Naval Postgraduate School Exit Survey 1993-2004

A Twelve Year Trend Study

NPS
PRAESTANTIA PER SCIENTIAM

Naval Postgraduate School Exit Surveys: 1993-2004

Executive Summary

Introduction

The Naval Postgraduate School maintains a constant commitment to high quality education and research that fulfills a unique need – that of graduate education relevant to the mission of the Navy and Department of Defense (DoD). The School has consistently monitored the DoD uniqueness and relevance, as well as other important qualities over the years. This publication reports on the results of twelve years of exit survey data used to monitor student perception of these qualities.

Summary of Methodology

The survey consisted of items rated by the students on a five point scale of strongly disagree to strongly agree. Item responses were converted to codes of -2 to +2 and average scores for the items calculated. For the years 1993 through 1998, only the average item scores are available. These were compared to the average item scores for surveys from 1998 through 2004. A factor analysis conducted on the average scores resulted in grouping items into five separate factors.

Key Findings

Average responses to the items were always positive although there were variations in the strength of the positive response. Responses were remarkably consistent across a large number of respondents and years. An analysis of response frequency (grouped into positive and non-positive responses), identified some items for follow-up.

Follow up items

The items identified in Figure 16 show those individual survey items which received the most non-positive responses (combining the "strongly disagree", "disagree" and "neutral" categories). Areas such as quality of refresher courses, condition of the laboratories and knowledge and understanding of the Educational Skills Requirement (ESRs) should be further examined in other student and alumni surveys.

Naval Postgraduate School Exit Surveys: 1993-2004

Introduction

The Naval Postgraduate School maintains a constant commitment to high quality education and research that fulfills a unique need – that of graduate education relevant to the mission of the Navy and Department of Defense (DoD). The School has consistently monitored the DoD uniqueness and relevance, as well as other important qualities, of its educational programs. Since 1993, a principal vehicle for monitoring student perception of those qualities has been the exit survey administered to graduating students at the end of each academic quarter.

Survey

The questionnaire consisted of 28 items until early 1999, when two items on thesis work time were added (see Appendix A). The original items remained unchanged. Each item is a statement rated on a five-point Likert-type scale extending from strongly disagree to strongly agree. Surveys are administered by the Thesis Processor at the time the student submits final paperwork for the completion of the thesis.

Respondents tend to mark each item at the positive end of the scale, possibly the result of a halo effect. Still, because of the large number of respondents (several hundred each year), useful information exists in trends over time and comparisons among groups of items or respondents.

Methodology

The original five-point scale was coded from -2 (for strongly disagree) to +2 (for strongly agree) and an average score for each item was calculated. An average value of +1 indicated respondent agreement with the statement--the higher the mean, the stronger the agreement.

Two separate analyses of average item scores have been conducted. The first, completed in 1998, covered the period from the last quarter of 1993 to the first quarter of 1998, when a total of 3,002 students responded to the questionnaire. The second analysis, detailed in this report, covered the remaining period to 2004, with a total of 3,332 respondents (Figure 1).

Figure 1	
Number of Respondents by Year	
Year	Number of Respondents
1993-1998	3,002
1998	588
1999	605
2000	367
2001	394
2002	300
2003	514
2004	564

The Earlier Analysis: Brief Overview

Items in the questionnaire deal with areas such as instructional quality or the relevance of NPS courses to DoD concerns. As shown in Figure 2 below, all mean item responses were in the positive range. Item 7 on thesis advising and item 24 on the military-career benefit of study at NPS received the most favorable responses while item 23 on school support for extracurricular activities received the least favorable response.

Figure 2
NPS Exit Survey: 1993 - 1998
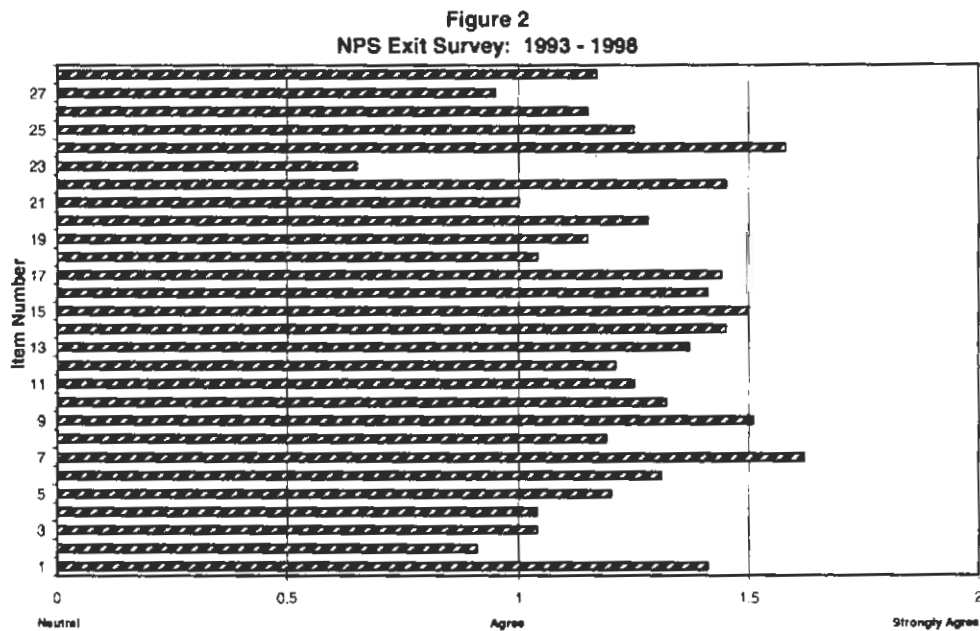
To identify major factors or concepts within the student responses, all 28 items, except for items 9 and 22, were subjected to a principal-components factor analysis with orthogonal rotation. This analysis resulted in grouping of the responses to the remaining 26 items into five distinct factors: DoD Relevance, DoD Uniqueness, School Support, ESRs (Educational Skill

Requirements), and Thesis. Figure 3 shows the items grouped into each of these factors. (Items defining a factor had a correlation with the factor of at least 0.50.) Interestingly, item 17 (quality of faculty) showed no substantial correlation with any of the five factors, nor did item 1 (uniqueness of NPS education).

Figure 3
NPS Exit Surveys: 1993-1998 (n = 3,002)
FIVE FACTORS UNDERLYING RESPONSES TO THE 28 ITEMS

Factor 1: *DoD Relevance*
Items 8, 16, 24, 25, 26, 27, 28

Factor 2: *DoD Uniqueness*
Items 10, 11, 12, 13, 14, 15

Factor 3: *School Support*
Items 18, 19, 20, 21, 23

Factor 4: *ESRs*
Items 2, 3

Factor 5: *Thesis*
Items 4, 5, 6, 7

Item 1 (*NPS uniqueness*) and Item 17 (*faculty quality*) showed no substantial loadings on any of the five factors; Item 9 (*overall quality of education at NPS*) and Item 22 (*quality of NPS graduate degree*) were excluded in the factor analysis

The Current Analysis

The current study examined average responses to the first 28 Student Exit Survey items for each year from 1998 to 2004, inclusive. The examination focused on the five factor groups of items shown in Figure 3, as well as the items not included in these groups (items 1, 9, 17, and 22 on NPS uniqueness, and education, faculty, and degree quality, respectively). This report includes a comparison of these five factors for each of NPS's four academic schools: Graduate School of Engineering and Applied Sciences (GSEAS), Graduate School of Operational and Information Systems (GSOIS), School of International Graduate Studies (SIGS), and Graduate School of Business and Public Policy (GSBPP).

In addition to this factor group analysis, an analysis of response frequency for individual items was conducted. Across the seven years of the recent data collection, responses were grouped into positive ("strongly agree" plus "agree") and non-positive ("strongly disagree" plus "disagree" plus "neutral") and items showing the highest positive and non-positive responses were identified.

4

Results

Long-Term Trends

The graphs in the next section show average item responses for each of the five factor groups. Each graph shows the results of the earlier study as the topmost bar followed by average responses for each year of the recent study. As mentioned earlier, the results have been very consistent and overall positive across all twelve years. There are, of course, some variations in average item score between years and not all items scored equally high but there is strong consistency within each item.
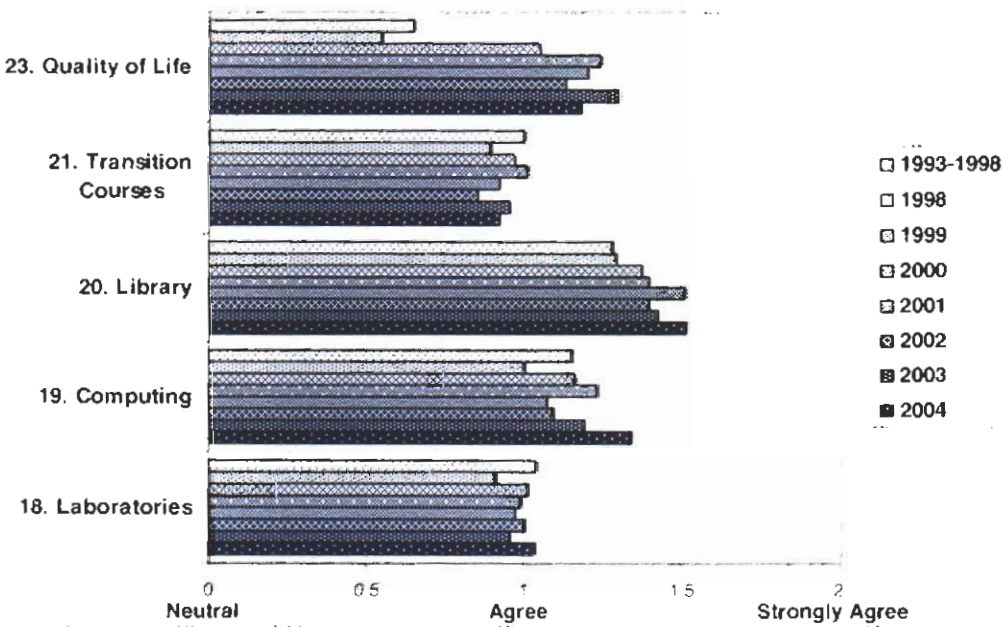
Figure 4
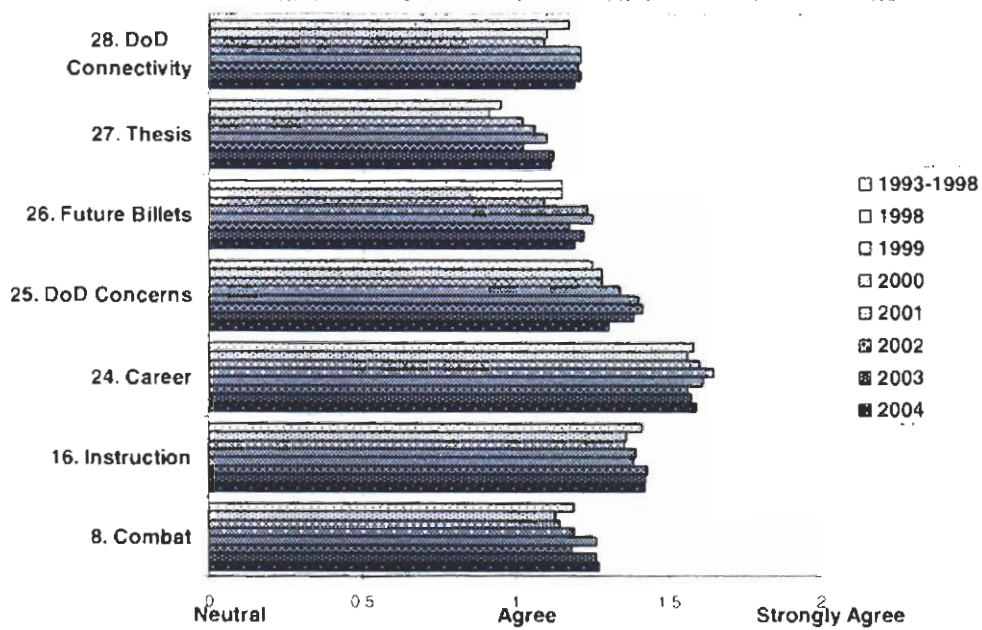
Relevance to DoD Mission. Items here range from an average of +1 to just over +1.5.
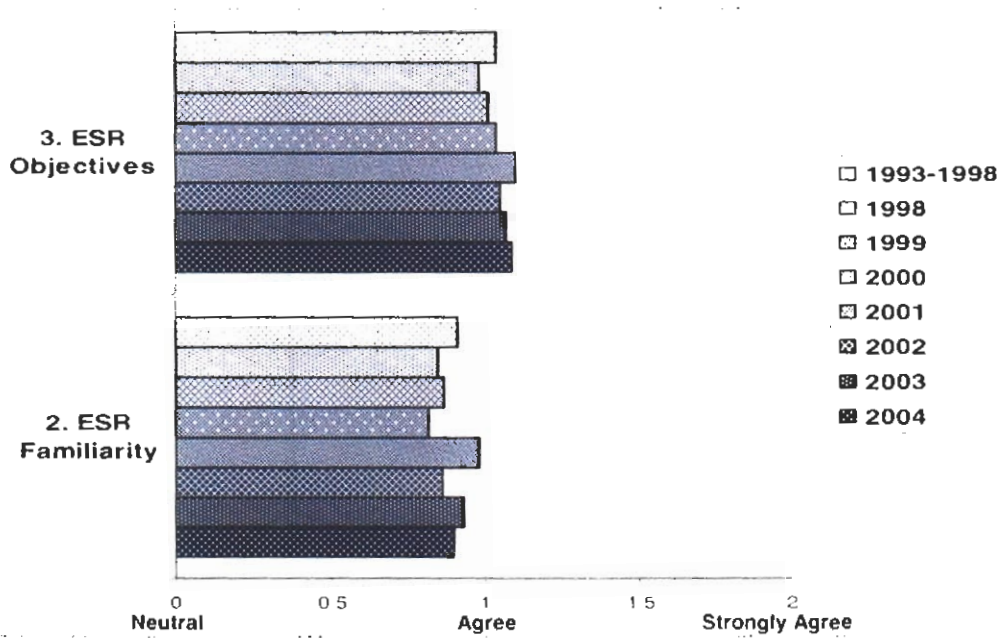
Figure 5
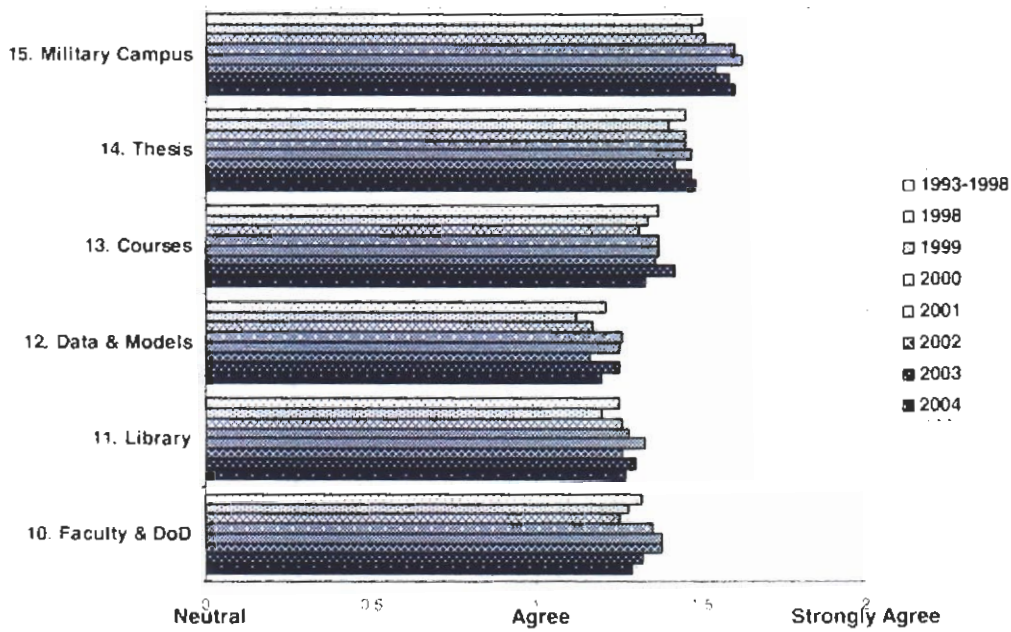
Uniqueness of NPS in promoting DoD interests. Figure 5 reveals strongly consistent and positive responses across both items and the factor.
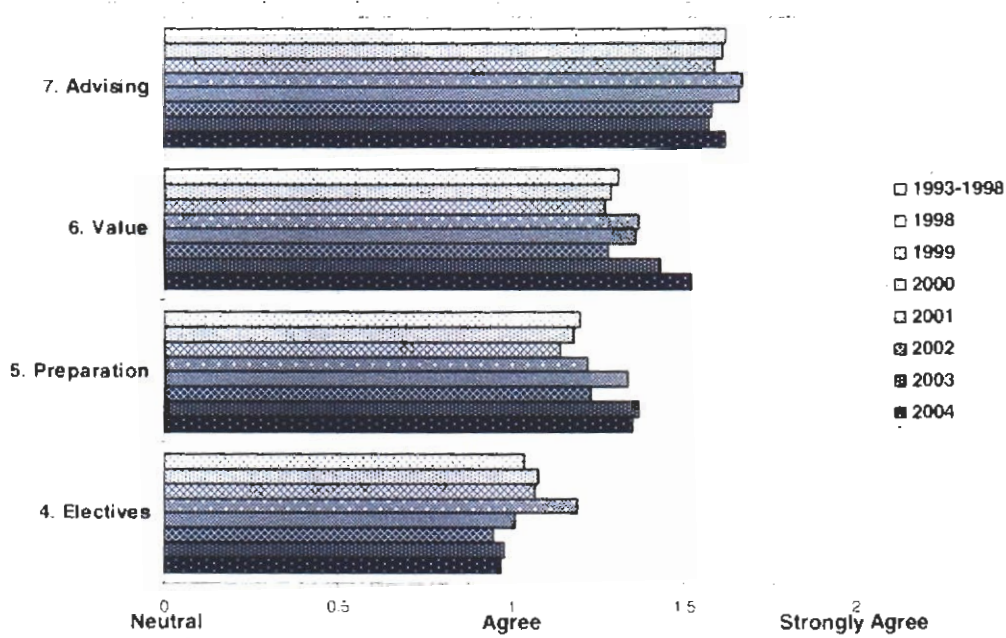
Figure 6

School Support. This factor shows the greatest range of variability among the items with values from roughly 0.8 for item 21 to nearly 1.5 for Item 20.
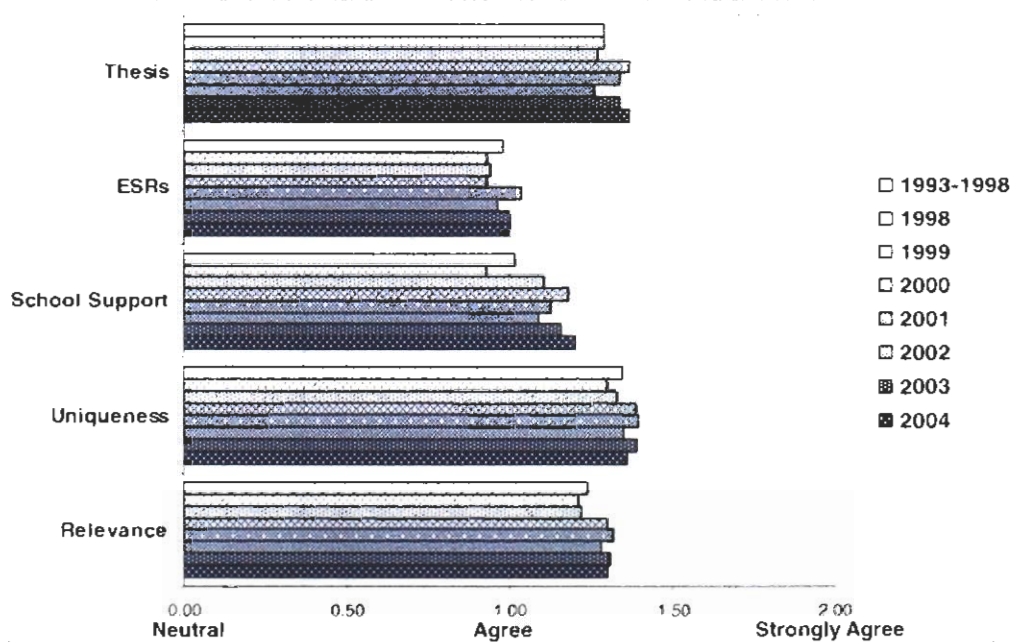
6

Figure 7

Educational Skill Requirements. Very consistent average responses are seen for ESR.

Figure 8

Thesis. Item 4 has the lowest mean score but is less directly related to thesis than the other items.

Figure 9

All Five Factors. Figure 9 shows the twelve-year trends for all five factor groups. This graph demonstrates most clearly that there was very little variation, on average, within each of the factors. There are some small variations between factors but they are, overall, very favorable ranging from roughly 1.0 to 1.3.

Comparison of the Four NPS Schools 1998-2004

Most curricula at NPS are divided among its four academic schools. Figures 10 through 14 compare the schools with respect to each of the five factor groups. As with the overall charts, the results are consistently positive across both years and the schools. A few of the schools show some variable patterns across years (e.g. GSEAS on the relevance factor) but there is not enough of a pattern to suggest any particular cause. Again, as with the overall charts, the ESR factor received the lowest average rating but that too was a positive response.
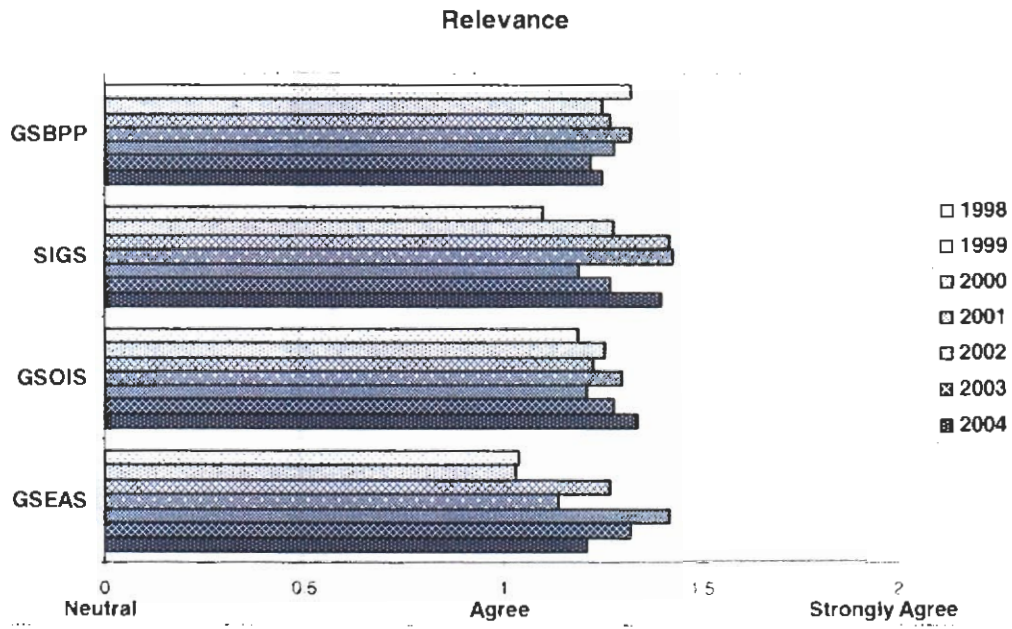
Figure 10

Relevance

Bar chart showing Relevance ratings for GSBPP, SIGS, GSOIS, and GSEAS by year (1998–2004). X-axis ranges from 0 (Neutral) to 0.5, 1 (Agree), 1.5, 2 (Strongly Agree).

Legend:
- 1998
- 1999
- 2000
- 2001
- 2002
- 2003
- 2004

Figure 11

Uniqueness

Bar chart showing Uniqueness ratings for GSBPP, SIGS, GSOIS, and GSEAS by year (1998–2004). X-axis ranges from 0 (Neutral) to 0.5, 1 (Agree), 1.5, 2 (Strongly Agree).

Legend:
- 1998
- 1999
- 2000
- 2001
- 2002
- 2003
- 2004

Figure 12

School Support

GSBPP
SIGS
GSOIS
GSEAS

□ 1998
□ 1999
□ 2000
□ 2001
□ 2002
☒ 2003
▦ 2004

0   0.5   1   1.5   2
Neutral   Agree   Strongly Agree

Figure 13

ESRs

GSBPP
SIGS
GSOIS
GSEAS

□ 1998
□ 1999
□ 2000
□ 2001
□ 2002
▨ 2003
▦ 2004

0   0.5   1   1.5   2
Neutral   Agree   Strongly Agree

10

Figure 14

Thesis

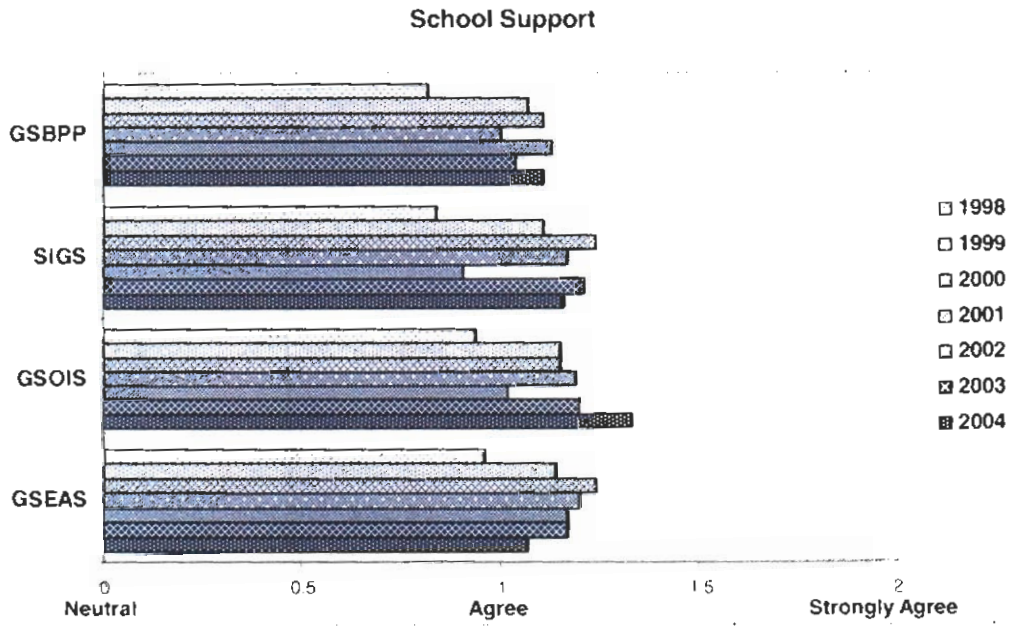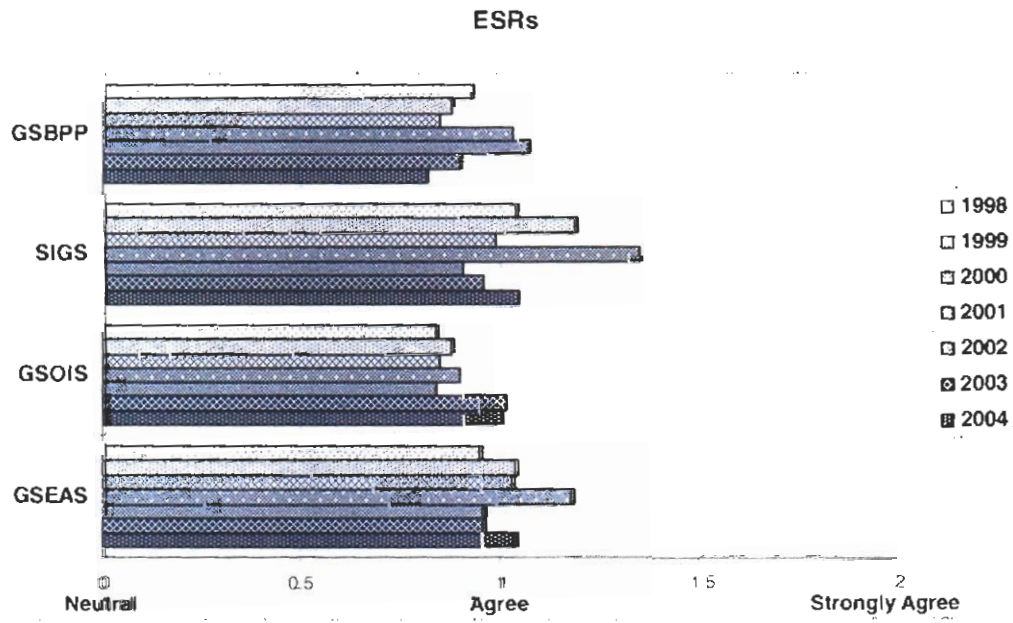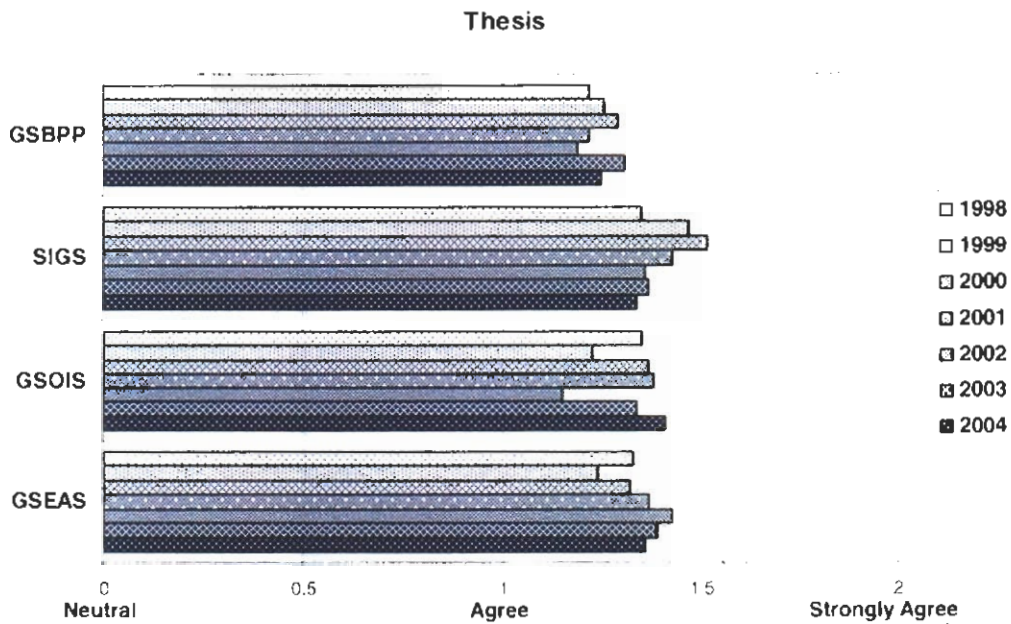**Identification of Most and Least Favorable Individual Item Responses 1998-2004**

Since responses tended to be overall positive in nature, an analysis of grouped response frequency by item was conducted on the recent (1998-2004) survey data. The items rated most favorable and least favorable were identified by collapsing frequency data into favorable ("strongly agree" plus "agree") and unfavorable ("strongly disagree" plus "disagree" plus "neutral"). As seen in Figure 15, graduating students rate NPS most highly in the areas of quality. Good thesis advisement and a diverse military environment are also highly valued.

Figure 15
Items with Highest Agreement Ratings*
1998-2004 Exit Survey

Rating	Item	Description
93.2%	9.	Overall, I would rate the quality of education at NPS as excellent.
93.1%	24.	NPS provides an education which benefits an officer for the remainder of his/her military service.
93.0%	7.	My thesis advisor readily offered guidance.
92.6%	16.	NPS provides high quality courses.
92.6%	22.	NPS provides high quality Graduate degrees.
92.0%	17.	NPS provides high quality Faculty.
90.8%	15.	The NPS environment in which officers from different services and specialties can study together.

*As measured by percentage "Strongly Agree" plus "Agree" responses totally 90% or greater.

Figure 16 (below) shows those items where graduating student perceptions are least favorable. These items suggest further investigation into the NPS refresher courses as well as the status of the laboratories and the familiarity of the students with the ESRs. More detailed questions could be asked of current and former students in follow up surveys.

Figure 16
Items with Lowest Agreement Ratings[+]
1998-2004 Exit Survey

Rating	Item	Description
35.0%	21.	NPS provides high quality refresher and transition courses.
28.6%	18.	NPS provides high quality laboratories.
27.3%	4.	The opportunity to take more electives would have enhanced my curriculum content.
26.9%	3.	My education at NPS met the objectives of the ESRs.
26.5%	2.	I am familiar with the Educational Skill Requirements (ESRs) of my curriculum.
23.6%	27.	Theses done by NPS students are frequently useful to their Service/DoD organization.
22.5%	12.	A civilian university would find it hard to match the DoD-oriented databases, computer models and simulations available at NPS.
20.4%	23.	NPS provides high quality support for quality of student life (e.g. exchanges, gym).

[+]As measured by percentage "Strongly Disagree" plus "Disagree" plus "Neutral" responses totaling 20% or greater.

Summary

Student perceptions about NPS for the five factor groups (Relevance, Uniqueness, School Support, ESRs, and Thesis) have stayed consistently positive and generally rather high on a scale of -2 to +2. There has been little change in the ratings between the periods 1993-1997 and 1998-2004. When the items which make up the factor groups are examined (Figures 4 through 9), there may be some variation across years but these also are basically consistent.

The data from each of the four schools basically reflects the same patterns as the whole dataset with consistently high ratings and little change across the years. There are some small variations in individual items between the schools and there may be some interest in further examination of survey data by school.

Finally, an analysis of positive and non-positive responses to individual items highlights some areas which should be followed up to learn how critical these areas are to the students and their perception of quality at NPS.

APPENDIX A

NPS GRADUATION SURVEY
INSTRUCTIONS FOR COMPLETING THE SCANTRON FORM:

- Use a #2 pencil
- Enter your curriculum number in the first three rows of the I.D. block. Darken the boxes as in the example below for curriculum 825.

Scantron example

- Answer each of the questions utilizing the following criteria:

  Notice: Any answer left blank is automatically scored as neutral.

A	Strongly Agree
B	Agree
C	Neutral/No opinion/Can't Answer
D	Disagree
E	Strongly Disagree

QUESTIONS:

1. NPS offered a unique education not available at a civilian institution.

2. I am familiar with the Educational Skill Requirements (ESRs) of my curriculum.

3. My education at NPS met the objectives of the ESRs.

4. The opportunity to take more electives would have enhanced my curriculum content.

5. My coursework at NPS prepared me for my thesis research.

6. Writing a thesis was a valuable component of my education.
    (If not, please comment on reverse)

7. My thesis advisor readily offered guidance.

8. The secretary of the Navy has stated that NPS exists to increase the combat effectiveness of our military services. My education at NPS achieved that objective.

9. Overall, I would rate the quality of education at NPS as excellent.

A civilian university would find it hard to match:
(for questions 10-15)

10. The knowledge of my NPS faculty had of DoD.

11. The DoD-oriented holdings of the NPS Library.

12. The DoD-oriented databases, computer models and simulations available at NPS.

13. The DoD-orientation of courses at NPS.

14. The ability of NPS to support DoD-oriented thesis.

15. The NPS environment in which officers from different services and specialties can study together.

NPS provides high quality:
(for questions 16-23)

16. Courses

17. Faculty

18. Laboratories

19. Computing support to students.

20. Library support to students.

21. Refresher and transition courses.

22. Graduate degrees.

23. Support for quality of student life (e.g. exchanges, gym)

---

24. NPS provides an education which benefits an officer for the remainder of his/her military service.

25. Courses at NPS focus on, as appropriate, DoD data, issues and phenomena.

26. NPS curricula prepares an officer for DoD assignments.

27. Theses done by NPS students are frequently useful to their Service/DoD organization.

28. NPS provides students with exposure and connectivity to DoD officials and organization.

For the following questions, please estimate the number of hours you worked on (including thinking) your thesis:

29. Estimate number of hours in an average week:

    A: 10 or less   C: 20 to 30   E: more than 40
    B: 10 to 20   D: 30 to 40

30. Estimate number of weeks I worked on my thesis:

    A: 12 or less   C: 24 to 30   E: more than 36
    B: 12 to 24   D: 30 to 36