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RELATIONSHIP BETWEEN NAVY OFF-DUTY EDUCATIONAL PROGRAMS AND REC--ETC(U)
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**RELATIONSHIP BETWEEN NAVY OFF-DUTY
PROGRAMS AND RECRUITING, PERFORMANCE
AND RETENTION**

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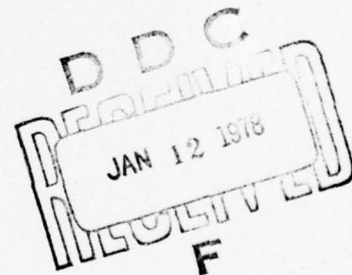
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) A series of studies was conducted relating off-duty educational programs to recruiting, performance, and retention. The relationships are all high and positive in studies involving the opinions of recruits, current and past NCFA program participants, Navy operational commands, Navy recruiters, and Navy wives. When participants are compared to a matched group (same rate, rating, years in service, age, etc.) of nonparticipants, there is evidence that they are promoted more frequently, but are less likely to		

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→ stay in the Navy. No relationships were found with rated performance, disciplinary records, or commendations. ↗

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FOREWORD

This study was conducted in response to a Chief of Naval Education and Training (CNET) request for an evaluation of the Navy's off-duty educational programs, which are collectively designated as Navy Campus for Achievement (NCFA). The objective was to identify any relationship between these programs and recruiting, performance, and retention. Both subjective opinions and actual behavior were measured in a number of studies comprising this project.

Appreciation is expressed to Jack Lobel, the NCFA representative at Miramar Naval Air Station, and Wayne Dansby, Senior Education Specialist of the Navy Combat Systems Technical Schools Command at Mare Island for their help in obtaining the cooperation of several Navy commands. Lyn Barrett ably provided extensive help in gathering and analyzing data.

J. J. CLARKIN
Commanding Officer

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SUMMARY

Problem

There is a lack of information concerning the benefits of the Navy's off-duty educational programs, which are collectively designated as Navy Campus for Achievement (NCFA). Such information is needed to help Navy management and congressional budget committees assess whether the benefits obtained justify the costs associated with NCFA programs.

Objective

This project was undertaken to obtain information concerning the relationship(s) between specific Navy off-duty educational programs and the recruiting, performance, and retention of Navy personnel.

Approach

Various lines of evidence were sought. Thus, rather than a single study, this project consisted of twelve different studies. Many of the studies involved obtaining opinions from various groups of pertinent people, while others involved extensive experimental controls (i.e., rigorously matching program participants with nonparticipants and then comparing the two groups' actual recorded performance and retention behavior).

Findings

1. Many large civilian companies provide off-duty educational programs; they believe they both improve performance and serve as a fringe benefit.
2. Navy wives believe that Navy opportunities for advanced education are important to their husband's enlistment decision, and that off-duty educational programs have a positive impact on their husband's reenlistment decision.
3. Participants in three NCFA programs--Program for Afloat College Education (PACE), Tuition Assistance, and Contract for Degree--are older, have more years of military service, are more likely to be married, have higher aptitude scores, and are more likely to be in a higher pay grade than Navy enlisted personnel in general.
4. Recent recruits stated that "opportunity to continue my education" was important to their enlistment decision.
5. A booklet describing NCFA programs was distributed (consumed) as much as the second most popular general-purpose booklet, and an advertisement emphasizing NCFA programs drew a very favorable number of responses from potential recruits.
6. Personnel on ships that have actively participated in PACE have more favorable opinions toward organizational conditions than personnel on ships with no PACE participation.

7. More participants in the Tuition Assistance and Contract for Degree programs were promoted than matched nonparticipants (55 vs. 50% and 46 vs. 32%, respectively). However, participants in the Tuition Assistance and PACE programs had lower reenlistment rates than their matched nonparticipants (47 vs. 50% for Tuition Assistance, and 37 vs. 46% for PACE).

8. NCFA participants did not differ significantly from matched non-participants on various performance indicators. This held for the Contract for Degree, Tuition Assistance, PACE, Defense Activity for Nontraditional Education Support (DANTES), Predischarge Education Program (PREP), and Resident Education Center (REC) programs.

9. Current and past participants in all NCFA programs studied tend to think that the programs had (or have) a positive influence on both their work performance in the Navy and their desire to make the Navy a career.

10. Ninety-eight percent of PACE students providing evaluations upon course completion think the course was worthwhile for them; 99 percent think the Navy should continue to provide PACE courses. Most viewed the PACE courses as helping them attain educational goals.

11. Recruiters think that significant reductions (24 to 37%) in enlisted recruiting rates would occur if the Contract for Degree, Tuition Assistance, or PACE programs (or all three) were discontinued--especially for the recruiting of high school graduates.

12. Navy managers at operational commands view the Navy's off-duty educational programs as an important, worthwhile factor for the improvement and retention of Navy personnel.

Conclusions

From the findings of the various studies comprising this project, it is concluded that:

1. Off-duty educational programs are viewed positively by civilian industry, Navy wives, active duty personnel, recruits, and operational commands.

2. Personnel in commands with high participation rates in the PACE program view their organizations more favorably than personnel in commands with no PACE participation.

3. No significant relationship was found between NCFA participation and rated performance, commendations, or disciplinary actions.

4. The relationship between NCFA participation and actual promotion is positive and that between NCFA participation and actual retention is negative.

Recommendations

Arguments to justify the existence or expansion of NCFA programs should be based on:

1. The very positively valued position they hold in the judgment of recruits, active duty participants, wives of male service personnel, recruiters, and operational commands.
2. The fact that most large private companies provide off-duty educational benefits.
3. The positive relationship between PACE participation and enlisted people's perception of organizational effectiveness.
4. The positive relationship between NCFA participation and promotion.

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INTRODUCTION

Purpose

This project was undertaken to obtain information relevant for the evaluation of Navy Campus for Achievement (NCFA) programs. The focus of the study is on three of the NCFA programs--Contract for Degree, Tuition Assistance, and Program for Afloat College Education (PACE). Emphasis was placed on obtaining information relevant to the impact of NCFA on (1) recruiting, (2) performance, and (3) retention.

Problem

As with all programs, NCFA must be evaluated to determine if it meets the objectives for which it has been and is being funded. Very little prior information has been gathered for this specific purpose.

Background

The Navy has established off-duty educational services programs to improve the competence of personnel, to assist in their career progression, and generally to strengthen their educational foundations. These programs (Tuition Assistance, Contract for Degree, Instructor Hire, Program for Afloat College Education (PACE), Resident Education Center (REC), and Defense Activity for Nontraditional Education Support (DANTES)) are collectively called the Navy Campus for Achievement (NCFA). It is expected that, by providing service personnel with an opportunity for individual fulfillment and development, the Navy will have an outstanding program that positively influences recruitment and retention of a high quality all volunteer force (CNET Instruction 1560.3, p. I-1). Consistent with this expectation, the Secretary of the Navy's Advisory Board on Education and Training (SABET), during its deliberations in 1976, recommended that studies be performed on the effectiveness of various NCFA programs on factors such as retention, promotion, job proficiency, discipline, and recruitment.

In FY78, the total cost of NCFA to the Navy will be \$8635K. The Navy has budgeted \$2792K for PACE and 2900K for the Tuition Assistance Program, while the Contract for Degree Program operates at virtually no cost to the Navy above and beyond the Tuition Assistance Program.

In FY76, there were 15,500 enrollments in PACE and 27,000 in the Tuition Assistance Program. (Individuals are counted as an enrollment each and every time they register for a course.) As of February 1977, 1300 individuals were actively involved in the Contract for Degree Program. It should be noted that virtually everyone in the Navy, including enlisted and officer personnel, is eligible for all three programs, although all the programs have limited appeal to officers, most of whom have their college degrees. CNET Instruction 1560.3 (19 May 1975) details those categories of individuals who are not eligible.

Excluding individuals who must withdraw from a course because of pressing work commitments, 75 to 79 percent of those enrolled in a PACE course complete

it and receive credit for it. Over 95 percent complete a Tuition Assistance funded course. Comparable figures for the Contract for Degree Program (which was begun in 1974) must await completion of the 10-year period allotted for degree attainment.

APPROACH

Only information which was available from historical records or that could be obtained with little interference of normal Navy operations was obtained. The information was in all cases useful for evaluating NCFA programs, but falls short of establishing causation between NCFA programs and personnel behaviors such as enlisting, performing, and reenlisting. Experiments which could establish causation were not undertaken because of (1) the extensive length of time required to elapse before dependent variables could be measured, and (2) the disruption of on-going programs that is usually required.

Various "lines of evidence" are available, each having some relationship to NCFA programs. Twelve lines of evidence were investigated in this project; thus, this report is not on one study but, rather, describes 12 studies. Each of the studies involves different NCFA programs and different criteria. After the presentation of the 12 studies, a cross-reference summary is presented to allow evidence obtained on any one NCFA program to be examined. The cross-reference also allows examination of any one criterion (such as retention) across all NCFA programs.

RESULTS

Literature Search

A literature search was conducted in an attempt to find any recorded empirical evidence of the value of off-duty education for either the civilian or military communities. Two indexing systems were utilized: (1) the Educational Resources Information Center, which provides computer access to documents that have been abstracted from over 700 journals and over 1000 other publications, and (2) the Business Periodicals Index, which includes abstracts from about 250 business periodicals.

The results of the search uncovered no empirical evidence that clearly linked off-duty education to recruiting, performance, or retention. However, some information was obtained on civilian industries' practices in supporting off-duty education. In this regard, the Committee of 500, a survey panel of the Administrative Management Society, conducted a management development survey that included 279 companies.¹ Results showed that 81 percent of these companies provide monetary assistance to employees for the cost of courses or other schooling. Fifty-six percent of the companies reimbursed employees for 100 percent of the costs of a course leading to a degree; of these, 77 percent reimbursed 75 percent or more of the costs of other schooling; and others reimbursed depending upon the course grade obtained.

Also, Watson and Grzybowski, in a survey of 283 U.S. firms having annual sales in excess of \$50 million, found that over 90 percent have tuition aid plans.² Ninety-two percent of those companies felt that they had benefitted from such plans, and, of these, 54 percent reported that employees who had received tuition aid had advanced faster in the organization than those who had not. Other benefits of tuition aid cited by companies include increased employee concern with self-development, improved organizational climate, and improved quality of work. Over half of the companies saw their plans serving as both a means of employee development and as a fringe benefit. Overall, because of the way results of this survey were reported, it is not known whether data on tuition aid plans were "opinions" or obtained through empirical investigations.

From the above, it can be concluded that most large companies in the United States provide off-duty educational support to their employees. Although empirical evidence linking this support to job performance is lacking, the fact that so many companies provide it--if only as a fringe benefit--has implications for the Navy. Since the Navy and private industry must draw from the same manpower pool for their personnel, the Navy must be competitive as to benefits provided if it is to meet recruiting and retention requirements.

¹Administrative Management Society, Willow Grove, PA. Committee of 500 Survey (Newsletter), October 1976, pp. 3-4.

²Watson, C. E. and Grzybowski, A. L. What your company should know about tuition aid plans. Business Horizons, October 1975.

Contact with Other Government Agencies

Personnel from various government agencies who are concerned with military off-duty educational programs were contacted to determine whether they could provide empirical evidence linking such programs to recruiting, performance, or retention. However, only opinion-type information was available. For example, recruits stated that educational opportunities motivated them to join the military and those participating in off-duty education reported favorably as to its benefits. Also, opinion-type data--favoring educational programs--were obtained from general morale surveys.

The Office of Naval Research sponsored one study,³ in particular, that sought opinions of Navy wives concerning the reasons their spouses joined the Navy and the importance of seven Navy retention programs, including the Navy Campus for Achievement (NCFA programs). In this study, a questionnaire consisting of 91 items was administered to a sample of 534 Navy wives living in San Diego, CA; Norfolk, VA; and Pearl Harbor, HI. In response to the item asking respondents to choose the single most important reason (from eight alternatives) why their spouses joined the Navy, more wives chose "opportunity for advanced educational, professional, or technical skills" than any other reason. Another item asked the wives to indicate how important an influence they felt each of seven retention programs had on their husband's decision to reenlist. Programs were to be rated on a five-point scale, ranging from "Very important" to "Not at all important." One-third of the wives indicated that NCFA was "Very important." Overall, NCFA was in the middle--in terms of rated importance--of the seven programs listed. From these results, it can be concluded that Navy wives support NCFA as a positive factor in both recruiting and retention.

Comparison of NCFA Enlisted Participants and Navy Enlisted in General

Very early in the project, the question was asked, "Who actually participates in the NCFA programs?" Since this project concentrates on three specific NCFA programs--Contract for Degree, Tuition Assistance, and Program for Afloat College Education (PACE)--data were obtained to describe the participants in these programs and to compare them with Navy enlisted in general.

Demographical data on Navy enlisted in general were obtained from 1975 Bureau of Naval Personnel statistics and 1976 data provided by the Manpower Data Analysis Center, Monterey, CA. Data on the active participants in the three NCFA programs--who were identified by the Chief of Naval Education and Training Support Office--were obtained from the Enlisted Master Tape of May 1976. However, since many Contract for Degree participants receive payment for courses through the Tuition Assistance program, making it difficult to completely separate the two programs, it was decided to combine them for purposes of this study. Computed means for data obtained are provided in Table 1.

³Grace, G. L., Steiner, M. B., and Holoter, H. A. (System Development Corporation), Navy career counseling research: Navy wives study (Tech. Rep. No. 7, TM-5031/007/00). Washington, D.C.: Office of Naval Research, September 1976.

Table 1
Comparison of NCFA Enlisted Participants and Navy Enlisted in General

Characteristics	NFCA Participants			Navy Enlisted in General
	Cont. for Degree + Tuition Assist.	PACE	Cont. for Degree + Tuition Assist. + PACE	
Number	1354	3266	4620	456,113 ^a
Characteristics				
Age	29.4	26.2	27.1	23.2
Years of Military Service	9.3	6.5	7.3	5.8
Years of Formal Education	12.5	12.3	12.3	12.0
Percent Married	85.7	84.5	84.9	39.3
Percent Caucasian	89.1	86.7	87.4	86.4
Test Scores				
Armed Forces Qualification Test (Percentiles)	72	69	70	61
Basic Test Battery (Mean = 50, S.D. = 10)				
General Classification Test	60	58	59	52
Arithmetic Reasoning	58	56	56	52
Mechanical	52	52	52	52
Clerical	55	54	54	52
Shop Practices	53	54	54	52
Percent in Pay Grade				
E-1	0.2	0.6	0.5	7.4
E-2	1.0	4.2	3.3	14.7
E-3	7.0	16.0	13.4	17.4
E-4	17.4	25.0	22.8	20.0
E-5	21.9	23.2	22.8	17.3
E-6	27.3	18.4	21.0	14.2
E-7	16.9	9.2	11.5	6.6
E-8	5.7	2.5	3.4	1.7
E-9	2.6	0.9	1.3	0.7

^aBased on 1975 Bureau of Naval Personnel statistics.

The distribution of "Age" in the Navy is positively skewed; that is, there are fewer individuals at the older end of the continuum than at the younger end. This fact has a strong influence on the average age for Navy enlisted in general shown in Table 1--23.2 years. The median age in the Navy (i.e., the point at which half are older and half are younger) is 22. The distribution for "Years of Military Service" is skewed in the same way. Since both of these variables are closely related to pay grade, the complete distribution by pay grade is provided.

From Table 1, it can be concluded that participants in the Contract for Degree, Tuition Assistance, and PACE programs are older, have more years of military service, are more likely to be married, have higher scores on the Armed Forces Qualification Test and most of the Basic Test Battery subtests, and are more likely to be in a higher pay grade than Navy enlisted in general.

Impact of Navy Educational Benefits on Enlistment Decisions

How do those who have recently joined the Navy assess the impact Navy educational benefits had on their enlistment decisions? To find out, a questionnaire was administered to approximately 1200 recruits during their fifth week of recruit training. The instructions for answering the questionnaire were as follows:

In this questionnaire you will be asked to identify your concerns, beliefs, and life goals. Your answers should represent how you feel about each item--not the way you think you should feel. This inventory is not a test and there are no "right" answers to the questions. Your answers will be treated in confidence and will be used for research purposes only.

One questionnaire item provided a list of 14 enlistment reasons and asked respondents to indicate how much influence each reason had on their decision to enlist in the Navy. Responses were to be made on a 4-point scale, with 1 meaning "no influence," and 4, "a very strong influence." Mean ratings assigned to the 14 enlistment reasons are provided in Table 2.

Reason No. 3, "Opportunity to continue my education," was included in the list to assess NCFA programs. As can be seen from Table 2, this reason was well endorsed by the recruits. The mean rating obtained--3.16--indicates that it has slightly more than a "strong influence" on Navy enlistment decisions. Only two reasons--to learn a trade and to travel--were endorsed more favorably.

Another questionnaire item made specific reference to NCFA programs: "Did you join the Navy primarily for education and training benefits you can get under the Navy Campus for Achievement (NCFA), such as Tuition Assistance, Afloat College Courses, etc.?" In response to this item, 45 percent of the recruits said "Yes," and 54 percent, "No."

Based on these responses, it appears that the NCFA programs provide a very significant recruiting incentive for the Navy.

Table 2

Influence of Various Factors on Enlistment Decision (N = 1191)

Enlistment Reason	Mean Rating ^a
1. To learn a trade or skill that would be valuable in civilian life	3.47
2. Desire to travel--see more of the world	3.18
3. Opportunity to continue my education	3.16
4. Desire for more job security	3.14
5. Desire to become a better individual	3.08
6. Opportunity to have a more fulfilling job	3.06
7. Chance to become a more mature and self-reliant person	2.98
8. Benefits: room and board, medical care, retirement, etc.	2.93
9. Opportunity to get on-job training (learning by doing)	2.86
10. Desire to serve my country	2.49
11. Desire for a Navy career	2.44
12. Need for a job; was not working before entering the Navy	1.96
13. A parent or relative was in the Navy and recommended it to me	1.60
14. Recruiting films or recruiter presentation in high school	1.39

^aRated on a 4-point scale with 1 meaning "no influence"; 2, "slight influence"; 3, "strong influence"; and 4, "very strong influence."

Impact of NCFA Programs on Recruiting

Arima assessed how much impact NCFA programs have on recruiting.⁴ His study addressed both recruiting aids and recruiting ads and was based on other than opinion data. In the recruiting aids portion, the number of booklets describing NCFA programs distributed by recruiters to applicants was compared to the number of general-purpose booklets distributed. Results showed that demand for the NCFA booklets was about half that of the most popular general-purpose booklet and equal to that of the second most popular. This high demand rate is taken as a reflection of the importance of NCFA programs as a recruiting aid.

In the recruiting ads portion, reaction to an NCFA ad appearing in Time magazine was compared to that of a general-purpose recruiting ad appearing in TV Guide. Adjustments were made for variables such as different publications, different distributions, and differing time of year. Results showed that the NCFA ad drew as many inquiries as the general-purpose ad and more responses than the average of all other Navy ads appearing in Time magazine. Thus, it can be concluded that the NCFA programs are a positive recruiting incentive among the population from which the Navy recruits.

Relation Between PACE Participation and Organizational Performance Perceptions

Under the Navy's Human Resource Management Support System, the personnel aboard many Navy ships have been administered a questionnaire entitled the Human Resource Management Survey (HRM Survey). This instrument covers a wide range of topics concerning organizational conditions and behaviors. Also, records are available that provide information on the degree of ship participation in the PACE program. Thus, a comparison was obtainable on the HRM Survey (CY76) between ships that were high participants in PACE (CY75) and those that had not participated.

In making this comparison, a list of CY75 active Pacific Fleet ships was obtained, along with the number of PACE courses taught aboard each of those ships in CY75. The degree of ship participation in the PACE program was determined by dividing the number of courses by the authorized number of personnel for the ship type involved. Those 15 ships having the highest degree of participation were chosen to represent the high PACE participation group. However, since only 9 of these ships had participated in the HRM Survey in CY76, they were the only ones retained for further analysis.

A no-PACE participation comparison group was obtained by matching each of the high PACE participant ships with a ship in the same class (e.g., carrier, destroyer, etc.) that had not participated in the PACE program during CY75 but had been administered the HRM Survey in CY76. HRM Survey results were not used in any way during the matching process. After the matched no-PACE participation group had been obtained, mean HRM Survey responses made by personnel aboard the high PACE participation ships were compared with those made by personnel aboard the no-PACE participation ships. Results are shown in Table 3.

⁴Arima, J. K. The incentive potential of the Navy Campus for Achievement in recruiting. Unpublished paper prepared for NAVPERSRANDCEN.

Table 3

Comparison of HRM Survey Mean Responses of Personnel Aboard
High PACE and Matched No PACE Participation Ships

HRM Survey Dimensions and Indices	High PACE Participation Ships		No PACE Participation Ships		Degrees of Freedom (Number minus 2)	T Value
	Mean ^a	Standard Deviation	Mean ^a	Standard Deviation		
<u>Command Climate</u>						
Communication Flow	2.78	.81	2.70	.81	5454 ^b	4.038****
Decision Making	2.49	.82	2.38	.85	4313 ^b	4.360****
Motivation	2.76	1.02	2.65	1.01	5955	7.580****
Human Resource Emphasis	2.53	.83	2.30	.82	5954 ^b	10.832****
Lower Level Influence	2.31	.99	2.24	.95	4281 ^b	2.260**
<u>Supervisory Leadership</u>						
Support	3.42	1.08	3.40	1.12	5954	.795
Teamwork	3.00	1.15	2.97	1.15	5919	.726
Goal Emphasis	3.42	1.04	3.41	1.06	5919	.092
Work Facilitation	2.90	1.04	2.84	1.06	5937	2.248**
<u>Peer Leadership</u>						
Support	3.52	.91	3.49	.93	5948	.968
Teamwork	2.86	.97	2.75	.95	5947	4.420****
Work Facilitation	2.70	.96	2.62	.94	5910	3.257***
Problem Solving	3.03	.92	3.00	.93	5935	1.289*
<u>Work Group Processes</u>						
Coordination	3.08	.87	3.01	.92	5949	2.946***
Readiness	3.45	.87	3.32	.95	5938	5.297****
Discipline	3.12	1.04	3.03	1.08	5910	3.168***
<u>Outcome Processes</u>						
Satisfaction	3.11	.92	2.97	.91	5959	5.972****
Integration of Man and Mission	1.99	1.10	1.80	1.04	5928	6.896****
<u>Training</u>	2.84	.97	2.73	.98	4321 ^b	3.890****
<u>Social Problems and Processes</u>						
Equal Opportunity	2.83	.82	2.69	.85	4292 ^b	5.620****
Drug Abuse	3.12	.91	3.06	.96	4284 ^b	2.170**
Alcohol Prevention	2.86	.83	2.74	.87	4278 ^b	4.290****
Intercultural Relations	3.18	.73	3.10	.78	5942	4.232****
<u>Miscellaneous</u>	2.70	.98	2.68	.99	4320 ^b	.860

^aItem response alternatives ranged from 1.00 (the least favorable perception) to 5.00 (the most favorable perception).

^bFor these indices, eight pairs of ships rather than nine were available for the analysis. This is reflected in the degrees of freedom.

*p < .10
**p < .05
***p < .005
****p < .0005

As shown, for every one of the 24 indices of the HRM Survey (e.g., communication flow, decision making, etc.), personnel from the high PACE participation ships viewed organizational conditions and behavior more favorably than those from the no-PACE participation ships. Although the absolute sizes of the differences are small, differences in 19 of the 24 indices are statistically significant (i.e., above chance occurrence). The largest difference between the two groups occurred on the index entitled "Human Resource Emphasis." The specific items on the survey that collectively constitute this index (and to which the respondent indicates the extent of his or her agreement) are:

1. To what extent does this command have a real interest in the welfare and morale of assigned personnel?
2. To what extent are work activities reasonably organized in this command?
3. This command has clear-cut, reasonable goals and objectives that contribute to its mission.
4. I feel that the workload and time factors are adequately considered in planning our work group assignment.

Since it is statistically possible for only one pair of very large ships to account for the differences obtained, the data were reanalyzed for each HRM index by computing a mean for each ship and then obtaining an average mean for high PACE participation and no-PACE participation ships. By using this procedure, each pair of ships influences the analysis to the same degree. As shown in Table 4, the results of the second analysis are comparable to the results of the first. Therefore, the differences obtained between the two groups on the HRM indices cannot be attributed to only one pair of ships.

From the above, it is concluded that a definite relationship exists between PACE participation and perceptions of organizational performance. If a command has participated in the PACE program to a substantial degree, its personnel are likely to perceive organizational conditions and behavior more favorably than personnel at commands that have not participated.

Comparison of Promotion and Retention Rates of NCFA Participants and Matched Nonparticipants

Are those who participate in NCFA programs more likely to reenlist or be promoted than a matched group of nonparticipants? In this study, participants in the PACE, Tuition Assistance, and Contract for Degree programs were compared to matched nonparticipants at a later point in time to determine whether there were any differences in their promotion and reenlistment rates. The participant groups consisted of service personnel who (1) had successfully completed or were successfully participating in one of the three NCFA programs mentioned above between August 1974 and May 1975, (2) had met minimum "time in grade" promotion requirements prior to their projected Enlisted Active Obligated Service (EAOS) date, and (3) had finished their current enlistment after the minimum time in grade for promotion date and before May 1977. First enlistees who could have started and completed a 2-year reenlistment within the time frame of the study were not included. Also, due to the varying requirements for promotion, E-9s were not included.

Table 4

Comparison of HRM Mean Survey Responses Between
High PACE and Matched No PACE Participation Ships

HRM Survey Dimensions and Indices	High PACE Participation Ships		No PACE Participation Ships		Degrees of Freedom (Number minus 2)		T Value
	Mean ^a	Standard Deviation	Mean ^a	Standard Deviation			
<u>Command Climate</u>							
Communication Flow	2.78	.10	2.71	.07	16 ^b		1.630*
Decision Making	2.48	.12	2.39	.12	14 ^b		1.520**
Motivation	2.74	.11	2.55	.13	16		3.035****
Human Resource Emphasis	2.53	.17	2.32	.13	16 ^b		2.790***
Lower Level Influence	2.30	.16	2.26	.18	14 ^b		.625
<u>Supervisory Leadership</u>							
Support	3.38	.19	3.39	.11	16		-.015
Teamwork	2.96	.20	2.95	.10	16		.042
Goal Emphasis	3.37	.14	3.40	.10	16		-.526
Work Facilitation	2.88	.16	2.84	.11	16		.520
<u>Peer Leadership</u>							
Support	3.49	.12	3.47	.09	16		.454
Teamwork	2.80	.12	2.73	.09	16		1.440*
Work Facilitation	2.68	.10	2.61	.10	16		1.390*
Problem Solving	3.00	.12	2.98	.08	16		.482
<u>Work Group Processes</u>							
Coordination	3.05	.12	2.99	.09	16		1.164
Readiness	3.44	.09	3.34	.08	16		2.515**
Discipline	3.05	.18	3.01	.12	16		.481
<u>Outcome Processes</u>							
Satisfaction	3.10	.13	2.95	.09	16		2.496**
Integration of Man and Mission	1.99	.14	1.82	.11	16		2.815***
<u>Training</u>	2.87	.16	2.71	.07	14 ^b		2.470**
<u>Social Problems and Processes</u>							
Equal Opportunity	2.83	.15	2.68	.08	14 ^b		2.510**
Drug Abuse	3.12	.13	3.09	.12	14 ^b		.450
Alcohol Prevention	2.86	.10	2.76	.06	14 ^b		2.300**
Intercultural Relations	3.18	.11	3.08	.11	16		1.663*
<u>Miscellaneous</u>	2.71	.17	2.67	.08	14 ^b		.550

Note. In this table, HRM Survey mean responses were obtained by computing a mean for each ship and then obtaining an average mean for High and No PACE participation ships.

^aItem response alternatives ranged from 1.00 (the least favorable perception) to 5.00 (the most favorable perception).

^bFor these indices, eight pairs of ships rather than nine were available for analysis. This is reflected in the degrees of freedom.

*p < .10
**p < .05
***p < .01
****p < .005

The nonparticipants were selected on a one-to-one basis with the participants. For each participant, a nonparticipant was chosen who was in the same pay grade, lacked the same amount of time toward completing his or her current enlistment, and was eligible for promotion prior to his or her EAOS date. In addition, each nonparticipant was matched to a participant on the following variables:

1. Years of preservice education.
2. Rating.
3. Mental group (Category I, II, III, or IV, based on Armed Forces Qualification Test results).
4. Marital status.
5. Race.
6. Sex.

Use of this methodology eliminates the influence of any of the above variables on any differences found between the promotion or reenlistment rates of the two groups.

The status of all persons in both groups with regard to promotion and reenlistment was determined as of their EAOS date. Results are provided in Table 5, which shows that four of the differences were statistically significant; that is, it is unlikely that they occurred because of chance sampling. More participants in the Contract for Degree Program were promoted than nonparticipants (46% vs. 32%; $z = 1.69$, $p < .05$). Similarly, more participants in the Tuition Assistance Program were promoted than nonparticipants (55% vs. 50%; $z = 3.30$, $p < .01$), but more nonparticipants reenlisted than participants (50% vs. 47%; $z = 1.70$, $p < .05$). The other statistically significant difference occurred in the PACE program evaluation, where more nonparticipants reenlisted than participants (46% vs. 37%; $z = 2.70$, $p < .01$).

The general conclusion from results of this study is that participants in the Tuition Assistance and PACE programs are not as likely to reenlist as matched nonparticipants, but that participants in the Tuition Assistance and Contract for Degree Programs are more likely to be promoted. The negative relation between NCFA participation in the Tuition Assistance and PACE programs and retention supports the observation that many service personnel who know they will be leaving the Navy participate in these programs to better prepare themselves for a civilian vocation.

Comparison of Performance of NCFA Participants and Matched Nonparticipants

This study was conducted to determine if NCFA program participants differ in current performance from nonparticipants. Comparison data were obtained by administering a six-item questionnaire (see Appendix A) to all available enlisted personnel assigned to 17 Navy commands. Although this was not a random sample of Navy commands, respondents were asked to report any current or past NCFA participation. Thus, such participation could have occurred at many and varied commands.

Table 5
Comparison of Promotion and Reenlistment Frequencies
for NCFA Participants and Matched Nonparticipants

Variable	Participants			Nonparticipants		
	Reenlisted	Not Reenlisted	Total	Reenlisted	Not Reenlisted	Total
Tuition Assistance						
Promoted	218	197	415** (55%)	227	144	371 (50%)
Not Promoted	133	200	333 (45%)	146	231	377 (50%)
Total	351* (47%)	397 (53%)	748 (100%)	373 (50%)	375 (50%)	748 (100%)
PACE						
Promoted	117	121	238 (51%)	152	92	244 (53%)
Not Promoted	56	170	226 (49%)	61	159	220 (47%)
Total	173** (37%)	291 (63%)	464 (100%)	213 (46%)	251 (54%)	464 (100%)
Contract for Degree						
Promoted	17	12	29* (46%)	12	8	20 (32%)
Not Promoted	17	17	34 (54%)	23	20	43 (68%)
Total	34 (54%)	29 (46%)	63 (100%)	35 (56%)	28 (44%)	63 (100%)

*Significantly different from nonparticipants at the .05 level.

**Significantly different from nonparticipants at the .01 level.

Items 1, 2, and 3 asked respondents to indicate their present educational level, current enlistment status, and reenlistment intentions when entering the Navy, respectively. Item 4 provided a list of six NCFA programs and asked respondents to indicate those programs in which they had participated or were participating and to circle the one in which they had been or were most involved. The six NCFA programs listed were:⁵

1. Tuition Assistance.
2. Program for Afloat College Education (PACE).
3. Contract for Degree.
4. Defense Activity for Nontraditional Education Support (DANTES).
5. Predischarge Education Program (PREP).⁶
6. Resident Education Center (REC).

The last two questionnaire items asked NCFA participants to indicate how much influence they felt NCFA participation had on the quality of their general work performance in the Navy and their desire to make the Navy their career.

From the information obtained by Item 4, respondents within each command were assigned to seven groups: six NCFA program participation groups (participants in Tuition Assistance, PACE, etc.) and one group composed of nonparticipants. Then, for each program participant, a matched nonparticipant was selected within the same command. This was done to eliminate the impact of intercommand differences in rating performance. Matching was based on pay grade, educational level, current enlistment status, and reenlistment intentions when entering the Navy, all of which were provided by the questionnaire. Matching on all these variables was facilitated due to the large percentage of nonparticipants found in each command (approximately 90%). Appendix B shows how closely participants and nonparticipants in each NCFA program were matched.

⁵No data were obtained on the Instructor Hire program.

⁶This program is not currently in existence. Data were collected, however, because of possible relevance to future programs.

After the participants and their matched nonparticipants for each of the six NCFA programs had been identified, their service jackets were accessed to obtain their recorded performance on the following variables:

1. Most recent military performance mark.
2. Most recent military behavior mark (E-1 through E-4 only; data not obtained for E-5s through E-9s).
3. Number of judicial and nonjudicial punishments administered during the past year.
4. Aggregate fines during the past year (suspended or not).
5. Total number of days confined during the past year (suspended or not).
6. Number of reductions in pay grade during the past year.
7. Number of special favorable evaluations during the past year.
8. Number of special unfavorable evaluations during the past year.

All data across the 17 commands were then merged, and participants in each NCFA program were compared to their matched nonparticipants. Results are presented in Table 6. Fewer of the differences between NCFA participants and matched nonparticipants (48 comparisons) are statistically significant than would be expected by chance alone. Thus, it can be concluded that the data in Table 6 do not support the claim that NCFA program participation enhances on-the-job performance. Due to their higher rate and aptitude scores (see Table 1), NCFA participants probably perform better than Navy personnel in general. However, when they are compared to matched nonparticipants, there is no difference.

NCFA Participants' Indication of NCFA Influence on Performance and Retention

In the previous study, those respondents who had indicated that they had participated or were participating in NCFA programs were asked to indicate how much they felt such participation had influenced the quality of their general work performance in the Navy and their desire to make the Navy their career. Responses received in reply to these questions are provided in Table 7, which indicates that participants rated NCFA programs as having a little better than "slight but favorable" influence on their work performance. The estimated impact on desire to make the Navy a career is between "no influence" and "a slightly favorable influence."

Table 6
Comparison of NCFA Participants and Matched Nonparticipants on Performance Variables

Levels of Performance Variable	Tuition Assistance			PACE			Contract for Degree			DANTES			PREP			REC						
	Parti- cipants No.	Nonparti- cipants No.	%	Parti- cipants No.	Nonparti- cipants No.	%	Parti- cipants No.	Nonparti- cipants No.	%	Parti- cipants No.	Nonparti- cipants No.	%	Parti- cipants No.	Nonparti- cipants No.	%	Parti- cipants No.	Nonparti- cipants No.	%				
Most Recent Military Performance Mark ^a	Most Recent Military Performance Mark ^a																					
	E-1--	E-5--	E-7--																			
	E-4:	E-6:	E-9:																			
	Top 1% 4.0	STU	Top 1% 4.0	20	17	17	15	3	27	8	27	13	15	20	22	29	18	29	19			
	Top 5% 3.8	STL	Top 5% 3.8	19	17	31	27	8	27	8	27	28	31	21	23	41	26	45	29			
	Top 10% 3.6	SUU	Top 10% 3.6	39	34	28	25	5	17	5	17	30	34	26	29	42	26	47	30			
	Top 30% 3.4	SUL	Top 30% 3.4	25	22	38	17	6	20	6	20	12	13	14	16	25	16	18	12			
	Top 50% 3.2	EEU	Top 50% 3.2	7	6	10	9	1	3	2	7	4	5	6	7	10	6	8	5			
	Top 50% 3.0	EEL	Btm 50% 3.0	2	2	3	3	1	3	--	--	1	1	1	1	6	4	7	4			
	Top 50% 2.8	GOU	Btm 30% 2.8	1	1	5	4	--	--	1	3	1	1	2	2	5	3	--	--			
Top 50% 2.6	GOL	Btm 10% 2.6	1	1	1	1	1	3	--	--	--	--	--	--	2	1	1	1				
Top 50% 2.0-- 1.0	UNM-- 1%	Btm 5%-- 1%	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--				
Most Recent Military Behavior Mark ^b	Most Recent Military Behavior Mark ^b																					
	Standard Deviation																					
	Missing Values																					
	Valid Number of Cases																					
	Average Code																					
	2.8 2.8 3.0 3.1 2.7 2.7 2.7 2.7 2.7 2.7 2.7 2.7 2.7 2.7 2.7 2.5 2.7																					
	1.55 1.27 1.61 1.68 1.52 1.19 1.40 1.60 1.37 1.28 1.27																					
	11 10 4 30 30 7 6 7 12 2 6																					
	224 225 113 30 30 89 90 160 155 97 93																					
	2.7 2.8 3.0 3.1 2.7 2.7 2.7 2.7 2.7 2.7 2.7																					
Most Recent Military Performance Mark ^a	Most Recent Military Performance Mark ^a																					
	Standard Deviation																					
	Missing Values																					
	Valid Cases																					
	Average Code																					
	3.60 3.70 3.60 3.60 3.70 3.80 3.80 3.60 3.50 3.60 3.60 3.60 3.60 3.60 3.60 3.60 3.60 3.60 3.60																					
	1.83 1.21 1.58 28 27 3																					

^aE-1s through E-4s are graded via the professional marking system ranging from 1.0 (lowest) to 4.0 (highest); E-5s and E-6s are graded using the overall mark in letter form ranging from UNM and UNS (Unsatisfactory and Unsatisfactory-minor) to STU and STL (Stand out from virtually all others--upper and lower); and E-7s through E-9s are classified as to their class standing ranging from Top 1% to Bottom 1%. For purposes of this comparison, grades obtained by the latter two groups were equated to the marking system used for E-1s through E-4s.

Marks for E-5s and E-6s coded as follows: STU and STL = Stands out from virtually all others (upper and lower); SUU and SUL = Superior to most (upper and lower); EEU and EEL = Typically effective (upper and lower); GOU and GOL = Good (upper and lower); and UNN and UNS = Unsatisfactory (minor and serious).

^bObtained for E-1s through E-4s only.

Table 6 (Continued)

Levels of Performance Variable	Tuition Assistance		PACE		Contract for Degree		DANTES		PREP		REC	
	Parti- cipants No.	Nonparti- cipants No.	Parti- cipants No.	Nonparti- cipants No.	Parti- cipants No.	Nonparti- cipants No.	Parti- cipants No.	Nonparti- cipants No.	Parti- cipants No.	Nonparti- cipants No.	Parti- cipants No.	Nonparti- cipants No.
Total Number of Days Confinement During Past Year (Suspended or Not)												
0	230	98 233 99	117 100 116 99	30 100 30 100	96 100 95 99	167 100 163 98	99 100 98 99					
7	1	0 --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
14	1	0 --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
30	1	0 2 1	-- -- 1 1	-- --	-- -- 1 1	-- -- 2 1	-- --	-- --	-- --	-- --	-- --	-- --
50	1	0 --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
55	--	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
82	1	0 --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
97	--	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
120	--	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
Standard Deviation	7.42	2.76	2.77	--	3.06	8.26	--	--	12.00	--	--	--
Valid Cases	235	235	117	30	96	167	99	99	99	99	99	99
Average	.80	.20	.20	0	.30	0	0	0	1.20	0	1.20	0
Number Reductions in Pay Grade During Last Year												
0	230	98 230 98	112 96 117 100	30 100 30 100	96 100 95 99	161 96 166 99	98 99 98 99					
1	4	2 5 2	5 4 --	-- --	-- -- 1 1	6 4 1 1	-- -- 1 1	-- --	-- --	-- --	-- --	-- --
2	--	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
3	1	0 --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
Standard Deviation	.23	.14	.20	--	.10	.08	.20	.10	.08	.20	.10	.10
Valid Cases	235	235	117	30	96	167	99	99	167	99	99	99
Average	.03	.03	.04	0	.01	.03	.02	.01	0	.02	.01	.01
Number of Favorable Special Evaluations During Past Year												
0	227	97 232 99	113 97 117 100	29 97 30 100	94 98 96 100	160 96 165 99	94 95 94 95					
1	7	3 3 1	3 2 --	1 3 --	1 1 --	7 4 2 1	4 4 5 5					
2	1	0 --	1 1 --	-- --	1 1 --	-- --	1 1 --	-- --	-- --	-- --	-- --	-- --
Standard Deviation	.21	.11	.24	.18	.23	.20	.28	.22	.11	.28	.22	.22
Valid Cases	235	235	117	30	96	167	99	99	167	99	99	99
Average	.03	.01	.04	.03	.03	.04	.06	.05	.01	.06	.05	.05
Number of Unfavorable Special Evaluations During Past Year												
0	232	99 234 99	116 99 117 110	30 100 30 100	95 99 96 100	165 99 166 99	99 100 99 100					
2	3	1 1 0	1 1 --	-- --	1 1 --	2 1 1 1	-- --	-- --	-- --	-- --	-- --	-- --
Standard Deviation	.11	.07	.09	--	.10	.11	--	--	.08	.11	--	--
Valid Cases	235	235	117	30	96	167	99	99	167	99	99	99
Average	.01	.0	.0	.0	.01	.01	.0	.0	.0	.0	.0	.0

Table 6 (Continued)

Levels of Performance Variable	Tuition Assistance			PACE			Contract for Degree			DANTES			PREP			REC									
	Parti- cipants No.	Nonparti- cipants No.	%	Parti- cipants No.	Nonparti- cipants No.	%	Parti- cipants No.	Nonparti- cipants No.	%	Parti- cipants No.	Nonparti- cipants No.	%	Parti- cipants No.	Nonparti- cipants No.	%	Parti- cipants No.	Nonparti- cipants No.	%							
Number of Judicial and Nonjudicial Punishments During Past Year																									
0	219	93	224	95	109	93	115	98	30	100	30	100	94	98	91	95	155	93	160	96	97	98	96	97	
1	12	5	9	4	5	4	2	2	--	--	--	--	1	1	4	4	8	5	4	2	1	1	2	2	
2	2	1	1	0	2	2	--	--	--	--	--	--	--	--	--	--	3	2	2	1	1	1	--	--	
3	--	--	1	0	1	1	--	--	--	--	--	--	1	1	--	--	1	1	1	1	--	--	--	--	
4	1	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
8	1	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	1
9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Standard Deviation	.64	.30			.42	.13			--	--	.32	.84	.41	.35			.22	.61							
Valid Cases	235	235			117	117			30	30	96	96	167	167			99	99							
Average	.11	.06			.10	.01			0	0	.04	.12	.10	.06			.03	.08							
Aggregate Fines (\$) During Past Year (Suspended or Not)																									
\$ 0	224	95	227	97	--	--	94	115	98	30	100	30	100	95	99	94	98	157	94	160	96	98	99	98	99
50	4	2	--	--	--	--	--	--	--	--	--	--	--	--	--	1	1	3	2	1	1	--	--	--	--
75	1	0	1	0	--	--	--	--	--	--	--	--	--	--	--	--	--	1	1	1	1	--	--	--	--
100	1	0	3	1	2	2	--	--	--	--	--	--	--	1	1	--	--	1	1	1	--	--	--	--	--
125	--	--	--	--	1	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
150	1	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2	1	--	--	1	1	1	1
190	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	1	--	--	--	--
200	1	0	2	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	1	--	--	--	--
205	--	--	--	--	1	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
250	--	--	1	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
259	1	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
300	--	--	1	0	1	1	1	--	--	--	--	--	--	--	--	1	1	--	--	1	1	--	--	--	--
350	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
364	1	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	1	--	--	--	--	--	--
400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	1	--	--	--	--
450	--	--	--	--	1	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	1	--	--	--
477	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1	1	--	--	--
500	--	--	--	--	1	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
675	1	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Standard Deviation	55.70	33.38			71.50	46.03			--	--	10.21	30.99	54.43	57.28			15.08	15.50							
Valid Cases	235	235			117	117			30	30	96	96	167	167			99	99							
Average	8.6	5.6			15.2	6.0			0	0	1.0	3.6	10.6	10.1			1.5	1.5							

Table 7
NCFAs Participants Estimate of Influence of NCFAs Programs on Performance and Retention

Response Alternatives	Tuition Asst.		PACE		Contract for Degree		DANTES		PREP		REC	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Influence on Quality of Navy Work Performance												
No noticeable influence	71	32	42	37	9	30	24	26	60	38	26	27
Slight but favorable influence	64	28	26	23	6	20	37	39	48	30	24	25
Definitely favorable influence	66	29	33	29	10	33	28	29	45	29	31	32
Markedly favorable influence	25	11	13	11	5	17	6	6	5	3	15	16
No Response	9		3		--		1		9		3	
Number of Valid Cases	226		114		30		95		158		96	
Average ^a	2.2		2.1		2.4		2.2		2.0		2.4	
Influence on Desire to Make Navy a Career												
Yes, but a negative one	17	8	9	8	3	10	6	6	6	4	10	10
No	132	58	79	69	17	57	61	66	106	68	61	64
Yes, slight but favorable	38	17	12	10	3	10	14	15	25	16	8	8
Yes, definitely favorable	30	13	9	8	5	17	8	9	13	8	11	12
Yes, markedly favorable	9	4	6	5	2	6	4	4	7	4	6	6
No Response	9		2		--		3		10		3	
Number of Valid Cases	226		115		30		93		157		96	
Average ^b	2.5		2.3		2.5		2.4		2.4		2.4	

^a Responses rated on a 4-point scale, with 1 meaning "no noticeable influence," and 4, "markedly favorable influence."

^b Responses rated on a 5-point scale, with 1 meaning "a negative influence," and 5, "markedly favorable influence."

Even though the average responses were less than enthusiastic, they are in the favorable direction. For example, of the 226 participants in the Tuition Assistance program, 17 felt it had a negative impact on their desire to make the Navy a career; 130, no impact; and 77, a positive impact. With regard to work performance, 71 felt it had no influence; and a total of 155, some degree of positive influence.

Student Evaluation of PACE Courses

Upon completion of a PACE course, students routinely are administered a 10-item evaluation questionnaire (Appendix C), which elicits opinions of the value and quality of the course, the approach used by the instructor, the quality of the instructional materials, etc. Although information obtained by this questionnaire may not be directly related to recruiting, performance, or retention, the student's degree of satisfaction with this aspect of Navy life conceivably may relate to general morale, which, in turn, may relate to performance and/or retention. All questionnaires returned from 15 PACE courses conducted aboard eight WESTPAC ships during 1976 were obtained, for a total of 222 separate evaluations or questionnaires.

Analysis of responses to a question asking students whether they felt the course was worthwhile for them showed that 218 or 98 percent were affirmative. A second item asked students whether they thought the Navy should continue to provide PACE courses at sea and, if so, why? In answer to the first part of the question, 221 (99%) responses were affirmative, and one was negative.

A total of 283 reasons was obtained in response to the "why" part of the question. These responses were content analyzed, using an inductively developed coding scheme. Intercoder reliability was achieved, since two independent judges agreed on the coding assigned to 221 (78%) of the reasons. The categories assigned to these 221 responses and the frequency rates are shown in Table 8.

From this study, it can be concluded that participants, upon completion of a PACE course, consider it to be worthwhile and feel that the Navy should continue to provide an opportunity for service personnel to participate. Participants see the value of the program primarily for attaining educational goals. Since students completed the questionnaires anonymously, it would not be possible to follow up these "educational value" responses to determine whether students providing them felt that education may be instrumental in bringing about better performance or in making them more career-oriented. However, a small percentage did spontaneously state on the questionnaire that they believed their participation in PACE would help their Navy career.

Table 8

Categorization of Student Responses to Question:
 "Why Should the Navy Continue to Provide PACE Courses at Sea?"

Coding Categories	Frequency	Percentage ^a
<u>Education</u> : Includes any response concerning education, knowledge, or learning either generally or specifically related to (1) a kind of education (i.e., managerial training), or (2) elements of formal educational systems (e.g., "basic courses," "course credits," "a degree").	112	51
<u>Constructive Activity</u> : Describes PACE as a worthwhile activity, as an alternative to less worthwhile activities, or as a valuable way of "filling one's free time."	37	17
<u>Self Improvement</u> : Includes comments relating to career advancement, "bettering oneself as a person" (excluding those relating to general educational improvement), or satisfying one's need for achievement. Includes comments reflecting concern with "keeping up with shore personnel educationally."	26	12
<u>Miscellaneous</u> : Includes unclear responses, non-specific affirmative statements such as "the course was beneficial," and unique responses not covered by other categories.	26	12
<u>No Response</u>	20	9
Total	221	101

^aAdds to 101% because of rounding error.

Recruiters' Evaluation of NCFA Programs

To determine whether recruiters feel that NCFA programs are an important recruiting tool, a six-item questionnaire was designed and distributed to the 88 recruiters in the San Diego County district, which includes the California counties of San Diego and San Bernardino and all of Nevada. Participation was on a voluntary, anonymous basis. Forty-three questionnaires were returned, for a response rate of 49 percent. Of these, 23 recruiters indicated that they had not recruited any nonhigh school graduates during the 3-month period covered by the questionnaire.

Responses to the first five items are provided in Table 9. As shown, the recruiters indicated that they felt the numbers of persons recruited would drop significantly (from 24 to 37%) if the Tuition Assistance, Contract for Degree, or PACE programs--or all three--were eliminated. A drop of only 5 percent would present a serious problem for the Navy.

The sixth item provided a list of 10 recruiting factors and asked recruiters to rate the usefulness of each. Ratings were to be made on a 3-point scale, with 1 meaning "extremely useful"; 2, "fairly useful"; and 3, "slightly useful" or "not useful at all." Responses to this question are provided in Table 10. As shown, off-duty educational programs (No. 7) were considered to be about in the middle of the 10 factors in the recruitment of high school graduates, but one of the least useful factors for nonhigh school graduates. For both groups, it is judged as a little more useful than the scale point "fairly useful."

From these results, it is concluded that the Contract for Degree, Tuition Assistance, and PACE programs are all useful for recruiting personnel into the Navy, especially high school graduates.

Table 9
Recruiters' Estimate of the Impact of NCFA on Recruiting

Questionnaire Item	Summation of all Responses					
	High School		Nonhigh		Total	
	Grads or GED N	%	School Grads N	%	N	%
1. How many high school graduates have you recruited during the past 3 months for the Navy's enlisted force? How many non-high school graduates? (Give a specific number of individuals in each case.)	510	(100)	58	(100)	568	(100)
2. The Navy now has an off-duty educational program called "Contract for Degree," which assists in obtaining a college degree from a civilian college by waiving residency requirements, getting credit for military education and job experience, allowing up to 10 years to complete the work, and obtaining a binding "letter of agreement" between the enlisted person and the university. <u>If the Navy did not</u> have the "Contract for Degree" program, how many of the high school graduates reported by you in question number one would you have been able to recruit? How many of the nonhigh school graduates? (Give a specific number of individuals.)	384	75 ^a	45	77 ^a	429	76 ^a
3. The Navy also has an off-duty educational program called "Tuition Assistance" in which the Navy pays up to 75 percent of the tuition for courses at civilian schools. <u>If the Navy did not</u> have the "Tuition Assistance" program, how many of the high school graduates reported by you in question number one would you have been able to recruit? How many of the nonhigh school graduates? (Give a specific number of individuals.)	349	68 ^a	40	68 ^a	389	68 ^a
4. Another Navy off-duty educational program is called "PACE" and provides for professors to teach courses aboard ship at minimal cost to the students. <u>If the Navy did not</u> have the "PACE" program, how many of the high school graduates reported by you in question number one would you have been able to recruit? How many of the nonhigh school graduates? (Give a specific number of individuals.)	362	71 ^a	40	69 ^a	402	71 ^a
5. <u>If the Navy did not</u> have the "Contract for Degree" program, nor the "Tuition Assistance" program, nor the "PACE" program, how many of the high school graduates reported by you in question number one would you have been able to recruit? How many of the nonhigh school graduates? (Give a specific number of individuals.)	322	63 ^a	37	64 ^a	359	63 ^a

^aPercent of total reported in Item 1 that recruiters felt would have been recruited if certain NCFA program(s) were abolished.

Table 10
Recruiters' Opinion of the Usefulness
of Various Recruiting Factors

Recruiting Factor	High School Grads or GED		Nonhigh School Grads	
	Mean Rank Order	Mean ^a Rating	Mean Rank Order	Mean ^a Rating
1. Opportunity to see foreign countries and people.	3	1.50	3	1.35
2. Need for a job when no civilian jobs are available.	2	1.33	2	1.15
3. Opportunity to learn a trade or skill through Navy schools and job experience.	1	1.17	1	1.05
4. The amount of military pay.	9	1.87	6.5	1.70
5. The benefits of military recreational facilities.	10	2.37	10	2.35
6. The benefits of military health care.	7	1.67	6.5	1.70
7. Opportunity to advance educationally by means of the Navy's off-duty educational programs.	6	1.65	9	1.75
8. Opportunity to obtain a job that has security.	5	1.63	4.5	1.50
9. The benefits of having quarters, clothing, and food provided.	8	1.80	8	1.73
10. A job with clear-cut career progression opportunities.	4	1.57	4.5	1.50

^aRated on a 3-point scale, with 1 meaning "extremely useful"; 2, "fairly useful"; and 3, "slightly useful" or "not useful at all."

Command Evaluations of NCFA Programs

Previously reported studies have obtained evaluative statements concerning NCFA programs from recruits, active duty personnel, and Navy wives. It is also important to obtain such evaluative statements from the operational managers of NCFA participants. In this regard, the Chief of Naval Education and Training--in January 1976--asked the operational commands to comment on NCFA programs, based on their experiences. Responses were enthusiastically in favor of NCFA. Excerpts from message evaluations sent by commands are provided below:

MEDIUM ATTACK WING PACIFIC--There is no doubt it will prove to be a prime retention tool. Every effort should be exerted to retain NCFA as presently operating.

ASW WING PACIFIC--Typical reactions to the NCFA program by enlisted personnel have been: "How come we did not have the program before this?" "Wish this program was available when I first enlisted!" and "The Navy has finally put it together."

FIGHTER WING PACIFIC--A cutback of the services . . . would have an extremely adverse effect on the morale of personnel . . . and the professional growth of quality personnel.

CINCUSNAVEUR--Career counselors from Naples view NCFA as an unprecedented aid to retention.

NAVLOGPAC--To consider elimination of NCFA under pressures of cost reduction appears to be a direct contradiction to our goals To lose NCFA would clearly be a step backward.

3RD FLEET--81% of career enlisted . . . 74% of first termers looked at Navy efforts in off-duty education as a positive factor influencing retention.

NAVFORJAPAN--NCFA is very influential in promoting retention of high quality naval personnel.

SUBPAC--NCFA represents an important career retention tool which is needed to retain our top performers

CINCLANTFLT--. . . programs such as NCFA provide a positive contribution to our overall retention rate.

From these responses, it is concluded that operational commands view NCFA as an important, worthwhile factor for the improvement and retention of Navy personnel.

Summary of Findings

Table 11 relates the findings of the studies reported above to recruiting, performance, and retention of Navy enlisted personnel.

Table 11

Summary of Findings Relating NCFA Programs to
Recruiting, Performance, and Retention

Applicable NCFA Program	Findings
Recruitment	
All programs	<p>Civilian industry provides educational benefits (p. 5).</p> <p>Navy wives think educational benefits important to their husband's enlistment decision (p. 6).</p> <p>Recruits say "opportunity to continue my education" is a strong influence on their enlistment decision (p. 8).</p> <p>Forty-five percent of recruits say they joined the Navy primarily for education and training benefits obtainable under NCFA (p. 8).</p> <p>Recruiting offices distribute large quantities of NCFA booklets (p. 10).</p> <p>Recruiting advertisements emphasizing NCFA draw many inquiries from potential recruits (p. 10).</p>
Contract for Degree, Tuition Assistance, and PACE	Recruiters say recruiting would drop 24 percent if Contract for Degree were abolished; 32 percent if Tuition Assistance were abolished; and 29 percent if PACE were abolished (p. 24).
Performance	
All programs	<p>Participants did not differ significantly from nonparticipants in various performance indicators (p. 17).</p> <p>Present and past participants see a "slight but favorable" impact on their work performance (p. 17).</p> <p>Operational commands view NCFA as important for the improvement of Navy personnel (p. 27).</p>
Tuition Assistance and Contract for Degree	More participants are promoted than nonparticipants (p. 14).
PACE	<p>Personnel from ships with extensive PACE participation have more favorable perceptions of their commands (p. 12).</p> <p>Participants did not differ significantly from nonparticipants in promotion rate (p. 14).</p> <p>Ninety-eight percent of participants say course was worthwhile for them and that the Navy should continue to provide the opportunity to take PACE courses at sea (p. 22).</p>
Retention	
All programs	<p>Navy wives think NCFA is important influence on their husband's reenlistment decision (p. 6).</p> <p>Present and former participants report that NCFA programs have "no" or a "slightly favorable" impact on their desire to make the Navy a career (p. 17).</p>
Contract for Degree	Participants did not differ significantly from nonparticipants in reenlistment rate (p. 14).
Tuition Assistance and PACE	Participants had a lower reenlistment rate than did nonparticipants (p. 14).

CONCLUSIONS AND DISCUSSION

From the findings of the various studies comprising this project, it is concluded that:

1. Off-duty educational programs are viewed positively by civilian industry, Navy wives, active duty personnel, recruits, and operational commands.
2. Personnel in commands with high participation rates in the Program for Afloat College Education (PACE) view their organizations more favorably than personnel in commands with no PACE participation.
3. There appears to be no relationship between NCFA participation and rated performance, commendations, or disciplinary actions.
4. The relationship between NCFA participation and actual promotion is positive and that between NCFA participation and actual retention is negative.

Caution is called for in interpreting conclusion 3. While a positive relationship between NCFA participation and the performance variables would have represented supportive evidence for NCFA, the lack of such a relationship was not surprising. Many factors contribute to performance. An attempt to isolate the relationship with just one factor is difficult, especially when the factor, in most cases, reflects limited participation or, at best, participation distributed over a 10-year period, as in the Contract for Degree Program.

Caution is also called for in interpreting the negative relationship between participation and actual retention (conclusion 4). The design of the study that empirically investigated this relationship does not provide information needed to predict the impact of reducing or eliminating the NCFA programs. It should not be concluded that, if the programs were abolished, the reenlistment rate of personnel who are currently participating in NCFA programs would be the same as that for the current nonparticipants. The personnel who are now participating represent a more mature, intelligent, career-minded portion of the enlisted forces (p. 6). A lack of opportunity in the Navy to satisfy their expressed educational needs could have a negative impact on morale and retention. The point is that the data from the empirical studies do not provide information on what would happen if the programs were discontinued.

RECOMMENDATIONS

Arguments to justify the existence or expansion of NCFA programs should be based on:

1. The very positively valued position they hold in the judgment of recruits, active duty participants, wives of male service personnel, recruiters, and operational commands.
2. The fact that most large private companies provide off-duty educational benefits.
3. The positive relationship between PACE participation and enlisted people's perception and organizational effectiveness.
4. The positive relationship between NCFA participation and promotion.

APPENDIX A

QUESTIONNAIRE ADMINISTERED AT OPERATIONAL COMMANDS

AREA OFF-DUTY EDUCATIONAL INFORMATION

Name _____

Rate/Rank _____

Privacy Act Statement

AUTHORITY FOR SOLICITATION OF INFORMATION IS 5 USC 301. THERE ARE TWO PURPOSES FOR OBTAINING THIS INFORMATION. THE FIRST IS TO AID THIS COMMAND'S EDUCATION OFFICER IN PROVIDING EDUCATIONAL BENEFITS FOR THE PERSONNEL OF THIS COMMAND. THE SECOND IS TO HELP THE NAVY EVALUATE ITS EDUCATIONAL PROGRAMS. INFORMATION PROVIDED OUTSIDE OF THIS COMMAND WILL BE FOR STATISTICAL PURPOSES ONLY. INFORMATION PROVIDED WILL NOT BE MADE A PART OF YOUR PERMANENT RECORD. PARTICIPATION IS VOLUNTARY AND NO ADVERSE CONSEQUENCES WILL RESULT FOR NON-PARTICIPATION.

1. Present educational level
 - ☐ No high school diploma or GED equivalency
 - ☐ High school diploma or GED equivalency
 - ☐ 2 or less years of college
 - ☐ More than 2 but less than 4 years of college
 - ☐ Bachelors Degree
 - ☐ Graduate Credits - no degree
 - ☐ Masters Degree
 - ☐ Beyond Masters Degree
2. (Enlisted only) What is your current enlistment status?
 - ☐ First enlistment or extension
 - ☐ Second enlistment or extension
 - ☐ Third or later enlistment or extension
3. (Enlisted only) What were your reenlistment intentions upon coming into the Navy? I planned:
 - ☐ in all likelihood to reenlist
 - ☐ to reenlist unless Navy experience was especially unfavorable
 - ☐ to wait and see
 - ☐ not to reenlist unless Navy experience was especially favorable
 - ☐ not to reenlist in all likelihood
4. Present and past participation in Navy off-duty, part-time educational programs: (indicate all that apply).
 - ☐ Tuition Assistance: Navy pays up to 75% of your tuition
 - ☐ PACE: Professor teaches a course for credit aboard ship
 - ☐ Contract for Degree: Navy helps arrange contract between you and an institution granting a college degree.
 - ☐ DANTES: The Department of Defense Correspondence course program.
 - ☐ PREP: Courses in basic skills in preparation for taking a high school equivalency examination
 - ☐ REC: Resident Education Center - a college level course made available on base.
 - ☐ I have not participated in any of the above

***If you participated in more than one of the programs, circle the program in which you have been most involved.

ANSWER THE FOLLOWING QUESTIONS ONLY IF YOU HAVE PARTICIPATED IN ONE OF THE PROGRAMS LISTED IN QUESTION 4.

5. Concerning the program in which you were most involved, do you feel it had an influence on the quality of your general work performance in the Navy?
 - ☐ Had no noticeable influence
 - ☐ Had a slight but favorable influence
 - ☐ Had a definitely favorable influence
 - ☐ Had a markedly favorable influence
6. Concerning the program in which you were most involved, did it have any influence on your desire to make the Navy your career?
 - ☐ Yes, but a negative one in that it resulted in my thinking the Navy is less desirable.
 - ☐ No, it did not result in my thinking of the Navy as being more or less desirable as a career.
 - ☐ Yes, it had a slight, but favorable influence on the desirability of the Navy as a career.
 - ☐ Yes, it had a definitely favorable influence on the desirability of the Navy as a career.
 - ☐ Yes, it had a markedly favorable influence.

APPENDIX B

COMPARISON OF NCFA PARTICIPANTS AND MATCHED NONPARTICIPANTS
ON DEMOGRAPHIC VARIABLES

Table B-1

Comparison of NCEA Participants and Matched Nonparticipants on Demographic Variables

Item	Total Respondents ^a No.	Tuition Assistance		PACE		Contract for Degree		DANTES		PREP		REC	
		Parti- cipants No.	Nonparti- cipants No.	Parti- cipants No.	Nonparti- cipants No.	Parti- cipants No.	Nonparti- cipants No.	Parti- cipants No.	Nonparti- cipants No.	Parti- cipants No.	Nonparti- cipants No.	Parti- cipants No.	Nonparti- cipants No.
E-1	15	1	1	1	1	1	1	1	1	1	1	1	1
E-2	205	7	3	2	1	1	1	1	2	1	4	2	2
E-3	355	12	9	4	3	6	5	3	3	8	13	8	2
E-4	468	15	23	10	4	3	5	14	8	13	8	2	2
E-5	839	27	44	19	23	10	9	6	6	8	8	7	7
E-6	750	24	75	32	72	31	25	20	21	24	25	33	26
E-7	348	11	47	20	58	25	47	40	42	36	38	23	32
E-8	77	2	31	13	20	9	17	15	20	17	22	13	21
E-9	31	1	7	3	7	6	3	4	5	5	2	1	8
Missing Values	70	1	0	1	1	1	1	2	2	2	1	3	3
Valid Cases	3088	235	235	117	117	30	30	96	167	167	167	99	99
Average Pay Grade	4.98	5.1	5.0	5.7	5.6	6.3	6.2	5.9	5.7	5.1	5.0	6.0	5.7

Educational Level													
No high school diploma or GED	237	8	10	4	7	3	2	2	6	5	--	--	--
High school diploma or GED equiv- alency	1944	62	95	40	130	55	53	45	65	56	4	13	12
Two or less years of college	714	23	105	45	83	35	49	42	38	32	12	40	15
More than 2 years but less than 4 years of college	202	6	20	9	14	6	11	9	7	6	13	43	3
Bachelors Degree	29	1	2	1	1	0	2	2	1	1	1	3	--
Graduate credits, no degree	13	--	1	0	--	--	--	--	--	--	--	--	--
Masters Degree	4	--	2	1	--	--	--	--	--	--	--	--	--
Beyond Masters	2	--	--	--	--	--	--	--	--	--	--	--	--
No Response	13	--	--	--	--	--	--	--	--	--	--	--	--
Valid Cases	3145	235	235	117	117	30	30	96	167	167	167	99	99
Average level of education	2.3	2.7	2.4	2.6	2.4	2.7	2.6	2.4	2.4	2.4	3.4	2.7	2.6

Note: Due to rounding errors, percentages may not total 100 percent.

^a Includes all NCEA program participants, their matched nonparticipants, and all other respondents.

Table B-1 (Continued)

Item	Total Respondents ^a No. %	Tuition Assistance		PACE		Contract for Degree		DANTES		PREP		REC														
		Parti- cipants No. %	Nonparti- cipants No. %	Parti- cipants No. %	Nonparti- cipants No. %	Parti- cipants No. %	Nonparti- cipants No. %	Parti- cipants No. %	Nonparti- cipants No. %	Parti- cipants No. %	Nonparti- cipants No. %	Parti- cipants No. %	Nonparti- cipants No. %													
Current Enlistment Status																										
First enlistment or extension	1063	34	86	36	78	33	18	15	16	14	2	6	2	7	13	14	16	17	44	27	41	25	20	20	23	23
Second enlistment or extension	1017	32	77	33	88	38	47	40	44	38	14	47	12	40	27	28	31	32	64	38	74	44	31	31	35	35
Third or later enlistment or extension	1053	34	72	31	69	29	52	45	56	48	14	47	16	53	56	58	49	51	59	35	52	31	48	49	41	42
Missing Values	25		--	--	--	--	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Number of Valid Cases	3133		235		235		117		116		30		30		96		96		167		167		99		99	
Average Number of Reenlistments	2.0		1.9		2.0		2.3		2.3		2.4		2.5		2.4		2.3		2.1		2.1		2.3		2.2	
Reenlistment Intentions When Entering Navy																										
In all likelihood to reenlist	592	19	47	20	36	15	31	27	29	25	3	10	4	13	24	25	22	23	43	26	31	19	18	19	17	17
Reenlist unless Navy experience especially unfavorable	405	13	30	13	26	11	11	9	12	10	1	3	3	10	18	19	12	13	21	13	22	13	16	16	19	19
To wait and see	1383	44	104	45	119	51	51	44	55	47	17	57	19	63	29	30	40	42	65	39	79	47	41	42	43	44
Not to reenlist unless Navy experience especially favorable	335	11	27	11	35	15	10	9	10	9	5	17	3	10	11	12	10	10	13	8	19	11	5	5	9	9
Not to reenlist in all likelihood	394	13	25	11	19	8	13	11	10	9	4	13	1	3	13	14	12	13	24	14	16	10	17	18	11	11
Missing Values	49		2		--	--	1		1		--	--	--	--	1		--	--	1		--	--	2		--	--
Number of Valid Cases	3111		233		235		116		116		30		30		95		96		166		167		97		99	
Average Re-enlistment Intention	2.8		2.8		2.9		2.7		2.6		3.2		2.8		2.7		2.8		2.7		2.8		2.9		2.8	

Note: Due to rounding errors, percentages may not total 100 percent.

^aIncludes all NCPA program participants, their matched nonparticipants, and all other respondents.

APPENDIX C

FORM FOR STUDENT EVALUATION OF PACE COURSES

Chapman College PACE
Student Evaluation of Course/Instructor

COURSE _____

USS _____

TEACHER _____

DATE _____

Please respond to the following questions by writing your comments in the spaces provided.

1. Was this course worthwhile for you?
2. How does this course compare with college work that you have taken on campuses ashore?
3. Should the Navy continue to provide PACE courses at sea? Why?
4. Was the quality of this course what you believe a college-level course should be?
5. Did the teacher do a poor, fair, or outstanding job?
6. How could he have done a better job?
7. Were his exams fair? Too easy? Too difficult?
8. What is your opinion of the textbook used?
9. Were you encouraged to continue your college education by taking this course?
10. Additional comments? (Use reverse side if needed.)

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