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**IMPROVING TRAINING OFFICER JOB FIT:
A QUALITATIVE AND COST ANALYSIS**

by

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March 2018

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A QUALITATIVE AND COST ANALYSIS**

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ABSTRACT

Within the Surface Warfare community, the U.S. Navy has significant retention problems, which have been ward off by drastic bonuses paid to its officers. A phone survey of training officers (TRAINOs) aboard cruisers and destroyers was conducted, resulting in a 40% participation rate from the population. Only 30.3% selected the TRAINO billet as their number one billet choice, and 55.7% planned on getting out of the Navy. A majority felt the training received was inadequate.

This led us to conduct a cost-benefit analysis, with three courses of action (COA). First, the status quo shows no impact on costs or added benefits. COA 2, adding an additional TRAINO billet to be filled by a Human Resources (HR) Officer, increased costs by \$600,837 per month while COA 3, swapping an HR Officer into the surface warfare officer (SWO) TRAINO billet, increased costs by \$21,829 per month. There were significant non-monetary benefits to both COA 2 and 3, including increases in training proficiency and in job fit for both the HR and SWO communities. These non-monetary benefits were most significant in COA 2, resulting in adding an HR Officer to CRUDES platforms being the most beneficial COA.

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LIST OF ACRONYMS AND ABBREVIATIONS

BBD	billet based detailing
CBA	cost-benefit analysis
CeTARS	corporate enterprise training activity resource system
COA	course of action
CCR	cumulative continuation rate
CDO	command duty officer
CRUDES	cruiser/destroyer
DHRB	department head retention bonus
FLTMPS	fleet management and planning system
HR	human resources
NEC	Navy enlisted classification
OCS	officer candidate school
OOD	officer of the deck
RADM	relational administrative data management
RL	restricted line
ROTC	reserve officer training corps
STA-21	Seaman to Admiral - 21
SWO	surface warfare officer
TRAINO	Training Officer
URL	unrestricted line
USNA	United States Naval Academy

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I would like to thank my family for being there whenever needed. I am lucky to have their support and enduring patience.

—Luke Groves

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—Kyle Lupo

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I. INTRODUCTION

The United States Navy must ensure that its fleet is prepared and properly manned for any scenario at a moment's notice. The Navy aims to incorporate regular revisions of its standard operating procedures to improve upon its training cycles, processes, and requirements. Yet, in practice, training cycles become repetitive, personnel are not afforded the time to attend beneficial or required schools, and personnel qualifications are not maintained. At the crux of these personnel pitfalls lies the Navy's training programs. This research examines alternate manning schemes among Training Officers (TRAINOs) on cruiser and destroyer (CRUDES) ships in an effort to increase efficiency and retention. This research analyzes whether a specialized officer would perform better in the role of Training Officer than the currently serving Surface Warfare Officer.

Across the fleet, the Navy struggles to retain its best sailors and officers who self-select to separate, while simultaneously forcing the separation of the sailors who fail to meet prescribed standards. In an effort to retain its talented and competent Surface Warfare Officers, the Navy should examine officer job fit. Doing so allows the right officer to be placed in the role best suited to his or her abilities. This research studies job-fit analysis with regard to CRUDES Training Officers. CRUDES Training Officers are typically Lieutenant Junior Grade Surface Warfare Officers who possess little experience in the duties and responsibilities of the Training Officer. This research design identifies whether or not the role of Training Officer, filled by an alternate officer designator, increases sailor satisfaction, qualification adherence, and retention through increased job fit. The research explores second- and third-order effects of the potential changes and compares, using a cost analysis, the results of the alternative manning scheme on the status quo.

Our research addresses two major questions. The first question concentrates on whether there is an officer designator more successful at training than the others. In order to answer such a broad and subjective question, several smaller questions must first be examined. Questions of this nature cannot be answered simply and succinctly. Subjective

in nature, these questions require evidence and research of their own to be answered. To capture these questions, we utilized an inclusive survey. Our survey includes a sample of all CRUDES Training Officers through objective and subjective questioning. The survey design incorporates questions developed from review of job-fit literature. The second question paramount to this research addresses the monetary and non-monetary savings incurred by the Navy with a shift in manpower that involves billeting human resource officers in all CRUDES Training Officer billets. In order to identify the costs associated with this shift in manning, we analyze the tangible monetary cost associated with bonuses and pay as well as the intangibles such as increased retention from higher job satisfaction due to job fit increases.

To identify the monetary effects we conduct a cost-benefit analysis of three possible manning schemes herein referred to as courses of action (COA). The first COA identified centers around maintaining the status quo with no alterations to the manning structure. The second COA adds human resource Training Officers to CRUDES ships while reallocating the SWOs into other billets onboard. Lastly, the third COA replaces SWO CRUDES Training Officers with human resource officers in a one for one billet swap resulting in no increase in net personnel.

Our thesis analyzes the job fit of TRAINOs and the applicability of an alternative manning scheme aboard CRUDES. Starting this research endeavor with these platforms provides the basis for determining the transferability of this manning structure to other platforms such as amphibious ships and littoral combat ships. Ultimately, the scope of this analysis will expand and encompass additional facets of the Navy to include its applicability within naval aviation and other operational environments. Limiting the initial scope of this research to these two platforms allows for more direct accessibility to these Training Officers at a critical career decision point of their careers. For this research, the costs and benefits analysis remains limited to the Surface Warfare community and the human resource community.

In order to obtain conclusions and develop a correlation between ideas and hypotheses absent of random trial and error, we establish certain assumptions. The subjective nature of the surveys and cost benefits further drives the need to make inherent

assumptions. Our baseline assumption states that job satisfaction will correlate to job retention directly and positively. Without this simple assumption, there would be no other influencer, other than monetary, to create higher retention. Another assumption establishes the baseline idea that the Navy desires to increase its retention rate and concurrently tries to increase morale. The final assumption presumes that the Navy has a desire for its employees to feel fulfilled by their work.

Analyzing the personal and monetary benefits of increased job fit as well as the retention benefits associated with a perceived increase in job-fit can increase the readiness of the entire fleet exponentially. This research produces three main benefits. One benefit includes an increase in the morale of sailors and officers in the Navy by identifying higher job-fit roles. Another benefit involves an increase in the retention rates of officers serving in TRAINO roles in both the SWO and HR communities due to higher satisfaction in their work. Finally, the third benefit is a potential increase in cost savings due to an increase in retention and the following decrease in bonuses resulting from that increase in retention. Each benefit on its own is a worthwhile pursuit and provides valuable personnel insight and retention information to the Navy. However, the combination of the three benefits provides simple viable solutions to the Navy's retention, morale, and training issues.

In order to establish a baseline for determining whether a more appropriate designator should hold the billet of Training Officer, we conducted a phone survey of 33 Training Officers onboard CRUDES vessels. Analysis of the respondents' answers highlights the determination that there are issues involved with the Training Officer course itself. Survey results demonstrate that 42.4% of the respondents believe HR Officers should fill the Training Officer billet instead of a SWO. Studies of job-fit throughout history consistently show its impact on both job retention and job satisfaction. A survey result with such a large percentage in agreement indicates the established belief that it is beneficial to put an HR Officer into the TRAINO billet. That being said, the HR Officer cannot simply replace the SWO because the SWO also has many watchstanding positions to include officer of the deck (OOD) and command duty officer (CDO).

Instead, we recommend adding an additional billet to the ship manning document to be filled by an HR Officer.

We developed three possible COA to analyze as alternative manning options. The recommended COA is to add a billet to each ship. This billet will be filled by a Human Resource Officer who has expertise in training and manning and who will serve as the TRAINO. The SWO who was previously billeted as TRAINO will remain onboard and will fill another billet as needed. This option adds a critical expertise by including the HR Officer and enhances the SWO community by freeing up an experienced officer to fill another crucial SWO billet. This option does involve increasing the size of the Navy by 83 officers, but it is the most cost effective officer community to increase due to its lack of retentions bonuses.

II. BACKGROUND AND LITERATURE REVIEW

The Navy designs its officer corps for various missions and responsibilities all of which require a broad range of skill sets and an inherent strong basis of knowledge. The Navy assigns each officer an identifying numerical designator to categorize the distinct abilities and skills desired of each. These officer designators are further divided into two broad categories: Restricted Line (RL) and Unrestricted Line (URL). Restricted Line Officers establish specialized officers whose skills align to fill clearly defined roles to include doctors, lawyers, human resource officers, chaplains, and public affairs officers. These officers specialize in specific roles and will often serve their entire career without leaving their assigned fields. On the contrary, Unrestricted Line Officers by design are trained to fill multiple roles within broader fields of work. URL officers include aviators, surface officers, submariners, and special forces officers. Surface Warfare Officers (SWO) are naval officers assigned to operate surface ships, but they fill a variety of roles within that field. SWOs can be assigned to work in any field from engineering to combat systems. By designing the SWO community in this method, the officers are inherently generalists lacking the experience to master any specific role and instead develop only a moderate level of knowledge in each role. Doing this allows the SWO community to flex its officers into a variety of roles and can create an internal redundancy in wartime situations. While there are benefits to a non-specialized workforce, there are also negative impacts to job-fit, which ultimately lead to retention issues.

Job fit is the connection between the abilities of a person and the demands of the job (Lin, 2014). Ideally, any organization strives to maximize the amount of fit between a worker and their job. Lin surveyed employees (212) of companies in the insurance industry because there is an emphasis on teamwork in order to determine if there was a correlation in job fit and job performance. Lin's research identified a correlation between the employee's ability and the complexity of the job with the workers' performance. This finding invites us to look at the Navy's manning doctrine and determine whether job-fit potential has been maximized. Determining the best way to measure job fit within an organization remains a very challenging task. Lin used a survey to determine the extent

of job fit; Kristof-Brown (2005), on the other hand, used a meta-analysis to measure the effects of job-fit on specific areas of employment. Kristof- Brown used 172 published articles with 836 effect sizes “indicating the broad generalizability of the relationships across situations” (Kristof-Brown, p.281, 2005). The size and scale of this meta-analysis covers an extensive amount of job-fit literature and analyzed the multiple results to find that the results are similar regardless of the situation. Kristof-Brown wanted to determine the impact of job fit with an employee’s desire to quit, their actual performance, and commitment to the organization. The Navy can benefit from research utilizing similar strategy for determining the fit as Lin did, and then examining the effect of fit as Kristof-Brown did. If there is potential for the Navy to increase job fit between sailors and their roles, there is potential to increase retention and performance. Kristof-Brown’s research identified some correlations in her study of job fit. She determined that increased job fit leads to increased retention, higher commitment to the organization, and an increase in job satisfaction and productivity.

Many jobs within the Navy require specific officer designations: for example, only pilots should fly and only Medical Officers should be perform surgery. Other jobs, however, involve less structured in their area of responsibility. For example, officers across any designation can fill recruiter positions. Currently, Training Officers remain one of these less structured roles within the Navy. The Navy only divides Training Officers into two categories, afloat and ashore. Afloat Training Officers coordinate comprehensive training programs, de-conflict training requirements, develops and maintain required schools’ lists, and coordinate training orders (United States Navy, 2018). On ships, a SWO fills the billet of Training Officer; in aviation squadrons, an aviator is the designated Training Officer. Currently, HR Officers fill Training Officer billets aboard aircraft carriers and have the responsibility to manage training and manning for a ship with over 6000 crewmembers in comparison to the crew of roughly 300 onboard CRUDES. The Navy has previously identified the benefit of employing a Human Resource Officer as a Training Officer on larger ships. The officers in these billets will not be surveyed for the purposes of this assessment due to difference amongst designators and the degree of responsibilities.

The Center for Naval Analysis looked into the Surface Warfare community and released a retention report by Ann Parcell. Parcell (2008) calculated cumulative continuation rates (CCR) for various officer communities over the critical periods in their careers. Determining the continuation rates for an officer community attempts to identify if there are retention problems within that designator. Parcell's research determined that there is a continuation rate of roughly 31% in the critical time of a SWO's development. SWOs in the 3- and 9-year mark of their careers decide at approximately two separate occasions whether they intend to continue their careers. The first of these two decisions come at the end of their second tour, which is the period right after their potential tour as a Training Officer. The potential lack of job-fit between SWOs and Training Officers could contribute to the poor continuation rates within the community.

The Training Officer billet holder assumes a variety of duties and tasks. Each ship may be organized differently with varying crew sizes and functions; however, the Training Officer job is consistent with the exception of manning the ship. CRUDES Training Officer's primary duties consist of scheduling required schools for ship's crew; developing training plans to include ship's training cycle; and ensuring proper manning for all phases of training. SWOs typically have skill sets that focus on seamanship, combat systems and engineering. They are given training on the TRAINO duties at a one-weeklong remote course and their proficiency is reliant on the knowledge gained from this course. Human Resource Officers serve in specific core competencies that focus on manning, and training development. They are recruited into the HR community due to their proficiency and or potential in fields related to training and planning. Human Resource Officers have proven their abilities are a high fit for Training Officer billets by filling the role in one of the largest capacities as an aircraft carrier TRAINO.

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III. SURVEY OF TRAINING OFFICERS

A. SURVEY METHODOLOGY

We conducted surveys of all TRAINOs aboard CRUDES in order to gain insight on their attitudes towards retention, job satisfaction, billet preference, and job performance. Due to time constraints, narrowing the sample population to just those billeted to a CRUDES provided the best insight into answering our research questions. In addition, CRUDES ships represent the majority of the surface fleet and have the most diverse mission sets amongst platforms. Our thesis will aggregate only the opinions of officers aboard CRUDES not taking into account larger platforms such amphibious ships.

We chose to conduct a phone survey in order to provide the most accurate raw information; additionally, we believed that phone interviews would result in the highest response rate. After obtaining a list of 83 TRAINOs from the junior SWO detailer, we conducted a phone survey to determine appropriate job fit for that specific billet. This list included all CRUDES in an operational status, representing the entire sample population.

We surveyed current TRAINOs rather than officers who have filled the billet in the past in order to eliminate bias of his or her pre-determined decision regarding his or her career. Those who have previously filled the TRAINO position have already made their retention decision and would thus have a certain degree of bias towards questions related to the TRAINO position. Additionally, with regard to retention and job-fit, Navy retention bonuses have frequently fluctuated throughout the years; consequently, attitudes may inevitably shift throughout the years. Because of this, we restricted our sample to only those who have concurrently served as a TRAINO.

The survey consisted of directed, structured questions without the option for follow-up questions from interview subjects or survey administrators. This technique allows for integrity of the survey utilizing the same set of questions asked in the same manner to all participants. The objective involved a survey of all 83 CRUDES TRAINOs with the hopes a vast majority would volunteer to take the survey. Prior to beginning the survey, all 83 ships were randomly selected and ordered for the calling process just in

case the window to interview closed in order to allow for sufficient time for analysis. Appendix A shows our solicitation letter.

B. SURVEY RESULTS

1. Survey Questions

The first set of questions inquired about the duration of billet tenure of each participant, the participant's second tour wish list, and the reasoning behind choosing the most desired option. This provides insight on whether or not SWOs request to fill the TRAINO billet and to gather opinions of billets that are more favorable than the TRAINO position.

Next, a series of questions relating to their opinions on the probability they will promote to the next rank based upon holding the current billet of TRAINO as opposed to the probabilities compared to other billet options. This question would have little impact on O-2s because they have a high likelihood, practically guaranteed, of promoting to O-3. However, by asking this question to O-3s, we will be able to draw conclusions on their attitudes and perceptions of promotability based on holding various billets. Also, in this set of questions, we ask whether he or she will fill another shore and afloat tour as a SWO. This will give us insight into whether or not the TRAINO plans to stay in the Navy or SWO community.

Questions 12 through 16 are associated with the department-head retention bonus (DHRB) for the SWO community. These questions highlight what impact the DHRB has on participants' plans to stay in the Navy. It also addresses the impact possible future changes to the bonus could have on the SWO community.

The demographic set of questions asked about their years of service, commissioning source, watch standing positions, collateral duties, prior experience, and last deployments. These questions aim to address potential correlation with other responses in the survey.

Lastly, the subjective questions asked specifically about the TRAINO billet. These questions were designed intentionally to elicit participants' attitudes towards the

actual training he or she received prior to assuming the duties as a TRAINO. These questions also aimed to elicit feedback from the officers concerning the potential for a different designator within the Navy to fill this particular billet. Table 1 provides an outline of the specific questions asked of the participants.

Table 1. Phone Survey Questions

1. How long have you been in the Training Officer billet?
2. Please list your second tour wishlist for billets in order, not including location or platform.
3. Why did you choose [#1 choice] as your #1 choice?
4. With what probability from 0-100 do you believe you will be promoted to the next rank?

Now I'd like you to imagine that you were in several different SWO billets other than TRAINO, including AUXO, DCA, ORDO, MPO, and NAV.

5. If you were in the AUXO billet, with what probability do you believe you would be promoted to the next rank?
6. If you were in the DCA billet, with what probability do you believe you would be promoted to the next rank?
7. If you were in the ORDO billet, with what probability do you believe you would be promoted to the next rank?
8. If you were in the MPO billet, with what probability do you believe you would be promoted to the next rank?
9. If you were in the NAV billet, with what probability do you believe you would be promoted to the next rank?

10. With what probability do you believe you will accept another tour as a SWO?
11. With what probability do you believe you will accept another Afloat tour as a SWO?

Currently the SWO DHRB is \$105K for first time screeners.

12. With what probability would you remain in the SWO community if you were not offered a Department Head Retention Bonus (SWO DHRB)?
13. With what probability would you remain in the SWO community if that was reduced or taken away completely?
14. If reduced, what is the lowest amount you would be willing to accept to stay in as a SWO?

Assuming the SWO DHRB is \$105K,

15. With what probability do you believe you will remain in the Navy until retirement?
16. Imagine you had received your number one billet choice on your second tour instead of this TRAINO billet. In that case, with what probability would you remain in the Navy until retirement?

Demographics

17. How long have you been on active duty?
18. What was your commissioning source?
19. What is your current primary watch standing positions inport?
20. What is your current primary watch standing positions underway?
21. How many collateral duties do you have?
22. Do you have prior enlisted experience? If so, how many years?
23. Did you work professionally prior to joining the Navy (i.e., not summer jobs during college)?
24. When was your last deployment?
25. Have you deployed as TRAINO on this ship? If so, how long have you been deployed?

Subjectives:

26. On a scale [1-10], how effective do you feel you are as a TRAINO?
27. Do you feel your abilities are better suited for another billet as a SWO?
28. Do you believe SWOs should fill afloat TRAINO billets?
29. Do you think there should be a separate officer designator other than SWO specifically for TRAINO billets?
30. Which designator should fill the afloat Training Officer billet? Select one.
 - a. SWO
 - b. Pilot/NFO
 - c. Supply
 - d. Human Resources
 - e. Other

31. What training did you receive prior to assuming the duties? Select as many as apply
 - a. Training Officer Course, CIN:G-7B-0200

- b. OJT/Turnover
 - c. No Turnover
 - d. Prior Experience (Worked in Admin, prior enlisted, etc.)
32. What skills do you believe are lacking in the training to make you an effective TRAINO?
33. As a SWO, how well trained are you to be a TRAINO? [scale 1-10]
34. What percentage of your time is spent on doing TRAINO tasks compared to maintaining SWO qualifications?

2. Data Analysis

Table 2 displays summary statistics of the respondents. We surveyed 33 out of 83 TRAINOs in the population group, representing approximately 40% of the desired grouping. Also, we reached an additional 23 TRAINOs via email who wished to participate in the survey, but lacked phone capabilities due to operational commitments. This would have brought our participate rate to 67%. On average, the TRAINOs surveyed served in that billet for number of 12.909 (6.934) months and had an average of 4.553 years of service (2.975). The latter statistic had a relatively high standard deviation due to the fact that two officers in the sample size had over 10 years of service which inflated the average. A majority of the sample was male (64%), O-2 and below (57.6%), and had deployed as TRAINO of the ship (57.6%). Respondents encompassed a mix of commissioning sources to include Reserve Officer Training Corps (ROTC) (48.5%), United States Naval Academy (USNA) (27.3%), Officer Candidate School (OCS) (21.2%), and Seaman-to-Admiral-21 (STA-21) (3.0%). Of the respondents, 12.1% had prior enlisted experience and 12.1% had prior professional experience prior to joining the Navy.

Table 2. Summary Statistics

	Mean	Standard deviation
O-3	0.42	
O-2 and below	0.58	
# of months in TRAINO billet	12.91	(6.93)
Years of service*	4.55	(2.98)
Male	0.64	
Female	0.36	
ROTC	0.48	
USNA	0.27	
OCS	0.21	
STA-21	0.03	
# of collateral duties	2.67	(1.76)
Prior enlisted	0.12	
Prior professional experience	0.12	
Deployed as TRAINO	0.58	
# of respondents	33	

*Inflated by 4 prior enlisted

With regard to the TRAINOs second tour wishlist for billets (regardless of location and platform), 10 selected TRAINO as their number one (30.3%). The common response as to why TRAINO was chosen involved a desire to go to Dahlgren and attend the AEGIS Officer Course while also not having to lead a division. The school the TRAINOs referenced does not directly relate to the duties and responsibilities required of a TRAINO, and most respondents do not actually use that training in the day-to-day operations.

All of the O-2s surveyed believe they will be promoted to the next rank, regardless of what billet he or she would be filling. On average, O-3s believe they have a 62.8% of being promoted. The only billet that raised the chances of being promoted other than TRAINO was navigator (NAV) position. Also, on average, the respondents have a 62.7% chance of taking another billet as a SWO (shore tour) and 44.3% chance of taking another afloat tour. This estimates that a majority of the respondents (55.7%) do not plan to stay in the Navy. On average, when asked if the DHRB was taken away or reduced, the respondents had a decrease in probability of staying in the SWO community, 32.5 % and 37.3% respectively. While this is not the average of the entire SWO community, it does pose some concerns for the Navy. This low percentage would mean the Navy would need to continue offering those large bonuses, and potentially alter them in some way to raise the retention rates amongst TRAINOs.

On average, TRAINOs rated their effectiveness as 7.36 out of 10. However, 12 respondents (36.3%) believed his or her abilities were better suited for another billet as a SWO. When asked specifically if SWOs should fill the afloat TRAINO billet, 84.8% responded “yes”. Contrary, when given a choice of designators to fill the TRAINO billet, 54.5% selected SWO, 42.4% for HR, and 3% for supply. The respondent who answered “supply” did not know what the HR community was.

When asked how well trained the TRAINO was to fill the billet, the average response was 4.91 on a scale from one to ten. A majority felt the training he or she received was inadequate. The specific training the TRAINOs referred to was the Training Officer Course, CIN: G-7B-0200, a 4-5 day course in San Diego or Norfolk. This correlated to the response of 69% for the average amount of time spent doing TRAINO related tasks as opposed to maintaining SWO qualifications and watchstanding. According to the respondents, many skills were lacking in the training in order to make them a more effective TRAINO.

Many of the TRAINOs (90%) are not trained effectively on computer-based management systems such as the fleet management and planning system (FLTMPS), corporate enterprise training activity resource system (CeTARS), billet based detailing (BBD), and relational administrative data management (RADM). When used effectively,

these management systems provide the TRAINO with useful information such as what critical Navy enlisted classification (NEC) codes are needed on the ship. Without the critical NECs, the ship may not be able to do certain mission sets.

IV. COST-BENEFIT ANALYSIS

A. CBA METHODOLOGY

The congressional budget is an unavoidable binding constraint preventing the Navy from obtaining its maximum effectiveness. No different from any of the military branches, the Navy receives a predetermined budget limiting the amount of resources available to achieve its missions. These resources, namely money and people, are quickly used to cover a vast spectrum of responsibilities. Employees must be paid and equipment must be maintained, new ships and aircraft must be built to replace outdated ones, and research must be done to advance our technology faster than our adversaries. All these responsibilities place a large burden on the priority setting of the Navy's budget. To make any changes to the resourcing structure, the Navy must perform a complete cost analysis that can both justify its resourcing decisions and potentially save the government money at the same time.

Cost-benefit analyses are an effective tool to compare the impacts of different courses of action. We have identified different characteristics associated with the potential success of a TRAINO in the U.S. Navy; by doing so, the results show multiple courses of action to adjust Training Officer manning to build the most efficient and organizationally beneficial structure possible. In accordance with a memo from the Office of Management and Budget (1992), the United States governmental instruction on how to perform a cost-benefit analysis, consideration of all benefits, including those benefits incurred by the public for any potential improvements in their quality of life. Many of the inputs considered in our analysis do not have direct monetary value and others have vastly different values for each member. OMB94 also dictates that all potential and reasonable inputs are identified, including both the direct and indirect costs and benefits that affect all members of society. To do this, a variety of costs will be addressed including: active duty personnel standard pay and bonuses, the probability of retention, and the cost associated with loss in proficiency in one's primary job role.

1. Courses of Action

Identifying and defining the proper courses of action can be one of the most important pieces to conducting a cost analysis. Indicated below are the three COAs we compare as well as a description of each potential alternative manning option:

1. SWO O-2 in afloat Training Officer billets (Status Quo). This COA does not alter the current manning scheme. CRUDES Training Officers are primarily Lieutenant Junior Grade (O-2) Surface Warfare Officers. On rare occasions, some Training Officers are promoted at the end of the tour and become Lieutenants (O-3). Since this is the manning system currently used in the Navy, it should be considered as a viable option.
2. HR O-2 in afloat Training Officer billets (Addition). This COA consists of adding a Human Resource Officer to all CRUDES ships as Training Officers, allowing the SWOs who previously filled that billet to fill more desired and SWO specific billets. The SWOs who previously filled the Training Officer billet will remain onboard and alleviate the overburdening of the SWO community.
3. HR O-2 in afloat Training Officer billets (Swap). This COA replaces SWO Training Officers with Human Resource Officers. This removes a SWO from the ship and fills the gapped billet with a Human Resource Officer.

Throughout this cost-benefit analysis, we will be operating under some very generic assumptions regarding career paths (e.g., promotability, pay structure, and bonuses). These assumptions include:

- All officers receive the same base pay, *ceteris paribus*
- SWO Training Officers are second tour division officers
- SWOs who continue past their second tour have signed up for retention bonuses

- SWO and HR Training Officers receive sea pay
- SWO Training Officers are self-selecting to separate from the Navy after their second tour at a rate of 37.3%, and after their third tour at 55.7%
- HR Officers receive no retention bonuses

2. Inputs for CBA

One of the most important steps in conducting a complete cost analysis involves identifying all the factors that have a direct effect on the stakeholders. Not all of these inputs have measurable effects, and thus we have to make assumptions on their value in order to include them. Some of the inputs are direct and affect the outcome on their own while others are peripheral effects and must be included as a result of a choice. We identified eleven inputs that will need to be considered in order to develop a recommendation. These inputs are independent variables to which we will analyze their effect on each COA. Based on the analysis, a monetary value, either positive or negative, is assigned to each input in the final analysis.

B. CBA RESULTS

In this section, we identify the methods and calculations used to determine either the value or the effect of each input. Each input is monetized to the maximum extent possible. Five of the inputs cannot be monetized; instead, we measure the magnitude of their positive or negative impacts. A positive impact correlates to an increase in benefit and a negative impact correlates to a decrease in benefits.

Input 1 Billet Change HR: In order to determine how many billets are created for Human Resource Officers under each Course of Action, we first had to determine how many billets for the Training Officer position are available to be filled. In our first COA, the status quo, there are 83 Training Officer Billets on CRUDES ships. Since COA 1, involves no change to the current situation, there is zero change in the number of Human Resource Officer billets. In COA 2 and 3 however, those 83 billets assigned to SWO Training Officers are now assigned to Human Resource Officers. There are 83 new billets created for Lieutenant Junior Grade Human Resource Officers created under the

second and third COAs. The growth in the Human Resources community is the most effective community to grow due to lack of retention bonuses.

Input 2 Billet Change SWO: Under the first course of action, there is no change in the number of billets for Surface Warfare Officers. COA 1 being the status quo does not alter any billets for any designator. However, the second and third COAs do change the number of billets for the SWO community. While COA 2 does not create any new billets for Surface Warfare Officers, it does allow the previous 83 Surface Warfare Officer who previously filled the Training Officer billets to fill billets that are potentially undermanned. This new availability of personnel is monetized through its impact on retention and costs later in our research. Under the third COA, there is a reduction in SWO billets by 83. This is because the Human Resource Officers replaced the SWOs onboard their ships.

Input 3 Personnel Cost: Personnel costs are determined using current 2018 military pay and the average of the basic allowance for housing (BAH) in San Diego and Norfolk. These two areas have the highest concentrations of afloat Training Officer billets. The monthly personnel costs are \$4,696 for basic pay and \$2,017 average BAH. We take into consideration a typical O-2 will have three years of service when calculating pays. We then multiply the sum of all the personnel costs by the 83 Training Officer billets. Under the first COA, there is a total personnel cost of \$579,008/month which is the monetized value of paying the 83 Training Officers. COA 2, with the addition of 83 Human Resource Officers doubles the personnel costs to \$1,158,016/month, which is the value of the Human Resource Officers and the SWOs that are now filling other billets. The third COA consists of replacing SWOs with HR Officers maintaining the number of personnel as the status quo, giving us a personnel cost of \$579,008/month.

Input 4 Training Officer Proficiency: The proficiency of the Training Officers on ships relies on two major factors: experience and knowledge. Under the first COA, second tour Surface Warfare Officers are filling the Training Officer billet. Second tour SWOs have on average 3 years of experience, which is confined to the surface community, leaving their experience and knowledge levels (outside of surface duties) relatively low. COAs 2 and 3, offers a moderate increase in knowledge and in experience.

HR Officers, due to their diverse backgrounds, have increased knowledge and experience, and specialty in training and procedures in the Navy. The increase in experience increases the efficiency of all the duties associated with the Training Officer billet.

Input 5 HR Retention: Identifying the impact of these courses of action on HR Officers retention is very difficult to determine. While the creation of new operational training billets is a high-fit job, many HR Officers often transfer into the community due to limitations that prevent them from serving in an operational capacity. Other HR Officers compete for Training Officer billets on surface ships so increasing the availability would increase retention. Due to the very individual dependent impacts on these COAs, we have assigned them a neutral value, splitting the impact from those that desire the Training Officer billets and those that do not. There should be no long-term effect on HR Officer retention in any of these COAs.

Input 6 SWO retention: According to current literature and research, the retention rate for SWOs at this decision point in their career, is 31% (Parcell, 2008). Using this as a baseline retention rate we can determine that under course of action one, the retention rate would remain at 31%. This retention rate is extremely low and is one of the main reasons the surface community has determined it needs the department head retention bonus (DHRB). By placing Human Resource Officers into the Training Officer billets, it allows second tour SWOs to fill more high-fitting jobs in their own communities. By allowing SWOs to fill the high-fit jobs, they will be less likely to self-select out of the community at the rates they currently are. Under the second COA, there is a significant increase in SWO retention. This increase in SWO retention will have significant implications on bonuses identified in input 8. However, COA 3 has a neutral effect on SWO retention. The increased job fit offered under COA 3 increases retention, while the loss of 83 SWO places undue burden on the community.

Input 7 HR Bonus: Under COA 1, a Human Resource Officer receives no bonuses or special pay. There will always be extenuating circumstance where special pay is authorized, but due to the inconsistency and rarity of these events, we ignored them for this research. When calculating the bonus that would be assigned to Human Resource

Officers, under COA 2 and 3, we must first identify the potential bonuses available to HR Officers by placing them on a surface ship. The primary bonus for HR Officers under these COA is the addition of sea pay. In order to monetize this bonus, we take the dollar value of sea pay for one Lieutenant Junior Grade (\$263) and multiple it by the number of Training Officers that would now be HR Officers, which is 83. Once this calculation is made, we are able to determine that the increase in bonuses assigned to HR Officers is \$21,829/month.

Input 8 SWO Bonus: Under the status quo, SWO bonuses will not be affected in any way. All special pay and allowances will still be afforded to each Training Officer. With 83 SWO Training Officers, each will receive their assigned sea pay. Sea pay for a Lieutenant Junior Grade with three years of cumulative sea duty is \$263, which we multiplied by the number of Training Officers (83), to identify a total bonus assigned under COA 1 as \$21,829/month. In COA 2, the sea pay bonus will be doubled due to the addition of 83 Human Resource Officers. The inclusion of HR Officers brings the sea pay total to \$43,658/month. The inclusion of Human Resource Officers into the Training Officer billet will not reduce the number of Lieutenant Junior Grade SWOs on the ship. However, due to the inclusion of Human Resource Officers, and the noted increase in SWO retention, identified in input 6, the Department Head Retention Bonus (DHRB) for all SWOs is be reduced. COA 3 alternatively, removes 83 SWO Training Officers and inserts 83 HR Officers. This change results in 83 HR Officers receiving sea pay at \$21,829/month. It also reduces the number of SWO Officers in the community, which ultimately requires an increase in the Department Head Retention Bonus offered to SWOs at this point in their career. The magnitude of the change in the Department Head Retention Bonus requires further research.

Input 9 Job fit SWO: The first course of action offers a low level of job fit to Surface Warfare Officers. With a limited number of opportunities for second tour SWOs, detailers are forced to assign these sailors to the Training Officer billet, which is far removed from the typical duties of seamanship, in which SWOs demonstrate their expertise. This lower level of job fit has a secondary impact on retention. SWOs who are taken out of their chosen roles to serve in a Training Officer role are more likely to

separate from the Navy prior to another sea tour (55.7 from survey results). Under the second COA, SWO job fit is significantly increased due to the removal of the low-fit Training Officer billet. This increase in job fit also causes a slight increase in retention within the SWO community, due to the relieved burden of undermanning. The community would now have enough Junior Officer to man crucial billets that have gone unmanned in previous years, and would afford the junior SWOs a greater range of experience within their specialty. COA 3 offers the same increase in job-fit as COA 2 does, but since there are less SWOs in COA 3, the increase in job fit also brings increased workload.

Input 10 Job fit HR: Because Human Resource Officers are currently filling billets that match specifically to one of their four core competencies (recruiting, development, management, requirements), their job fit is very high initially. COA 1 would neither increase or decrease the job fit of Human Resource Officers because their high fit billets are all still available to them. COA 2 and 3 however, would increase the job fit of every HR Officer, including those not assigned to the Training Officer billets. By adding 83 more high-fit billets, detailer will be able to assign individual officers into jobs that fit their specific desires, rather than having less billets available and causing conflict and tension to be assigned to these coveted billets. These billets are identified as high-fit because they explicitly meet the requirement of the development core competency of HR Officers. Ultimately, even the Human Resource Officers who do not desire to serve as a Training Officer will see a higher job fit because they will be more likely to serve in billets that they do desire.

Input 11 Navy Performance: Measuring the overall performance of the Navy under these different COAs is a very difficult task due to time and experimentation restrictions. For the first COA, we can reasonably assume that if nothing is changed there will be no effect. Thus, under the first COA we can assume there is zero change. In order to accurately measure the change in performance in COAs 2 & 3, we would need to conduct an experiment where we made the changes to roughly half of the CRUDES ships and measured their performance over a multi-tour period of time. Since we are limited in

both time and money, we cannot conduct this experiment. We can however estimate the change based on prior literature reviews and the results of our survey.

After analyzing the results of our cost-benefit analysis, we identified interesting findings. Both COAs 2 and 3 bring an increased direct cost to the Navy largely through the cost associated with paying an additional 83 officers to fill the Training Officer billet. Adding personnel to any situation will bring an increased cost. The interesting finding was largely focused on the retention within the Surface Community. The significant increase in retention will likely result in a decrease in the Department Head Retention Bonus (DHRB) due to SWOs having increased job fit and a reduced desire to leave the Navy. This increase in job fit has the potential to drastically counteract the increases identified in both COAs. The exact effect on retention is difficult to determine without extensive research; however, using Kristof-Brown's (2005) findings we can estimate an increase in retention close to .46%. This would drastically impact the monetary gains identified under each COA. We can estimate the reduction in authorized SWO bonus is large enough to compensate for the cost increase in COA 2 and 3. Unfortunately, COA 3 reduces the manning in the SWO community resulting in an increase in the retention bonus. This leads to the recommendation to adopt COA 2, due directly to the benefits outweighing the costs. Table 1 summarizes the costs and benefits of COA 2 and 3.

Table 3. CBA Summary

Stakeholder	Inputs	Effect	Benefit	COA Differential from Status Quo	
				COA 2	COA 3
				HR O-2 Addition	HR O-2 Swap
Navy					
	Personnel Cost	Monetary	Neg	(+\$579,008)	(0)
	Training Proficiency	Non-Monetary	Pos	moderate +	moderate +
			Total	(+\$579,008)	(0)
SWO Community					
	Job fit	Non-Monetary	Pos	slight +	slight +
	Billet Change	Personnel	N/A	(+83*)	(-83)
	Retention	Non-Monetary	Pos	significant +	neutral
	Bonus	Monetary	N/A	DHRB decrease	DHRB increase
			Total	(0)	(0)
HR Community					
	Job fit	Non-Monetary	Pos	slight +	slight +
	Billet Change	Personnel	Pos	(+83)	(+83)
	Retention	Non-Monetary	Pos	slight +	slight +
	Bonus	Monetary	Neg	(+\$21,829)	(+\$21,829)
			Total	(+\$21,829)	(+\$21,829)
Citizen					
	Navy Performance	Non-Monetary	N/A	moderate +	slight -
			Cost Total	(+\$600,837)	(+\$21,829)

Costs per month for all CRUDES

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V. CONCLUSIONS

This thesis documents the findings of job fit as it relates to Training Officers aboard CRUDES and the analysis of filling such a billet with another designator. Over the course of our research, we analyzed the results of a phone survey conducted of 33 TRAINOs currently filling the billet on a CRUDES. The results of the survey demonstrated that 42.4% of the respondents believe a HR Officer should fill the afloat TRAINO billet aboard CRUDES. Only 30.3% of respondents actually selected TRAINO as their number one billet choice prior to holding the billet. These factors reinforce the hypothesis that Surface Warfare Officers at the current rank may not believe intrinsically that they are the correct fit for the billet or may not receive much job satisfaction. Both of these outcomes correlate with potential retention issues.

Additionally, our research method techniques involved a cost-benefit analysis consisting of three COAs. COA 1 was maintaining the status quo, which would see no change to costs or benefits. COA 2, the addition of a designated TRAINO billet filled by a HR Officer, increased personnel costs for the Navy by \$579,800 per month and bonus pay (sea pay) for the HR community by \$21,829 per month. Total costs increased by \$600,837 per month. However, there were non-monetary benefits in adopting this COA, including a moderate increase in training proficiency for the Navy and Navy performance for citizen impact. Also, there was a significant increase in retention and slight increase in job-fit for the SWO community. The HR community saw slight increases in job fit and retention, while also increasing the size of the community by 83 billets.

COA 2 saw a slight increase in total costs, \$21,829 per month. There were also several non-monetary benefits. The Navy would see a moderate increase in training proficiency. In the SWO and HR communities, there would be a slight increase in job fit. Also in the HR community, there would be a slight increase in retention. The citizen impact would have a slight decrease in navy performance.

A. RECOMMENDATIONS

Our research lent itself to several recommendations for both the short and long-term solutions. As evident in many of the surveys of current CRUDES TRAINOs, it is paramount that the Navy updates the Training Officer course. This course in its current state regularly occurred as the number one reason that TRAINOs perceived inadequate in preparing to fulfill the billet. Currently, this course consists of a five-day evolution without the ability to cover all of the responsibilities of a TRAINO. By increasing the duration and content of the training, the Navy will be able to save man-hours lost when the TRAINO uses the trial-by-error method. The Navy must also incorporate a hands-on training approach within the course to all the management systems expected to be used by the TRAINO. Relying upon PowerPoint presentations does not pose an effective way to present all the information and experience needed. This would warrant accounts to be created prior to the course to grant the TRAINOs access to all systems and allow the TRAINOs to be able to follow along with the instructor. To accommodate this teaching style, the length of the course should be increased to 3 weeks. These changes will allow for ample time to present real problems that TRAINOs could face on a daily basis in a more hands-on approach and the ways or resources to correct them.

In the long-term, the Navy should consider adding an additional billet aboard CRUDES; furthermore, the Navy should truly consider fulfilling that billet with a HR Officer. Instituting this change will alleviate problems within the SWO community with regard to an increase in job satisfaction, retention, and potential cost savings. The costs for this additional billet may represent an initial increase; however, this cost does align with the Navy vision and focus turning towards its training methods. With the recent collisions, it is imperative we take the right steps in making sure our personnel receive the correct and complete training at the right time.

B. FURTHER RESEARCH

This thesis marks the beginning of the research on this particular topic within the Navy. The topic of job fit associated with TRAINOs should be looked at across the entire fleet. It should begin with the Surface Warfare community on smaller platforms but

should also expand to larger platforms such as littoral combat ships and amphibious assault ships. In addition, the Navy should conduct a feasibility study on the addition of HR Officers onboard CRUDES. As part of this feasibility study, the Navy should devise a type of modeling and simulation in order to further the research initiated by this thesis.

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APPENDIX A. SURVEY SOLICITATION LETTER

Hello,

We are conducting research as part of our Master's of Science in Management program at the Naval Postgraduate School. Our project will assess if Surface Warfare Officers filling the Training Officer (TRAINO) billet are the correct designator to fill that type of billet. The data collected will be used to assess whether there would be a benefit in adding an additional billet aboard ships. It will help determine if there are ways to improve retention in the Surface Warfare Officer community.

We are conducting a phone survey which will take approximately 10-20 minutes. We are interested in hearing your experiences and opinions about being a Training Officer aboard your ship.

Participation in this study is anonymous and voluntary and you may change your mind and decide not to participate at any time, even after the research has started. **All** participant information will be kept confidential, identifying information will be removed and identities will be protected through the use of pseudonyms and secure data storage facilities.

If you are willing to participate in this project, please reply to kjlupo@nps.edu or imgroves@nps.edu to set up a time for the survey. All surveys must be completed by 1 Mar 2018. The Principal Investigator for this project is Dr. Jesse Cunha, 650-492-0381 jcunha@nps.edu. Questions about your rights as a research subject or any other concerns may be addressed to the Navy Postgraduate School IRB Chair, Dr. Larry Shattuck, 831-656-2473, lgshattu@nps.edu.

Thank you,
LT Kyle Lupo & LT Lucas Groves

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