an objective, and through the EESG initiated the Capstone Assessment Program. A purpose of the Capstone Assessment Program is to extend direct learning assessments across campus; all departments and programs are to conduct formal capstone assessment for the purpose of assessing program learning outcomes and initiating program improvement. In implementing capstone assessment, department-specific methods have been encouraged — subject to general standards and guidelines — while the EESG conveys NPS' expectations for capstone assessment, and additionally develops methods appropriate for campus-wide implementation. The result has been development of a largely common, campus-wide, general approach to capstone assessment, modeled much on the methods employed by early adopting departments, with some department-level variations. The common approach uses a formal capstone assessment form, assesses the capstone against identified pro-

gram outcomes, uses both qualitative and quantitative measures, involves faculty as assessors, and provides systematic documentation to be incorporated into departmental review processes. [CFR 4.3, 4.5, 4.6]

An inherent part of implementing capstone assessment campus-wide has been the concurrent examination and clarification of those program outcomes to be explicitly assessed. The process mentioned above, with the EESG and departments working collaboratively to leverage existing capstone assessment practices and extend campus-wide, has resulted in the generation of a set of program outcomes that are broadly similar across all NPS' master's degree programs. Thus a result of the capstone assessment initiative has been identification of "fundamental" program/student outcomes common to all masters programs at NPS. (41) The individual assessment instruments vary across departments with some differences in terminology and dimensions/outcomes assessed, but the underlying fundamental learning dimensions/outcomes include:

Direct Assessment in the Graduate School of Business and Public Policy:

To complement its strong indirect assessment program, GSBPP has implemented a comprehensive direct assessment program building upon assessment opportunities already embedded in courses across its curricula. Embedding assessment in courses that are common to its various curricula allows GSBPP to compare its learning outcomes across a variety of degree programs and student demographics. Additionally, GSBPP is able to compare its students' learning in its variety of modalities, whether through traditional residential classroom or various distance learning approaches. Assessments distinct to a specific curricula round out the current direct assessment suite.

- **Subject Area Competence:** NPS students will demonstrate graduate-level knowledge and understanding of their academic field
- **Methodological/Technical Merit:** NPS students will demonstrate the ability to apply logical reasoning, critical thinking, and appropriate methodological rigor in conducting research and analysis
- **Originality:** NPS students will demonstrate the ability to identify original and novel research questions, and creative and innovative approaches to answering them
- **Defense Relevance:** NPS students will capably apply their discipline knowledge and analytical skills to addressing a problem of relevance to the defense or national security community
- **Quality of Communication:** NPS students will demonstrate proficiency in communication and presenting the results of their inquiry in writing and/or orally by means of a thesis or capstone project report, and/or an oral presentation or briefing appropriate to their academic program
- **Relevance to Curriculum:** NPS students will capably apply their discipline knowledge and analytical skills to addressing a problem of relevance to their curriculum.

Campus-wide capstone assessment of student learning outcomes was implemented at NPS with the Spring 2010 quarter. (42) The office of Institutional Research maintains the survey site and provides summary reports. A summary of NPS and departmental capstone assessment practices is provided in the appendices. (43-49)

The Student Engagement Initiative

Evidence of educational effectiveness involves a clear demonstration of student achievement at both the degree and institutional levels. One construct that has gained significant visibility relating to student achievement is student engagement. "There is widespread agreement among education

researchers that active engagement with the subject matter enhances student learning...engagement appears to be a strong predictor of both learning and college GPA...Evidence suggests that “self-reports” of learning from surveys correlate with actual learning outcomes...Independent of its apparent positive effect on learning and academic performance, student engagement is also desirable in its own right. Thus data on engagement are thought to have an intrinsic value for purposes of continuous improvement within an institution...” (From *Student Achievement at the Institutional and Degree Level: Guidance on Disclosing Data to External Audiences*, WASC task force on Transparency and Accountability, 10/09, p11)

NPS has engaged in a specific initiative to measure student engagement, and report and use resultant information for program improvement. Numerous national and other survey instruments exist for measuring student engagement, one example being the National Survey of Student Engagement (NSSE). (50) While there is no universally agreed on definition of student engagement or agreement on the specific dimensions underlying student engagement, there is wide consensus and overlap among different surveys concerning many constructs that are associated with student engagement. NPS’ approach to measuring student engagement has been to develop its own in-house index, heavily informed by student engagement measures and indices existing in the public domain.

The objectives of NPS’ Student Engagement Initiative are to provide a common framework -- theoretically-based and known to be related to student achievement and learning -- to organize and understand existing data and information; to foster campus communication about student engagement issues; and to provide student engagement data to schools and departments to inform program reviews and processes of improvement. (51)

Under the auspices of the EESG, the initiative began with a review of the student engagement literature and a review NPS’ existing data, including NPS student, alumni and departmental surveys, and other academic data, in order to

“The student will develop critical thinking skills and the ability to solve challenging environmental problems using scientific research techniques leading to the completion of a thesis in the selected area of emphasis. Research will be focused in areas that will lead to the U.S. Navy’s increased ability to operate in and tactically exploit the four-dimensional fluid environment.”

Example Capstone Learning Objective: Meteorology and Oceanography Curriculum Thesis

frame relevant questions for measuring student engagement at NPS. This resulted in an NPS’ framework for addressing student engagement with eight dimensions, analogous to those existing in recognized approaches and indices.

- 1) **Challenge/Effort:** The degree to which NPS’ programs are perceived as challenging to students;
- 2) **Active/Collaborative Learning:** The degree to which NPS’ programs employ teaching and learning approaches that engage students in active and collaborative learning experiences;
- 3) **Student/Faculty Interactions:** The degree to which student have direct and concerted involvement and interactions with faculty;
- 4) **Diversity & Enrichment:** The degree to which NPS’ educational environment provides students with exposure to a diversity of people and viewpoints and a diversity in modes of learning experiences; [CFR 1.5]
- 5) **Campus Commitment/Support:** The degree to which there is explicit university commitment to student learning and the university provides necessary support services for students.
- 6) **Satisfaction/Gains:** The degree to which students’ over-

Capstone Assessment – Closing the Loop

NPS' Mechanical and Aerospace Engineering and Electrical and Computer Engineering departments have conducted Capstone Assessment, or Thesis Evaluation, for the past decade, in order to prepare for ABET accreditation. Since all students are required to complete a thesis as a part of the requirement for either the MSME or MSEE degrees at the end of the degree program, the thesis provides an excellent opportunity for program assessment. Students' work is assessed for its originality, technical knowledge and defense relevance. This also provides an opportunity to evaluate students' communication and presentation skills. Thesis evaluation is one of the available direct assessments, and it has been conducted by Thesis Advisors, Academic Associates, Program Officers, and Department Chairs. Assessment data are analyzed and tracked annually by the department faculty, which provides recommendations for program improvement to the Department/Program Chair. The assessments have indicated that communication skills of students, both written and oral, needed improvement. Both departments have taken steps to address this, including providing students with guidance on thesis organization and writing, and arranging for a communications expert to present a communication skills seminar to their students on a regular basis.

all impression and response to their academic programs is positive. The degree to which students self report gains from their educational experience;

- 7) **Capstone Experience:** The degree to which students' capstone experience is involving, beneficial, and positive;
- 8) **Defense/Security Relevance:** The degree to which students' programs actively engage them in knowledge, issues, and problems relevant to the defense/security communities in which they will serve.

NPS has developed or adopted a set of questions for measuring each of the eight dimensions and created an index (typically four to five questions per dimension) combining the questions, for each dimension. (52) NPS has created measures and indices within the Student Engagement framework from data over the past three year period and is using such evidence to inform academic program improvement. [CFR 4.5, 4.6, 4.7, 4.8]

Leveraging Professional Accreditation Practices across the NPS Campus

NPS has several academic programs that are accredited by national professional accrediting bodies. In the Graduate

School of Engineering and Applied Science (GSEAS), three engineering programs are accredited by the Accreditation Board for Engineering and Technology (ABET): the Master of Science in Astronautical Engineering (MSAE), the Master of Science in Electrical Engineering (MSEE), and the Master of Science in Mechanical Engineering (MSME), with a fourth, the Master of Science in Systems Engineering (MSSE), scheduled for ABET review during 2010. The MSEE and MSME are accredited at the "Advanced Level," reflecting both undergraduate equivalency and graduate competency in both programs. During the last accreditation cycle all three programs were given the maximum accreditation of six years; it was noted in the final report that all three programs were exceptional in their implementation of ABET 2000 standards. (53, 54)

In the Graduate School of Business and Public Policy, five degree programs are accredited by the Association to Advance Collegiate Schools of Business (AACSB) and two programs are accredited by the National Association of Schools of Public Affairs and Administration (NASPAA). AACSB standards include a requirement known as Assurance of Learning (AoL) to verify student learning; NASPAA has recently implemented a similar standard.

ABET and AACSB standards describe similar requirements for assessment of program outcomes and student learning; the basic process involves identifying broad goals that students should meet, then mapping those goals both to more observable outcomes students should achieve and to the courses in which the students gain expertise with which to achieve these outcomes. These outcomes are assessed, using primarily direct measures supplemented with rigorous indirect measures, and the assessment results, reviewed by relevant faculty, drive changes to programs. (55)

The faculty associated with these professional accredited programs constitute a valuable resource at NPS, in effect being “centers of excellence” in the methodology and execution of program review and assessment. NPS leverages resident expertise in these centers to other constituents across campus less familiar with such accreditation processes, with the purpose of extending best practices more widely across campus. An NPS presentation given at the April 2007 WASC meeting in San Jose outlined NPS’ approach to leverage centers of excellence to the rest of the campus. (56) From discussions and engagement with assessment professionals, it appears that utilizing on-campus expertise is a very common approach to the problem of increasing assessment awareness and implementation. NPS’ approach to utilizing its professional accreditation expertise includes:

- Members of the EESG are leaders from those professionally accredited programs. These members share best practices with the EESG, allowing the EESG to evaluate these practices for possible dissemination throughout the campus
- Professional accreditation centers of excellence represent a deep repository of assessment models, instruments, implemented plans and other tools available for campus use. Wider circulation of these instruments and practices is occurring
- Best practices from ABET and AACSB have been discussed and shared with colleagues across campus

in working groups. Best practices are made available to campus constituents through the NPS Academic Affairs website (57)

- Use of the “Capstone Assessment” tool is a direct extension of the Thesis/Capstone Assessment done in Engineering programs. Other practices shared across the campus include setting program objectives, curriculum mapping, and the development of assessment methods
- Members of the EESG have briefed NPS Deans and Chairs, as well as worked with individual departments who are interested in improving their internal processes

Student Engagement: Enrichment

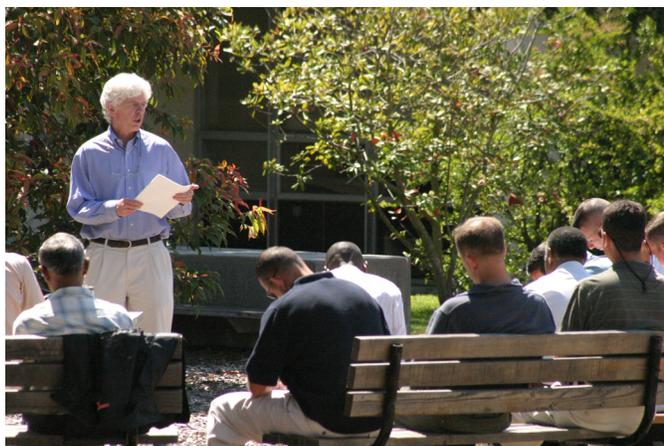
One dimension tracked by the NPS Student Engagement measure tracks is Learning Diversity & Enrichment. Four survey questions in the index tap into whether students see their programs as providing a variety in learning experiences and an opportunity for choice and flexibility in their programs. Where does NPS stand? Overall, the “Enrichment” index has trended “up” over the three years of measurement. But one of the four questions emerges with lower positive responses by students and a slight decline: “Does NPS provide sufficient learning opportunities outside of the regular curricular program?” Partly in response to this feedback from students, NPS is now experimenting with a new academic quarter schedule, one that includes an explicit “Enrichment Week” period when formal coursework is set aside and a range of learning opportunities – from workshops, to short courses, to involvement in research projects – are offered to students consciously outside the bounds of their standard curricula.

- Members of the EESG work with the NPS faculty development function to support faculty in incorporating assessment practices into their courses.

Future plans for leveraging NPS professional accreditation expertise include developing a seminar series led by accreditation experts focused on the theory and practice of direct student assessments, further development of the assessments best practices website, and assistance to NPS departments with respect to departmental review and assessment practices. [CFR 4.7]

Promoting Excellence in Teaching to Advance Learning – The PETAL Program

Recognizing the importance of faculty development to continuous improvement of teaching and learning, the NPS



proposal incorporated as a goal increased attention to this area. During the CPR visit, the team was introduced to the faculty development program known as PETAL: *Promoting Excellence in Teaching to Advance Learning*.

During 2009, faculty development programs and services for were formalized under the umbrella of PETAL. Expanded faculty development initiatives are directed toward cultivating awareness among faculty about principles of learning, effective course development, pedagogy, and the use of methods and technologies that strengthen connections between teaching, learning and assessments. PETAL initiatives target three general groups: faculty new to NPS; tenure track and non-tenured

faculty with less than five years of teaching experience; and faculty teaching in distance learning programs. PETAL initiatives integrate learning, reflection, inquiry, experiential projects, and assessments to monitor effectiveness and to facilitate continuous improvement and/or change. In AY09, important baseline information was captured about PETAL's professional development activity areas, levels of service, and the degree of contact and socialization campus-wide. [CFR 2.9, 2.11, 3.3, 3.4]

PETAL Activity Areas

- ***Courses and Custom Workshops:*** Formal courses offered are designed to prepare faculty to teach distance online courses or to enhance classroom-based instruction through the application of principles of teaching and learning and the use of technology tools. Research-based short courses and seminars provide a forum for faculty to reflect upon their content and the practice of good teaching, student learning, and assessment practices
- ***Faculty Orientation:*** The Compass Seminar Series is the formal orientation program for new faculty at NPS, providing important information about relevant topics. In addition, each academic department has a faculty mentoring programs tailored to the needs of their faculty and academic disciplines (58)
- ***Instructional Coaching:*** Instructional coaching is a new and popular service first introduced during 2009 as an outgrowth of the Compass Series. Weekly sessions (individual or small group) target various needs of newer faculty teaching in resident and non-resident degree and certificate programs. In its first year, coaching supported mentoring programs for first year faculty in GSEAS, GSOIS (Graduate School of Operations Information Sciences), and GSBPP (Graduate School of Business and Public Policy), providing resources for course development, instructional strategies, and assessment practices

- **Consultations:** Consultations provide extended support and resources for faculty seeking to develop courses and instructional competencies, improve learning, and develop authentic learner activities and assessments. Consultations involve experiential/applied learning tasks that are piloted and evaluated for use in future classes
- **Special Projects:** Customized workshops and projects are offered to support school- and department-initiated development, inquiry, and assessment in the areas of: teaching, student learning, assessment, and program effectiveness
- **Professional Development Planning:** Professional development planning provides support and resources for tenure track faculty in the areas of portfolio development –collection of evidence that demonstrates professional development and competencies in teaching, research, scholarship, and mentoring/advisory responsibilities.

Examples of faculty comments on PETAL:

“The goal of my initial consultation was to make changes to my course guides and retain the intellectual and pedagogical integrity (and flexibility) that I placed, and still place front and center in any course I teach. I continued consultations to revise and clarify other course guides and by the end of Winter Quarter, during valuable one-on-one consultation, I had streamlined and tightened up my course guides in a way that would leave no doubt in the students’ minds about the objectives and outcomes for graduate level seminar courses with an emphasis on serious intellectual discussion, debate, and the production of a major paper by the students on a theme relevant to the course.”

SIGS professor

“I obtained new insights on how to deal with the broad spectrum of NPS students and how to better engage them in the learning process. The consultations in the months of October and November were critical. I do not think that I could have managed without support and encouragement. I sensed a significant improvement in the 2nd half of the course. I know that I personally felt good about it and was able to teach the required material. The final exam and the SOF [Student Opinion Form] scores reflected learning and improved classroom interactions.”

GSEAS professor

“The process of developing the syllabus – identifying the learning objectives and learner outcomes – was extremely helpful and provided me with a very solid road map for each of my courses. Meeting weekly for at least 6 weeks kept me on task to meet each of my course development goals and provided me with a forum where I could ask questions and get immediate, constructive feedback from someone who is an expert in learning and education. “

GSBPP professor

Collectively, PETAL initiatives provide programs and projects that are customized for the specific needs of faculty, departments, and schools to support teaching, instruction and learning in the academic programs. (59, 60)

Distance Learning Education at NPS – “Same Quality, Delivered Worldwide”

NPS recognizes the increasing importance of Distance Learning (DL) programs to its education strategy. The Educational Effectiveness Review was an opportunity to conduct a self-study of NPS’ DL programs. NPS’ DL programs are fully embedded into NPS’ academic departments and it is NPS’ intent that DL program be of comparable quality and subject to the same standards of review and assessment as NPS’ long-standing resident programs. The self-study confirmed that there is much strength in the DL programs and identified a few areas for additional efforts. This section provides an overview of Distance Learning Education at NPS – “Same Quality, Delivered Worldwide” with the full report contained in the appendix. (61) Highlights of the full report are shown below.

- 1) **NPS DL Programs are extensive, mission-essential, and serve important student populations across the world.** NPS provides 14 master’s degree programs. Five programs represent 70% of total DL enrollment. Nine programs have Department of Navy or Department of Homeland Security sponsors. In academic year



2010; quarter one, there were 862 DL students pursuing degrees, representing about a third of the NPS total degree enrollment. DL programs support the NPS strategic goal of extending education to the total force. For example the DL EMBA program was established to serve Navy Unrestricted Line Officers whose career paths make full-time, in-residence education more difficult, and several DL degree programs, such as the MS in Systems Engineering, are focused on the defense science and technology workforce. [CFR 3.1, 3.2]

- 2) **Students represent the total force, including the DoD civilian and contractor workforce.** While the residential enrollment at NPS is concentrated mostly on active duty officers, the DL programs reach a far broader cross-section of the Navy and Defense workforces (see table below). [CFR 1.5] With special legislative permission, they also reach into the Defense contractor workforce. Entering DL students tend to be practicing professionals, often with more advanced preparation than their residential counterparts. For example, in AY2009, 20% of DL students entered with postgraduate degrees compared with 16% of resident students. [CFR 2.5, 2.9]

NPS Students By Type	Resident Programs	DL Programs
US Navy	42%	29%
US Marines	10%	2%
US Army	11%	0%
US Air Force	12%	2%
Other Services	1%	0%
Civilians	10%	67%
Internationals	14%	0%
Total	100%	100%

- 3) **NPS provides robust institutional support for faculty and students to assure student success.** NPS provides numerous services for DL students, and at a level



comparable to those provided residential students. DL students receive logistical support, and guidance regarding NPS administrative systems including: arranging video-tele-education locations with test proctors, book shipment, support and mentoring by telephone, travel arrangements, and a NPS *DL Student Handbook*. (62) Faculty are supported with specialized training, multiple modalities of instruction, special equipment to support DL instruction, and access to a capable support staff. There is a separate *DL Faculty Handbook*. (63) [CFR 2.4, 2.5, 2.6, 2.8]

Instruction is delivered by a variety of means: 38% of course sections use video-teleconferencing, 19% use web-based Elluminate software, 19% are hybrid, 18 % are asynchronous, and 6% are taught offsite in person. Specific campus support from campus agencies includes:

- Dudley Knox Library offers DL-centric web pages, tutorials, and takes special effort to communicate with these patrons, including sending librarians to promote DKL services to classes at remote locations.
- ITACS creates student accounts, supports and maintains VTE facilities, supports Elluminate, Blackboard, Sakai, E-mail, authentication, and underlying Internet and communications infrastructure
- Special efforts by the Graduate School of Operational and Information Sciences, the Graduate

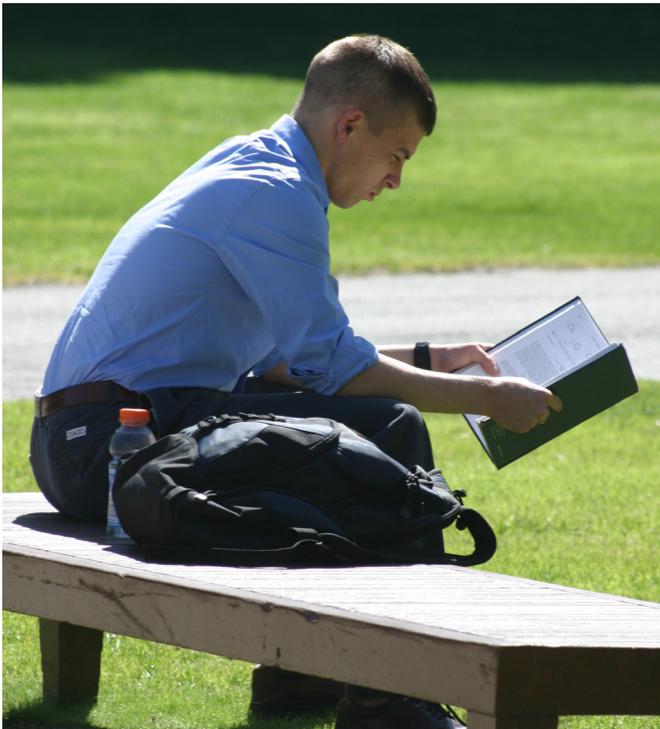
School of Engineering and Applied Sciences and ITACS have allowed DL students access to the campus network and to laboratories supporting fields such as electrical engineering and computer science cybersecurity.

- The Center for Educational Design, Development, and Distribution provides individual faculty mentoring, a popular and well-subscribed course on effective DL teaching, instructional design support, and access to media development specialists.

4) **DL student experiences compare favorably with resident student experiences.** Student opinion data show that students view DL programs as excellent. The NPS *Student Exit Survey AY2009 - All Distant Learning Students Summary Findings* shows:

- 97% of the respondents report, “I understood the body of knowledge and skills I was expected to master for my degree program” and “NPS faculty in my program were dedicated to my success as a student”
- 96% of the respondents report “NPS faculty members involved me in active and participative learning experiences”
- 91% of DL students report, “I received the faculty advice and guidance that I needed to successfully complete my thesis, group project or capstone research project”
- 87% of DL students report, “My thesis or capstone research project at NPS made a useful contribution to combat effectiveness or another national security need”

Graduation rate of DL students was identified as a concern through a study of student success measures. Appendix 3 provides an overview of how NPS has measured and tracked student success. A task force has been assembled to



review data and identify areas of concern and make recommendations for appropriate action. [CFR 4.5]

- 5) **Outcome assessment procedures for residential and DL programs are similar, and support continuous improvement of the non-residential programs.** Objectives and outcomes are established for each non-residential program and are published in the catalog. The capstone evaluation process is the same for all programs. [CFR 1.2, 1.4, 2.12]

Sponsors of non-residential education commission periodic analyses of the return on their investment. Examples are included in the DL self-study (61). Some DL programs have established a set of best practices that are being incorporated into the residential assessment program. For example, the Center for Homeland Defense and Security has ongoing assessment and external evaluations, which are designed and conducted by an outside evaluator.

- 6) **Faculty support of DL programs.** The NPS faculty consists of a portfolio of faculty types: tenure-track (TT), a wide range of non-tenure track (NTT), and

military faculty. TT faculty have authority over the curricula and courses. Currently, a higher proportion of non-resident course sections (60%) are taught by NTT as compared resident sections (30%). NPS is evaluating several possible solutions for addressing this issue including setting targets for the proportion of course taught by TT faculty and setting a higher tuition rate for reimbursably funded programs which would allow for hiring of more TT faculty. [CFR 2.1, 3.1, 3.2]

- 7) **Governance issues.** The establishment and management of educational skill requirements and curriculum reviews are similar for both resident programs and non-resident programs. [CFR 1.7, 2.2, 3.11] However, since DL programs serve a wider range of students, focusing on civilians beyond NPS' core Navy officer corps, there are a wider range of sponsors. Additionally, educational objectives of many DL curricula tend to be aligned with career fields of government civilian students rather than critical military or defense skills designated by the Navy. Currently, NPS has three different primary funding streams for DL programs. This diversity of funding streams leads to differing financial models and management approaches. NPS is examining some common financial models to see if better coordination of funding sources is possible.

- 8) **Recommendations for enhancing NPS Distance Learning.** The self-study made three recommendations:

- **Governance** - Establish a DL Council to recommend policy, coordinate service delivery, and monitor assessment results for DL activities.
- **Resourcing** – Examine mission-funding and reimbursable-funding alternatives for DL programs and consider more centralized coordination of sources for DL education funding
- **Institutional Support** - Consolidate support services, reducing duplication and improving efficiency

Although the DL self-study identified several areas that warrant further review, NPS has a robust and growing program of non-residential instruction. The program aligns with and furthers the goals of the NPS strategic plan. DL programs are a vibrant example of a culture of continuous improvement in educational effectiveness at NPS. NPS



IV. THEME THREE: SUPPORTING THE ACADEMIC ENTERPRISE

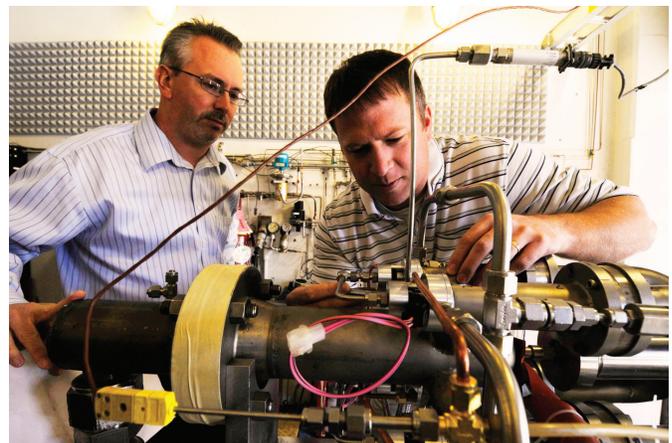
As at any higher education institution, NPS provides its academic departments with a variety of support services; however, the rapid growth that NPS has experienced over the past 10 years, particularly of its reimbursable education and research programs, has challenged academic support services to grow and improve to respond to increasing demands. [CFR 2.13] NPS has worked hard to meet these demands by reviewing how support services should change, taking positive actions to use technology to enhance delivery of these processes — understanding the impact that this rapid change has had on campus providers and receivers of support services — and adjusting its delivery mechanisms and organization to best meet the demand. NPS strategic planning has also provided valuable insights into how support processes and organizations need to adapt by requiring each support department to engage in a planning process that includes setting priorities for service delivery, developing operational plans, assessing customer sat-

isfaction, benchmarking internally and externally, engaging in administrative reviews, and providing the campus with annual accountability reporting. [CFR 1.3]

CONCLUSION

The accreditation process at NPS, carried out over the past five years, has been a catalyst for a campus-wide self-reflection that has resulted in improvements in assessment and continuous improvement. While the institution has a long history of analysis and continuous improvement practices, this accreditation effort has resulted in a substantial campus-wide conversation and greater consistency in the documentation of assessment. In addition, areas of increased support for faculty have been identified and addressed.

isfaction, benchmarking internally and externally, engaging in administrative reviews, and providing the campus with annual accountability reporting. [CFR 1.3]



PRIOR STUDIES

The NPS *CPR Report* noted a number of internal studies conducted over the past several years that addressed administrative organizational and process issues: [CFR 1.9]

- 1) *Ad Hoc* Committee on Business Practices in 2006; (64)
- 2) Business Practices Implementation Task Force in 2007, took the work of the *Ad Hoc* Committee and developed an action plan to implement recommendations; (65)
- 3) Standard Operating Procedures and Process Mapping Group, that developed recommendations in late 2007 concerning documentation for administrative processes which were also suggested by the *Ad Hoc* Committee recommendations; (66)
- 4) Readiness assessment for the implementation of the Quali Financial System in 2007-08; (67)
- 5) Staff Development Advisory Committee establishment and adoption of recommendations from a 2007 survey; (68)
- 6) Command Climate Survey conducted in 2008; (69)
- 7) LMI study in 2007 that supported the internal recommendation for an administrative restructuring, which included the establishment or redefinition of a number of new leadership positions. (70)

Administrative units such as the Dudley Knox Library (DKL) and Information Technology and Communication Services (ITACS) have done peer analysis studies and conducted regular surveys to inform their management of opportunities for improvement and what their customers think about services provided. [CFR 3.6, 3.7] As mentioned in other parts of this *EER Report*, students are regularly surveyed and that information is used to make changes to the academic infrastructure. [CFR 1.2, 1.3]



A common thread weaving through all these studies has been that the academic support organization, structures, and systems established to support NPS needed to change to become sufficiently robust to support the demands of the organization that now exists. The core mission of providing graduate education to Naval officers has been expanded to include many reimbursably-funded resident and distance learning educational programs. The reimbursable research program has expanded more than 75 percent since 2001, and the added complexity associated with administrative support systems necessary for growth of these programs has sometimes outstripped the ability of NPS to adequately serve customer needs. At times, the result has been frustration among some “customers” (administrators, staff and faculty members), with reported instances of overloaded and underperforming systems and overextended staff employees in academic departments and central administration.

Over the past two years, actions have been taken by a variety of faculty members, working together with administrators, to address issues with the support services. Additionally, administrators have worked diligently to develop systems solutions, infrastructure improvements, organizational shifts, and planning to enable NPS to be responsive to perceived deficits. All of this has been done in accordance with the strategic planning goal of providing “operational excellence in financial, business, administrative and support areas.” (71) [CFR 1.1, 3.5]

The Department of Navy has also taken a more active role in reviewing the NPS organization and processes, including a Command Inspection of NPS by the Naval Inspector General (IG) in August 2009. (1) The Inspection incorporated reviews of the strategic planning process at NPS, the Information and Personnel Security Program, and the Government Commercial Purchase Card and Travel Credit Card processes – three areas in which NPS was called out by the IG as an exemplar among Navy commands. In another example, the Navy reacknowledged that NPS is an Echelon II/

flagship status Navy organization. Such recognition translates into additional resources for facilities infrastructure support. The Advanced Education Review Board (AERB) was reformulated from the former Graduate Education Review Board in 2009, and the AERB has taken a very active interest in NPS, as well as its other charges, the Naval War College and the United States Naval Academy. (72) [CFR 1.3, 3.9]

The *Capacity and Preparatory Review Report* provided some details about the types of issues that NPS must address, but a quick summary and some of the actions taken since the CPR are as follows:

- 1) **Financial Processes** – NPS is changing many of its financial processes with implementation of the Kualu Financial System which is operating in parallel with legacy systems during FY10, with cutover to full operation in FY11; (73)
- 2) **Organizational Structure** – NPS has adopted a variant of one of the recommendations from the LMI study that includes the creation of the position of Vice President-Administration & Finance; (70)
- 3) **Budget Allocation** – NPS has adopted a budgeting process for FY11 that includes public budget hearings and will improve transparency in allocation and use of all institutional funds; (4)
- 4) **Physical Infrastructure: Facilities** – NPS has adopted a new Space Management Policy that is designed to ensure space decisions are made in support of the NPS' strategic goals; (74)
- 5) **Systems Integration and Enhancement** – Moving to open source and open community software systems provided the opportunity to join colleagues at other research universities to contain administrative system costs, and improve responsiveness to emerging requirements. Examples include implementation of Sakai, (open-source learning management system), Life-Ray (open source portal), and Kualu (open community administrative systems);

6) **High Performance Computing** – Development of the high performance computing facility has provided faculty and students with a crucial resource for graduate-level research and education. Establishing a central capacity for HPC has helped to reduce utility costs and improve access for a greater number of faculty and students;

7) **Improvements to Academic Support Processes and Infrastructure Resources** – Adoption of an online demand driven class scheduling program has helped avoid a single point-of-failure scenario. (75) [CFR 1.8, 1.9, 2.13]

Additionally, NPS has sought to learn from examples provided from its peer institutions to meet its own challenges. (2, 3)

Information from some these peer institutions provided direct input into the LMI study (70) that made recommendations to NPS on its organizational structure. Peer information from all of these institutions provided input to the Active Decision Support, Inc. study (6) that developed a space allocation tool and made recommendations to NPS on facilities and space allocation.

From the variety of self-examinations that NPS has undertaken, progress has been made on a number of fronts that are discussed in the following paragraphs.

KUALI FINANCIAL SYSTEM (KFS)

Functionality of existing enterprise financial information systems has not been sufficient to meet the growing needs of the campus. Systems do not provide managers and executives with data necessary to proactively manage, and therefore represent a technical risk because of their aging architecture. Procurement of a commercial product to replace existing financial management systems would be prohibitively expensive and building replacement systems internally was judged as not feasible based on cost, staffing, and ongoing maintenance requirements. The Kualu Financial System (KFS – an open-source financial information and management system



developed by a non-profit consortium of higher education institutions) (67) emerged as the preferred solution because it does not carry initial and ongoing financial costs of a commercial product and it mitigates organizational requirements associated with a home-grown product.

NPS adopted a phased approach for implementation, working with the consulting firm rSmart, that started with project preparation tasks, moved to migration of NPS data to KFS and parallel processing in KFS and legacy systems, then cut over to KFS for transaction processing and reporting, with discontinuance of legacy systems scheduled for October 1, 2010. In addition to technical aspects of system implementation and design for the NPS environment, significant work was done in spring 2010 to ensure the campus community understood the reasons for discontinuance of legacy systems and the need for a new suite of financial systems. Users were briefed on advantages KFS brings with it in increased information definition and better and timelier reporting, and were well-trained and fully informed of the timing of the movement to KFS in advance of the cutover on October 1, 2010. [CFR 3.5]

ADMINISTRATIVE REORGANIZATION

The 2007 LMI study (70) recommended a number of scenarios for possible administrative reorganization, with the purpose of determining “the most efficient organization to support both the graduate education and research missions, while maintaining the statutory requirements of the

DoN.” The objective of the study was “to determine if positions should be redesigned, realigned, or renamed to more effectively conduct and describe the functions performed.” Through background analysis, a review of similar organizations, and a series of interviews with senior NPS leaders about strategy, business, and organizational aspects of NPS, LMI defined three alternative organizations: 1) remaining “as-is,” 2) creating the position of Vice President for Finance (who speaks for the entire financial organization, including the Comptroller), a Vice President for Information Resources/CIO position, and a Vice President and Dean of Research position, and 3) the same as #2, with the addition of a Vice Provost for Academic Affairs, Dean of Students, and a reclassification of the responsibilities of the Chief of Staff to a Senior Military Assistant. None of these scenarios was adopted in its entirety, as the Comptroller is required, by regulation, to report to the NPS President; however, a model that incorporates Vice Presidents, the Vice Provost, and the Dean of Students positions, and keeps the Chief of Staff position contained within the Office of the President has been adopted.

These additional Vice Presidential level positions have helped clarify the functional reporting responsibilities of central administration. Individuals now report to the Office of the President in an unambiguous fashion. Additionally, the number of positions reporting directly to Office of the President which includes the President and Executive Vice President/Provost, especially when it comes to administrative responsibilities (Command Evaluation, Base Operations, and Human Resources Office), has decreased. Accountability for major functional areas has been increased through this reorganization, with clear understandings of responsibilities. [CFR 3.8, 3.10]

FY10 AND FY11 RESOURCE ALLOCATION PROCESSES

For FY10, the budget process for institutional funds (76) was revised to request from academic and administrative departments information about 1) Basic Operations: depart-

mental labor and essential non-labor funds for departmental activities, 2) Continuing Programs: on-going projects/programs funded through the department, including those managed for pass-thru, and 3) New Requests: new programs/projects to be initiated, including labor and non-labor expenditures. Fund sources, described as institutional sources of funds, were:

- Mission Funds (direct funds from the Navy for campus operations and instruction as well as designated direct funds that came to NPS through the “POM” (Program Objective Memorandum) process)
- Congressionally “added” funds
- Programmatically designated funds (Center for Defense Technology and Education for the Military Services (CDTEMS))
- International Military Education and Training (IMET)
- Foreign Military Training funds
- Indirect cost recoveries from reimbursable research and education
- Overhead collected from certain direct funds
- Any special mid-year or end-of-year funds received.

The goal was to motivate systematic budget planning. [CFR 3.6]

FY10 was the second year of the Nine-Month Model, under which academic departments received nine months of



funding for each tenure track faculty member, with the assumption that each faculty member will teach four courses and NPS will provide the faculty member with sufficient support to encourage a variety of scholarly activities during the nine-month period. Additionally, academic departments received funding to pay for non-tenure track faculty salaries for course sections in excess of those funded for tenure-track faculty, as well as administrative salaries and operations funding (OPTAR).

Administrative departments also were expected to complete the same information call for budget, listing their requirements as Basic Operations, Continuing Program, or New Requests. Because of a \$4.4 million budget reduction received at the end of FY09, very little in the way of New Requests were funded, and, in fact, academic departments received reductions of 5%, with administrative departments receiving approximately the same funding as from FY09. (Administrative departments had taken a disproportionate share of cuts the previous two fiscal years.)

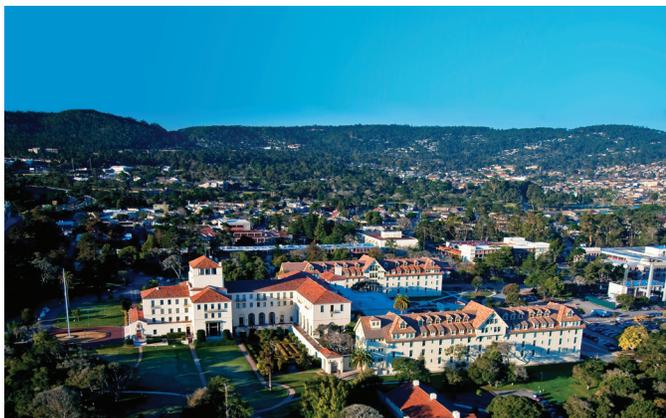
For FY11, a revised budget process was undertaken. (77) The differences in FY11 are:

- Reimbursably-funded tuition must be budgeted by departments, in addition to institutional funds as defined for FY10. This will present departments and budget decision-makers with a more complete picture of a department’s fiscal status.
- Administrative units must present performance metrics to support budget submissions. Academic Affairs will provide teaching and course statistics to academic departments for evaluation of their budget submissions and those departments will project their course sections and faculty hires.
- In direct support of NPS strategic planning goals, the President established a Strategic Initiative Pool, which provides one-time seed money for sustainable projects.
- Administrative units proposed “Recharge” activities or cost centers, functioning like mini-working capital

funds, allowing direct charging of activities typically funded by mission or indirect cost recoveries, which can provide a new source of funding to units, particularly in the case of reimbursably-funded research and education.

- Public budget hearings were held in summer, at which time Vice Presidents and Deans made budget presentations to the campus community, with final decisions about the FY11 budget made by the President and Provost.

The FY11 budget process will result in greater accountability by departments for how monies they receive are spent with a stronger tie to their strategic planning goals; strategic initiatives in direct support of the NPS strategic plan will be funded. [CFR 3.5]



SPACE ALLOCATION AND PLANNING

Space allocation and integration with strategic planning has been uneven in previous years. In 2009, a firm was engaged to perform a space allocation study and to develop a space allocation tool. (6) That tool looked at the current inventory of NPS space, to whom the space was assigned and for what purposes, and determined where unmet space needs existed. It also compared NPS to other graduate institutions, and found that NPS was on the low-end of overall square feet per student and classroom/laboratory square feet per student.

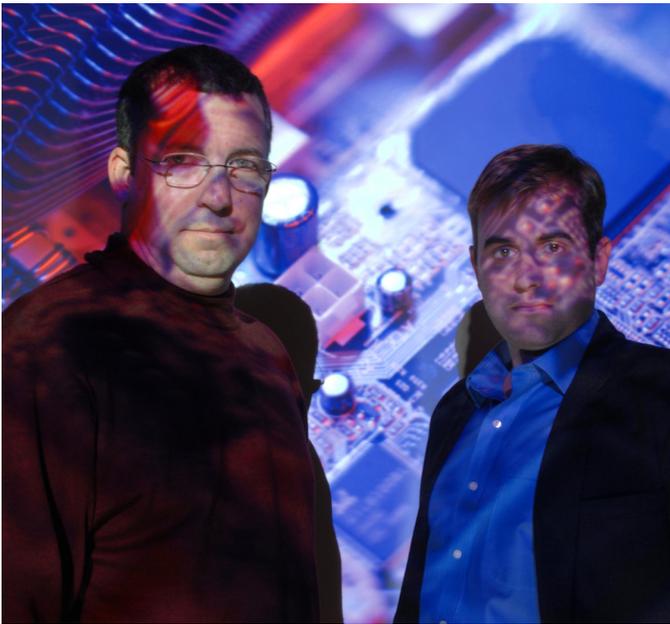
The space allocation study concluded that, while there is a modest amount of underutilized space on campus, there is not enough space to meet future needs, given current growth trajectories for research in particular. In an effort to ensure that allocation of space is aligned with the strategic plans of the campus, a new Space Management Policy was adopted by the President in January 2010. (74) This policy assigned the authority for space allocation to the Executive Vice President, working with the Vice President for Finance and Administration. Certain specific types of space, such as classroom space, are assigned to other administrators (such as the Registrar/Scheduler). Space assignments are documented, signed and distributed by the Executive Vice President to interested parties, a departure from past practices, in which deans “owned” their currently-occupied space and could use that owned space as they saw fit. Because of the lack of adequate space and the reality that new space on campus will be difficult to find in the next five years, the President adopted the policy to ensure that space allocation decisions would be strategically focused.

STRATEGIC PLANNING METRICS, SELF-BENCHMARKING, AND DISCOVERY PROCESS WITH PEER INSTITUTIONS

As part of the NPS strategic planning efforts, all administrative departments are required to set forth a strategic plan aligned with that of the institution, identify and track metrics and conduct external reviews. In the sections that follow are three examples of how different departments have carried out this directive.

Information Technology and Communications Services

Information Technology and Communication Services provides voice, video, and data infrastructure and services. Development of the second five-year strategic plan for IT-ACS, *Advancing the Mission*, relied heavily on over 100 campus interviews, with faculty, staff members, and stu-



dents. In addition to campus interviews, site visits were conducted to better understand the national higher education IT database (through Educause) from which benchmarking information was collected. (78)

Because technology departments vary in scope, it was important to get clarification of what data are included in the Educause annual survey. The best way to do this was through site visits to institutions to speak directly with CIOs, faculty and staff members about what services are provided and how they are funded. In addition to providing invaluable information about comparability of benchmarking information, the visits provide information about best practices on a variety of topics from e-mail delivery to high-performance computing. During 2008 and 2009, the following universities were visited: University of Southern California, University of California Santa Cruz, Stanford University, University of California San Diego, California Institute of Technology, and Claremont Graduate University.

As a result the ITACS strategic plan was informed by resource levels for the visited institutions, and three scenarios were proposed for institutional consideration. The first was a *status quo* scenario with few improvements, while the second included a modest resource increase which would permit implementation of many of the Plan's recommendations over

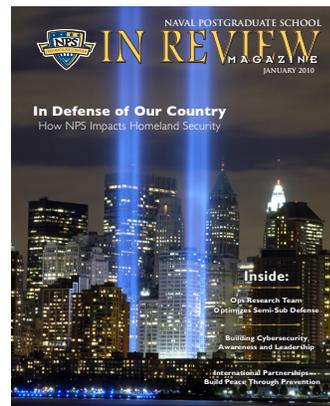


a five-year period. The third scenario represented an aggressive increase in resources that would accelerate the rate of improvements significantly. Benchmarking data were important because they provided a context within which to evaluate the ITACS resource request. [CFR 4.1, 4.2, 4.3]

Institutional Advancement

Institutional Advancement has responsibility for media relations, the monthly newspaper (*Update NPS*), the quarterly magazine (*In Review*), the monthly Pentagon Channel television program (*Inside NPS*), alumni relations, the annual report, photography, videography, and the NPS web site. Because IA portfolios at other universities vary considerably, site visits were employed to get benchmarking information and to develop professional contacts. The following institutions were visited: Santa Clara University, Pennsylvania State University, University of California Santa Cruz, Stanford University, and San Jose State University.

In addition to resource levels in staffing and operating budgets, actual IA products were shared and assessed. Frank



discussions about communication vehicles with colleagues at these institutions were extremely helpful in developing the IA strategic plan, (79) making the case for resources, and how to set priorities to leverage investments in the most effective way possible.

Dudley Knox Library

Dudley Knox Library (DKL) collects a wide array of metrics which are used for purposes of internal management as well as external reporting and benchmarking. DKL annually reports a standard set of statistical metrics to the Association of College and Research Libraries (ACRL). Using comparative data collected from more than 1,100 ACRL Carnegie Classified Doctorate-Granting Institutions as well as data collected by the Association of Research Libraries (ARL), DKL is able to compare and contrast staffing, services, and spending levels against other institutions (80) as well as against local, regional, and national libraries. DKL participates in various other ad hoc library, consulting, and vendor surveys that provide additional comparative data used to understand data and analyze trends. [CFR 2.2, 2.13] In another example, DKL compared historical price analyses from 2005-2009 (81) for journal costs against national data to demonstrate that DKL experienced an average 9.7% annual price increase in subscriptions while the DoN inflation factor has been 3% per year over this period. To balance this mismatch in cost vs. funding while at the same time meeting mission requirements, DKL conducted a complete resource cost/usage analysis and provided results to NPS, requesting feedback from faculty and students about potential cancellations and future needs. Based on their responses, coupled with library analyses as part of scheduled NPR and APR, the Library cancelled lesser-used subscriptions and added some new resources that will support current and emerging instructional and research needs [NPS Strategic Goal 1, 4]. The success of this open and transparent feedback loop between librarians and patrons is documented in “very high” customer satisfaction ratings from students, alumni, and customer satisfaction surveys. [CFR 4.3]



CUSTOMER SATISFACTION

In FY10, NPS created a customer satisfaction survey tool (82) to evaluate academic support services provided by campus providers to determine what changes were required to better satisfy those needs. The need for this survey grew out of continued concerns expressed by faculty, in particular, about the rate of progress NPS administrators were making in addressing issues that had been raised in previous studies. The survey was a conscious effort undertaken by campus leadership to get a baseline read on satisfaction about services, with the intention that the survey would be re-administered at regular intervals, such as every 18 or 24 months. It could then be used as an internal benchmarking tool for the campus to gauge progress. Such a Customer Satisfaction survey, over a large group of service users, about a variety of academic support services, had never been done at NPS before. The survey tool was developed by administrative managers responsible for services provided during fall 2009, with input from a faculty working group assembled to provide input to survey questions to be posed and to deter-

mine which academic support services should be surveyed. Additionally, faculty and staff focus groups were assembled for the purpose of providing more in-depth feedback to the most complicated support areas.

To simplify the survey, keep the time required by a survey responder to a reasonable level, and to get comparative results across surveyed services, a common set of questions about services provided was posed. The survey instructed its responders to answer nine questions by choosing from a 10-point scale, with 1 indicating “Strongly Disagree” and 10 indicating “Strongly Agree.” Responders were also given the option of choosing “N/A” or of opting-out of answering questions completely if they were not familiar with the services described. Additionally, space was provided at the conclusion of each service section to provide free-form comments, and again at the end of the survey itself to provide general comments. Ten academic support services were determined to be those of most interest, and the Customer Satisfaction survey was distributed to all faculty, staff, and labor contractors working for NPS on December 7, 2009. The survey was administered through Survey Monkey and was available to survey responders through December 31, 2009. It was accompanied by a letter from President Oliver that encouraged people to take the survey and spoke to confidentiality that would be maintained regarding survey responses and responders.

Approximately 1,200 individuals received the survey, and 538 responses were received — a 45% response rate — an indication of high interest on the campus. Many responders took advantage of the free-form comment opportunity, with an average of over 71 responses received for each of the 10 surveyed areas, and 94 responses to the general question “Do you have any other comments to share regarding the services mentioned in this survey?” at the end of the survey. The average score for service areas surveyed was 6.66 (unweighted by the number of responses provided for each service area). The range of services areas’ overall scores was from 5.6 to 9.0.

The range of responses to individual questions, when viewing all service areas, was from a low of 5.1 to a high of 9.3. The range of responses within a given service area varied tightly around average scores, with a low variation of 0.7 to a wider variation of 1.2. (83)

NPS went through a categorization process for comments received to see if they could generally be grouped into common types of concerns. (84) The concerns noted by reviewers fell into these major categories: adequacy of communication with customers; need for process improvements and streamlining-avoidance of bottlenecks; responsiveness/timeliness; staff skill deficiencies. For particular service areas, there were specific concerns raised: for administration of contracts for equipment or commodities — concerns about inventory control and warehouse; for Travel Office — issues with Defense Travel System; for ITACS — staffing and other resource level deficiencies, including maintenance of equipment, Help Desk hours, and staffing. In the case of the Library and ITACS, comments received praising department personnel and their processes were of greater frequency than specific categories of comments received expressing concerns.

Faculty and staff focus groups were held on February 22, 2010. Eight faculty members participated in each of the faculty focus groups; eight administrators/staff members participated in the staff focus group. The focus groups were conducted by Dr. Shawn Spano, a communications consultant and Professor in the Communications Studies department at San Jose State University. Dr. Spano was selected as the focus group leader not only for his expertise and standing, but because he was from outside NPS and could ensure confidentiality of responses. No NPS administrator or staff representing the discussed service areas was in the room as focus groups were held. Topics for faculty focus groups were limited to: 1) Contracting, 2) Sponsored Activities Funds Receipt, and 3) Space/Facilities. There was time allowed for other topics and concerns to be expressed at the end of the session. Topics for the staff focus group were limited to: 1)

Human Resources Office, 2) Command Evaluation (internal audit office at NPS), 3) Academic Planning and Budgeting, 4) Information Security and Security Clearances, and 5) Financial Processes; there was time allowed for other topics and concerns to be expressed at the end of this session as well. All focus groups ran past the 90 minutes allowed for the session, indicating a high degree of interest in the topics.

The results of the focus groups were very consistent with results of the Customer Satisfaction survey. (85) At the beginning of the focus group, Dr. Spano invited participants to answer the questions: “What do you enjoy most about working at NPS?” and “If you could change one thing about NPS, what would it be?” From that point, he asked each group to talk about the specific service areas by posing the following questions:

- 1) What is your familiarity with (service area)?
- 2) What aspects of this service are working well for you? Please be specific.
- 3) What aspects of this service are not working as well as they should? Please be specific.
- 4) What actions and changes can you suggest for improving this service?

Focus group members identified the following themes as to why they enjoyed working at NPS:

- 1) Variety and flexibility of activities and an ability to pursue their professional interests;
- 2) Academic environment for research and teaching;
- 3) The people at NPS, including students and working colleagues.

The following concerns were identified consistently in all three focus groups:

- 1) Inefficient and inconsistent processes and procedures;
- 2) Lack of transparency and communication;
- 3) Lack of a coherent organizational identity – being

caught between regulations of the federal government, the military, and the university.

The Faculty Work Group met at the end of March to discuss how to best distribute the survey and focus group results to the campus. They also made recommendations to campus leadership about what should be done with the results and how academic support services should be expected to respond to the findings, as well as what the ongoing role of the Faculty Work Group should be.

Results from the survey and focus groups went to the managers of those support areas. Those managers addressed areas of concern in their budget proposals for FY11 and adopted performance metrics that demonstrated how they addressed concerns and proposed measurable ways to show progress made during FY11. [CFR 4.3. 4.4, 4.5, 4.6]

CONCLUSION



NPS has made progress on achieving its strategic goals since the WASC visit for the Capacity and Preparatory Review in 2008. It has clearly demonstrated that it is a learning organization: it has not only continued to study itself and its processes, but also it has adopted real and measurable changes based on what it has learned. NPS will continue to take positive actions based on what it measures and to continue to ask itself how it can improve.

V. CONCLUDING THOUGHTS: EXAMINING THE EDUCATIONAL EFFECTIVENESS PROCESS ———

The educational effectiveness review served as a capstone event for ongoing NPS institutional self-reflection. NPS successfully met the goals set in our self-study proposal, *100 Years of Relevance and Excellence: Education and Research Serving National Security*, and NPS will continue to benefit from the work that formed the basis for its reaccreditation reviews.

Beginning with strategic planning, our reports highlight many accomplishments since writing our self-study proposal. Some recent accomplishments include: the addition of performance metrics that are monitored on a quarterly basis by the Strategic Planning Council; a new approach to measuring academic quality; and the creation of an *Annual Report* to provide an annual review of accomplishments, challenges, and resource allocation. And, NPS has already started to look forward to its next strategic plan with the establishment of a Committee on the Future to consider government, higher education, military, demographic, economic, and technology futures.

NPS launched many recent efforts to increase its visibility, as previously suggested by WASC. NPS began a monthly television program on the Pentagon Channel and published an institutional viewbook. An annual State of the University address by President Oliver was instituted last year and the link was shared with the campus, as well as friends and stakeholders. NPS published a centennial book chronicling NPS' 100 year history and produced a video highlighting the impact of NPS academic and research programs.

NPS has a long and dynamic tradition of program review, assessment practices, and using assessment data to improve teaching, learning, and service. The educational effectiveness review provided an additional lens to view our approach that resulted in reaffirming an established cycle of academic program review and formalizing a feedback loop to ensure

continued progress. The valuable work of the Educational Effectiveness Steering Group is being continued by changing its status to a standing committee that will provide ongoing advice and oversight of educational effectiveness planning and assessment.

From its inception, the NPS distance learning program has been grounded in evaluation and comparative analyses with resident programs. Preparations for the EER resulted in a self-study specifically designed to give additional visibility to this growing area. The self-study yielded a number of recommendations that are being implemented to provide more ways to monitor effectiveness of non-resident educational programs.

Finally, support of the academic enterprise was given careful attention within the context of rapidly growing educational and research programs. A number of studies were completed that yielded important recommendations that are being implemented. Administrative reorganization took place at the executive level to include a Vice President for Finance and Administration. Regular surveys of service experiences are being done, and results are being shared and used to inform business practice improvements. New administrative systems are being implemented, and budget transparency is ensured through public presentations and publications. Peer analysis and benchmarking data are being used to appropriately resource support services.

In summary, the entire institution has been engaged with institutional self-reflection, assessment, and action directed at improvement – of academic quality, planning and assessment, educational effectiveness and support services. As we celebrated our centennial year, we also engaged our campus community and friends in discussions about how we might raise the bar of accomplishment in our next 100 years.



NAVAL POSTGRADUATE SCHOOL



OFFICE OF INSTITUTIONAL ADVANCEMENT

MISSION

NPS provides high-quality, relevant and unique advanced education and research programs that increase the combat effectiveness of the Naval Services, other Armed Forces of the U.S. and our partners, to enhance our national security.

WWW.NPS.EDU