The effectiveness of first line leadership in U.S. Naval Aviation

Erick Javier Aguilar
U.S. Navy

Abstract

Data from U.S. Navy first line leadership survey exposed that no relationship occurred between work experience and collegiate education from performance and managerial efficiency of First Line Leaders attached to Carrier Air Wing FIVE at NAF Atsugi, Japan. The combined statistical findings from work experience and managerial efficiency indicated no significant statistical differences of First Line Leaders' performance and managerial efficiency to execute advanced professional duties. In a group quantitative analysis, the findings revealed no significant statistical differences between work experience and collegiate education from managerial efficiency. In spite of this, the findings of the dependent variable (performance) indicated a significant difference from 1 out of 5 squadron groups.

Keywords: First line leadership, collegiate education, work experience, U.S. Navy leadership, performance, managerial efficiency

INTRODUCTION

U.S. naval aviation First Line Leaders (FLLs) are the building blocks of naval leadership. FLLs' position in the naval hierarchy provides the authority to manage and lead resources consisting of administration, personnel, and operations (Hase, 2007). In 1994, former Secretary of the Navy John H. Dalton decreed the word Sailor to be capitalized to present respect when referring to members of the U.S. Navy and in this research study, the word Sailor is capitalized to present the same intent and respect for U.S. Navy service members. The term FLL is used in this study to represent naval leaders in the U.S. Navy pay grade of E-6, First Class Petty Officers (FCPO); the individuals to whom these various titles are applied have the same occupational role.

U.S. naval aviation FLLs encounter challenges of having to accomplish multiple and sometimes concurrent tasks, each of which has the same priority, and FLLs must decide on what tactic to manage and lead in their area of responsibility (Houlihan, 2008a). FLLs in U.S. naval aviation must resolve confusion and complications associated with from diverse changes of administrative, production, and personnel duties. Duties signify importance in the leadership equation to manage an effective team and productive work environment. Exigent situations arise from unforeseen conditions and FLLs need to learn and practice methods to create solutions and overcome these events successfully (Hase, 2007).

In 2008, Campa documented the responsibility of first line leadership to create healthy and instructional techniques to lead Sailors effectively and complete tasks. According to Campa, learning of leadership techniques is achieved through the traditional first line leadership method of work experience (Houlihan, 2008a). Hase (2007) contended a problem exists because of the contributions of a collegiate education to leaders in the enlisted ranks are less significant than work experience in first line leadership. The work experience component is but one ingredient in creating and developing a leader, but it is not the sole determinant of successful leadership (Fayol, 1949).

Barbuto (2005) noted leaders lacking advanced education have a tendency to display a bulldog or transactional leadership approach, causing long-term difficulties by not communicating positively with subordinates. In response to this leadership style, subordinates will not expend maximum effort to complete tasks. Campa stated that FLLs need a foundation to lead and coach followers using productive, charismatic, and transformational measures (Houlihan, 2008b).

FLLs new to their current roles face factors in aviation with limited knowledge of the effects and relationships of those matters and are nonetheless challenged to prioritize among multiple managerial duties. Their leadership addresses the complexities of satisfying the immediate priorities of aircraft maintenance, maintenance programs, personnel management, and administrative duties. Weick and Sutcliffe (2001) described flight deck operations as the most dangerous in the world, noting the high expectations of Sailors to perform safely and effectively. Campa (2008) stressed the six expectations of FLLs and the six expectations are not independent, requiring FLLs to recognize and satisfy all of the expectations at any given time.

First Line Leadership

First Class Petty Officers (FCPO) need to develop the skills of listening, team building, and personalization (Hase, 2007). Weick and Sutcliffe (2001) highlighted the demands of strong

aviation leadership are increasing in proportion to changes of mission requirements. Handling situations by adapting and applying managerial skills at the lowest leadership level reduces intermediate obstacles and increases responsiveness. The guaranteed success of leadership abilities are not immediately recognized by leaders and leaders can strengthen their leadership abilities by confronting complex and unmanageable conditions (Laubscher, 2008). Spong (2007) described complexities from leadership responsibility:

> It has been said that a leader has the loneliest job. Today's businesses and organizations are beset by a multitude of problems and issues, many without easy or obvious solutions which the leaders must solve. Most of us 'lonely' leaders draw on our experience and the capabilities of our staff to implement solutions and solve the problems. We fight our day-to-day fires. (p. 27)

Rating Expertise

The U.S. Navy interchangeably uses the terms rating and occupation. FCPOs achieve the rating of expert by performing tasks, reviewing procedures, and remaining flexible to changes. Rating expertise is comprised of work experience and training on Navy policies, procedures, and instructions (Hase, 2007). FCPOs learning results from the Sailors they lead, training from superiors, and exposure to various geographical environments (Houlihan, 2008b). Diverse global settings present challenges of achieving expertise, and earning that expertise requires FCPOs to adapt to understand the surroundings and to gain leadership direction to complete such tasks (Gay, 2008).

Professionalism

The U.S. Navy sets the tone for molding Sailors into ambassadors of military excellence and role model citizens (Chief of Naval Operations, 1994). FCPOs are the first line of defense for correcting deficiencies among junior Sailors to uphold honor and professionalism (Hase, 2007). Deficiencies arise from procedural errors, lack of working knowledge, omitted courtesies, or mischievous conduct on or off duty. FCPOs are also role models to junior Sailors and their aviation practices become closely watched. If FCPOs actions are dishonest and misguided, a loss of credibility will result, creating difficulties in the future of accomplishing tasks by junior Sailors doubting their orders.

Communication

The U.S. Navy depends on communication to express clearly the demands of task completion. On an aircraft carrier flight deck, the complex combination and sequencing of events from preparing for flight operations to landing aircrafts requires hundreds of Sailors to pass the correct information at the right time while safely performing life-threatening and dangerous evolutions (Weick & Sutcliffe, 2001). Middle and top leaders empower FCPOs with the authority to manage risks and communicate the message to perform safely to preserve human and material resources.

Communication on the flight deck provides real-time information, aiding junior Sailors to mold their development and FCPOs to lead Sailors by presenting successful evolutions to create

ideas on how to improve (Weick & Sutcliffe). Complexities associated with mission demands and Sailor development overwhelms FCPOs, necessitating multiple tasking and overtime. Changing conditions and gaps in communication can force FCPOs to manage conditions to the best of their abilities but FCPOs are effective when their predecessors have trained them properly (Hase, 2007).

Loyalty

FCPOs need the guidance of superiors to increase mission responsiveness. Dangerous equipment and high-tempo operations on aircraft carriers create a volatile flight deck environment, demanding FCPOs to develop a sense of rapid awareness (Weick & Sutcliffe, 2001). Duty binds FCPOs to uphold a firm posture, remain confident, demonstrate loyalty, and design and carry out plans for changes driven by the effects of unforeseen events such as aircraft breakdowns or poor maintenance practices. Missions are intensive, events and conditions are unforgiving, and changes must be handled efficiently by FCPOs. Campa's (2008) reinstatement of loyalty set the tone for FCPOs to imbue loyalty within their leadership style to support Sailors, mission, command, and service.

Heritage

The U.S. Navy upholds proud traditions, military courtesies, and customs that make the naval service disciplined, efficient, and effective around the world (Hase, 2007; Trongale, 2001; Weick & Sutcliffe, 2001). FCPOs have consistently upheld traditions and each generation of leaders' shares and guides future leaders in the continuance of these standards (Hase). Campa (2008) emphasized that a proud naval heritage forms a foundation of honor and work ethic for future Sailors to model, and accomplishments from the past have paved the road to the future by learning from failures to form successes (Houlihan, 2008a). By tradition, FCPOs educate Sailors on heritage through experience, education, explanation, and demonstration of how the U.S. naval aviation system operates (Trongale). FCPOs' leadership role is critical to ensuring safe operations in dangerous environments and upholding the U.S. Navy's goal of preserving human and material resources.

Disconnects in First Line Leadership

First line leadership in the U.S. Navy has changed through increased maritime and aviation obligations, stressing the importance to strengthen organizational leadership (Hase, 2007). Work experience has driven U.S. naval aviation first line leadership for decades but technological advancements and global conflicts have created pressures for First Line Leaders (FLL) to seek necessary professional development to foster solid work performance (Trongale, 2001). The general problem in this study is U.S. naval aviation's narrow-mindedness regarding the organizational demands and responsibility placed upon FLLs has caused problems with timeliness, production, and vision.

U.S. naval aviation superiority relies on developing quality leaders to achieve stronger organizational performance that will improve horizontal leadership effectiveness within divisions and departments (Weick & Sutcliffe, 2001). Hase (2007) determined the U.S. Navy does not place enough importance on collegiate education for FLLs and relies on work experience as the

backbone requirement to carry out tasks. The specific problem addressed in this study is U.S. naval aviation FCLLs' lack of work experience and collegiate education that leads to the inability to use effective problem-solving skills, limited responsiveness, and the professional capacity to uncover efficient solutions when performing administrative, personnel, and operational duties.

PURPOSE, RESEARCH QUESTIONS, AND HYPOTHESES

The purpose of this quantitative correlational study was to explore the relationship of work experience and collegiate education from performance and managerial efficiency of FLLs in U.S. naval aviation settings. Administration of the face-validated survey instrument to FLLs assessed the impact of work experience and collegiate educational level (independent variables) from measures of performance and managerial efficiency (dependent variables). Results from the research study in U.S. naval squadrons in CVW-5 at NAF Atsugi, Japan, in 2009 served to provide answers to the following two research questions:

1. To what extent does work experience and collegiate education affect performance of First Line Leaders?

2. To what extent does work experience and collegiate education affect managerial efficiency of First Line Leaders?

From the research problem, an examination of the relationship between performance and managerial efficiency relative to work experiences and collegiate educational background of CVW-5 FLLs surfaced two hypotheses. Creswell (2005) defined the purpose of hypotheses as "statements in quantitative research in which the investigator makes a prediction or a conjecture about the outcome of a relationship among attributes or characteristics" (p. 117). An analysis of participant responses to the Likert-type, closed-ended 40-question survey tested the following null and alternative hypotheses:

$H1_0$: There is no relationship between work experience and collegiate educational background of First Line Leaders' performance.

$H1_a$: There is a relationship between work experience and collegiate educational background of First Line Leaders' performance.

$H2_0$: There is no relationship between work experience and collegiate educational background of First Line Leaders' managerial efficiency.

$H2_a$: There is a relationship between work experience and collegiate educational background of First Line Leaders' managerial efficiency.

RESEARCH METHOD

The quantitative correlational design addressed the general nature of the research problem. This study consisted of 179 First Class Petty Officer (FCPO) prospective participants

and 146 participants completed the 40-question Likert-type, closed-ended survey that assessed exigencies from FCPOs' work experience or collegiate education. This quantitative method provided a clear illustration of performance and managerial efficiency relating with work experience or collegiate educational demands in the first line leadership ranks. The decline of leadership attention on the foundation of the hierarchy from high-tempo naval aviation environments raises concern for first line leaders marginally performing their duties and causing problems of accomplishing the goals of the U.S. Navy (Trongale, 2001).

RESEARCH DESIGN

The research design was appropriate for implementing a quantitative approach of collecting data through a survey instrument consisting of questions complementing work experience and collegiate education in diverse U.S. naval aviation leadership conditions. The nature of the two research questions and geographical sample of 146 participants supports the quantitative correlational survey research design. Researchers implement a quantitative correlational design to avoid manipulation of the sample (Neuman, 2003).

The convenience sample of FCPOs consisted of a geographical mix of nine U.S. naval squadrons that employ five different styles of aircraft and organizational leadership practices attached to CVW-5 forward-deployed naval forces stationed at NAF Atsugi, Japan, in 2009. The five different types of U.S. naval squadrons in CVW-5 are: Strike Fighter (VFA), Tactical Electronic Warfare (VAQ), Carrier Airborne Early Warning (VAW), Carrier Logistic Support (VRC), and Helicopter Antisubmarine (HS). The FCPO sample size originated from the five different types of leadership methods applied to conduct safe, efficient, and effective squadron operations.

Survey Face-Validation

Before conducting the study, a face-validation of the survey was reviewed by 10 senior leader experts. Leadership expert analysis was provided from five Chief Petty Officers (CPO), three Senior Chief Petty Officers (SCPO), and two Master Chief Petty Officers (MCPO). Each of these reviewers held senior leadership positions with a combination of more than 46 years of experience and an understanding of the demanding skills required to satisfy FCPO job responsibilites and duties. Leadership experts reviewed, presented feedback, and validated survey clarity, information, and questions for distribution to FCPOs. Then, a pilot study was conducted to reveal external validity and reliability of the research survey, and after data was collected, a reliability analysis was performed.

Pilot Study

Prior to starting collecting data, a pilot test was conducted using 10 FCPOs to gather feedback on the external validity and reliability of the research survey. The pilot test occurred in a group forum assembled and proctored by the researcher. Each participant signed an informed consent form and completed the research survey; the process took 67 minutes to complete.

The method for conducting the pilot test took 5 days to assemble and involved sending an e-mail with information about date, time, and location to FCPOs in CVW-5 squadrons who wanted to participate in the pilot study. The results from participants were noted for any

discrepancies and confusion of questions; no such errors were detected. Pilot test participants were not involved in the actual research study.

Data Collection

Proctors were trained to administer two group forums. Three days after completing proctor training, the proctors sent an initial contact e-mail to CVW-5 FCPOs to make potential participants aware of the research study. Squadron proctors sent a second contact e-mail 5 days later to FCPOs explaining the material, date, time, and location of the first group forum. The first group forum resulted in 86 FCPOs from CVW-5 squadrons demonstrating willingness to participate by signing the informed consents and completing the research instrument.

Proctors sent a third contact e-mail 30 days after the first group forum assembled. The message was sent to FCPOs who had not participated in the first forum and invited them to participate in a second forum. Proctors during the second group forum upheld the survey administration guidelines, resulting in 60 FCPOs from CVW-5 squadrons signing the informed consent and completing the research instrument.

Signing of informed consents and completion of the research instruments for both group forums required up to 63 minutes. For confidentiality purposes, location of the group forums was not revealed. The data collection took 53 days to complete and no participants withdrew their surveys. The research study consisted of convenience sampling of a possible 179 FCPOs that represented 1.2% of the 14,576 FCPOs of the total naval aviation population. Only 10 out of 179 FCPOs participated in the pilot test and 146 out of 179 FCPOs participated in the research study, resulting in a capture of data from 1% of the U.S. naval aviation's FCPO population.

Data Analysis

Likert-type surveys present a minimum of two indexes (agree or disagree) and the researcher employs a codifying system to place results in numerical values of beliefs or behaviors of participants (Creswell, 2005). This quantitative correlational research instrument offered six possible choices ranging from no response (NR), strongly disagree (SD), disagree (D), neither agree/disagree (N), agree (A), or strongly agree (SA). The scale measurement flows from zero to positive degrees with a coding value of NR = 0, SD = 1, D = 2, N = 3, A = 4, and SA = 5. Organization, statistical analyses, and arrangement of data from the frequency of six responses represented an understanding of examining the relationships between work experience and collegiate education from the perspectives of performance and managerial efficiency of FLLs.

Reliability

Reliability analyses were used to reveal how the survey questions captured the participant's attention through clarity and understanding. The results, which yielded a Cronbach's alpha of 0.819, for the FCPO performance dependent variable revealed that survey questions upscale in a positive linear relationship, upholding reliability of survey questions in relationship to the first null and alternative hypotheses. The questions assessing the dependent variable of managerial efficiency were sufficiently reliable to assess the significance of the second null and alternative hypotheses. The results from the managerial efficiency questions

yielded a Cronbach's alpha of 0.849. The findings revealed that survey questions demonstrated measurement in a positive linear relationship to uphold reliability.

Survey Analysis

Data emerged from a 40-question, Likert-type, face-validated survey instrument targeting three specific areas: supervisory background, managerial efficiency and performance from work experience, and managerial efficiency and performance from collegiate education. Responses from questions 1 to 10 gathered demographical information on supervisory background of FCPOs in U.S. naval squadrons and the responses to those questions were measured through the automated functions of Microsoft® Excel® spreadsheets. Responses from 15 questions gathered information on how well FCPOs evaluated management efficiency and performance effectiveness through work experience, executed managerial duties, communicated in the organization, noted ethical dilemmas, and envisioned customer satisfaction. Responses from 15 questions gathered information from FCPOs on the value of education, efficiency, and performance effectiveness resulting from academia, increased situational awareness, leadership improvements, clarity of objectives, and customer and subordinate satisfaction.

Assessment of questions 11 to 40 were measured according to statistical analyses of an independent *t*-test, one-way Analysis of Variance (ANOVA), and post-hoc Tukey tests using Statistical Package for the Social Sciences (SPSS) version 16 software. The independent variables of collegiate education and work experience were measured from the dependent variable of performance and managerial efficiency using the independent *t*-test procedure in the SPSS version 16 software. The calculations from SPSS version 16 software of a one-way ANOVA F = Mean Square for Treatments (*MSTR*) / Mean Square for Error (*MSE*) with a 95% confidence interval consisted of placing data of questions from the dependent variables of performance and managerial efficiency and separated into five squadrons groups, a post-hoc Tukey test revealed differences of performance between squadron groups.

DEMOGRAPHICAL RESULTS

The results from the 10 demographical questions revealed significance to provide a clear understanding of FCPOs background. Results from Question 1 revealed that 65.8% of participants at the first line leadership level received collegiate instruction. Question 2, participants, 82.2%, have served in the U.S. Navy for more than 10 years. The results from Question 2 revealed that participants in CVW-5 have resided in the U.S. naval squadron organization for more than half of the retirement cycle of 20 years. Responses to Question 3 revealed that 53.4% of participants of CVW-5 encountered more than four difficulties per day.

The results (11% and higher) from Question 4 revealed that first line leaders seek to learn from work experience. From Question 5, 70.6% of participants served as supervisors for more than 6 years presenting sufficient experience in leadership. High frequencies were returned by 145 participants from Question 6, with 99.3% responding that personal leadership skills rated average and above average. Of the survey participants, 36.4% in the HS squadron rated their leadership skills as average, 64.7% of participants in VAQ rated personal leadership skills as above average, 63.6% of HS participants reported their skills as above average, and 14.3% of participants in VRC rated personal leadership skills as first-rate. Question 7 responses revealed

that 63.7% of participants believed there is a less than 40% relationship between collegiate education and managerial functions.

Almost half of the participants (45.2%) indicated a possible promotion over the next 12 months and 29.5% were certain. Analysis of responses by squadron category revealed a divergence: 57.1% of participants in the VRC squadron demonstrated higher confidence of a possible promotion and 47% of participants in the VAQ squadron demonstrated higher confidence of a promotion within the next 12 months. Data collected from Question 9 revealed that three responses of administration (34.2%), personnel (28.8%), and operations (21.2%) impart the major difficulties encountered by participants in CVW-5 squadrons. Further analysis of diverging responses per squadron category revealed, when sorted by squadron categories, results indicated 57.1% of participants in the VRC squadron encountered more difficulties in administration, 50% of HS participants believed more difficulties surfaced from personnel management, and 29.4% of VAW participants encountered more difficulties from operational management. Answers to Question 10 provided information involving the number of subordinates led, and the data results revealed that 52.7% of participants supervise 1-10 people.

COMBINED STATISTICAL RESULTS

The independent *t*-test results were divided into separate categories to test each part of the first and second hypothesis. Since there are two dependent variables (performance and managerial efficiency) in each hypothesis, it is appropriate to test each variable separately from the independent variables of work experience and collegiate education set of data questions 11 to 40. The first *t*-test included testing responses relating to work experience from performance and second *t*-test included testing responses relating to collegiate education from performance, and combined, the dependent variables were tested, and revealed failure to reject the first null hypothesis. The third *t*-test included testing responses relating to work experience from managerial efficiency and the last *t*-test included testing responses relating to collegiate education from managerial efficiency, and combined, the dependent variables were tested, and revealed failure to reject the second null hypothesis.

Work experience results from performance. The first independent *t*-test was placed in two categories of work experience (0-5 years, $N = 43$, and 6-20 years, $N = 103$) with the most responses used to identify the work experience independent variable to test the dependent variable of performance. Because Question 5 sought supervisory experience information from participants and every participant answered the question, the question was the driver to separate the categories and evaluate significance of the first hypotheses. The data was evaluated using independent *t*-test procedure from SPSS version 16 with a two-tailed probability value of 0.05.

A representation of the statistical findings from the two categories of 0-5 and 6-20 years revealed the mean (*M*), standard deviation (*SD*), and sample skewness (*SE*) (see Table 1). Participants who had 0-5 years of supervisory experience in the U.S. Navy had an almost identical mean score ($M = 2.83$) to participants who had 6-20 years ($M = 2.86$). Independent *t*-test results of the independent variable of work experience are presented in Table 2. The results from the performance variable of work experience indicated the mean performance scores did not vary across the supervisory groups (t (144) = -.28, $p = .780$) and displayed no significance.

Collegiate education results from performance. The second independent *t*-test was placed in two categories (no college, $N = 48$ and college, $N = 96$) emerging from the independent variable of collegiate education to test the dependent variable of performance. Because two

participants did not answer the question, the responses from the participants were not included, and the sample group decreased to $N = 144$. Because Question 1 offered participants choices of educational levels, the question was the driver to separate the categories, and evaluate the significance of the first null and alternative hypotheses. Assessment of collegiate education from performance tested the second relationship for the first hypothesis, and performance was evaluated by the independent *t*-test procedure using SPSS version 16 with a two-tailed probability value of 0.05.

Statistical findings from the two categories revealed that respondents who did not go to college had a marginally lower mean performance score ($M = 2.73$) than did respondents who went to college ($M = 2.91$) (see Table 3). Independent *t*-test results of performance from collegiate education indicated the mean performance scores varied marginally across educational levels (t (142) = -1.74, $p = .084$) (see Table 4) resulting in no significance.

Results from the first independent *t*-test procedure revealed no significance ($p = .780$) at a two-tailed probability value of 0.05. The evaluation of the second independent *t*-test presented no significance ($p = .084$). The combined statistical results revealed failure to reject the first null hypothesis.

Work experience results from managerial efficiency. The third independent *t*-test followed suit of the first independent *t*-test by testing two categories (0-5 years, $N = 43$, and 6-20 years, $N = 103$). The difference between the first and third *t*-test is that the third *t*-test analyzed responses from questions of managerial efficiency from the independent variable of work experience to evaluate the second hypothesis. The responses were evaluated using independent *t*-test measurements from SPSS version 16 with a two-tailed probability value of 0.05.

The statistical findings from the two categories of 0-5 years' and 6-20 years' experience are presented in Table 5. Participants who had 0-5 years of U.S. Navy supervisory experience had a marginally lower mean score ($M = 3.17$) than participants who had 6-20 years of U.S. Navy supervisory experience ($M = 3.23$). Results from the third independent *t*-test indicated the mean performance scores did not vary across the supervisory groups (t (144) = -.53, $p = .595$) and displayed no significant difference (see Table 6).

Collegiate education results from managerial efficiency. The fourth independent *t*-test followed suit of the second independent *t*-test from testing two categories (no college, $N = 48$ and college, $N = 96$). The difference between the second and fourth *t*-test is that the fourth *t*-test analyzed responses from questions of managerial efficiency from the independent variable of collegiate education to evaluate the second hypothesis. The data was evaluated using independent *t*-test measurements from SPSS version 16 with a two-tailed probability value of 0.05.

The respondents who did not go to college had a marginally lower mean score ($M = 3.10$) than respondents who went to college ($M = 3.27$) (see Table 7). The independent *t*-test results from managerial efficiency of the independent variable from collegiate education indicated the mean performance scores did not vary significantly across participant collegiate educational levels (t (142) = -1.57, $p = .118$) (see Table 8). The measurement revealed no significance for the second independent *t*-test.

Results from the third independent *t*-test revealed no significance ($p = .595$) at a two-tailed probability value of 0.05. Measurements of the fourth independent *t*-test presented no significance ($p = .118$). The combined results revealed failure to reject the second null hypothesis.

Squadron Group Analysis

The two dependent variables were separated to evaluate the five types of squadrons. An ANOVA analysis using SPSS version 16 revealed a difference in performance between CVW-5 squadrons. However, there were no statistical differences in the managerial efficiency dependent variable.

Squadron performance. The statistical analysis of squadrons indicated existing comparisons in performance between different leadership groups in CVW-5 squadrons. The CVW-5 squadrons were categorized into five groups: VFA, VAQ, VAW, VRC, and VRC to measure significance of the dependent variable of performance from the work experience and collegiate education independent variables. The results revealed significant differences between CVW-5 squadrons.

The VRC squadron had significantly lower perceptions from participants of performance scores (M = 2.47) than participants from the VFA (M = 2.79), VAQ (M = 2.87), VAW (M = 3.23), and HS (M = 2.86) squadrons. Performance results in a one-way ANOVA at a 95% confidence interval indicated that observations of performance from participants varied significantly across CVW-5 squadron groups (F (4,141) = 3.142, p = .016) (see Table 9). Since a significant difference occurred from the ANOVA analysis, a post-hoc Tukey test was appropriate to conduct to determine squadron performance results of the mean differences, sample skewness, significance, and 95% confidence interval. The results from the post-hoc Tukey test revealed a significant difference between the VRC and VFA, VAQ, VAW, and HS squadrons (see Table 10).

Squadron managerial efficiency. The statistical data analysis of squadrons indicated marginal comparisons in managerial efficiency between different leadership groups in CVW-5 squadrons. To measure significance of the dependent variable of managerial efficiency from the work experience and collegiate education independent variables, five types of squadron groups were evaluated. The mean of managerial efficiencies closely related between squadron groups: VFA (M = 3.17), VAQ (M = 3.30), VAW (M = 3.43), VRC (M = 2.87), and HS (M = 3.27). Managerial efficiency results of the one-way ANOVA statistical analysis at a 95% confidence interval indicated that observations of managerial efficiency from participants did not vary significantly across CVW-5 squadron groups (F (4,141) = 1.40, p = .238) (see Table 11).

RESEARCH FINDINGS

U.S. naval aviation First Line Leaders (FLL) have a demanding duty to lead and manage personnel and resources through administration accuracy, train personnel to achieve quality maintenance practices, and overcome operational safety hazards. The research study questions complemented the specific problem of the research study involving U.S naval aviation FLLs' lack of effective problem-solving skills, which limits leaders responsiveness and professional abilities to uncover efficient solutions when performing administrative, personnel, and operational duties. The findings revealed failure to reject the null hypotheses. Findings from the research study of five groups of U.S. naval squadrons in CVW-5 attached at NAF Atsugi, Japan, in 2009, did not present significant differences from work experience and collegiate education increasing performance and managerial efficiency of FLLs.

Squadron Group Differences

The research problem addressed participants within a geographical mix of nine U.S. naval squadrons that employ five different styles of aircraft and organizational leadership practices. The findings from the ANOVA statistical results of performance indicated a difference in FLL performance from the VRC squadron and that the VRC leadership style is different because of the mission and maintenance requirements. The aircraft in the VRC squadron does not conduct tactical missions; the mission of a VRC squadron is logistics to transport personnel and cargo, while the missions of the VFA, VAQ, VAW, and HS are tactical. The difference in first line leadership occurs from the VRC squadron having a different mission.

When deployed, the VRC squadron is unique in its operations because they have two small detachments; one on land and the other on the aircraft carrier that presents a challenge to FLLs to change leadership styles when encountering the different environments. The maintenance requirements of the aircraft are demanding that presents an additional challenge to uphold performance standards among first line leaders within the VRC squadron. The squadron differences indicated a variation of leadership performance between CVW-5 squadrons.

The findings from the second ANOVA analysis of the second dependent variable of managerial efficiency did not reveal variations among squadron groups. The $p = .238$ was higher than the 95% confidence interval, and the mean performances of managerial efficiencies closely related between squadron groups. The findings suggest that, in terms of managerial efficiency, first line leadership is consistent with managerial practices in CVW-5 squadrons.

Contribution to Leadership

The research study data was collected and analyzed to revealed four findings to leadership based from the research problem and questions:

1. The results indicated that work experience and collegiate education did not assist FLLs in performing advanced professional abilities and first line leadership duties.

2. Expectations of FLLs are to lead through reactive actions while superiors lead through proactive measures.

3. Performance differences existed from VRC to VFA, VAQ, VAW, and HS squadrons.

4. FLLs indicated no differences in managerial efficiency from CVW-5 squadrons.

FLLs in CVW-5 work together in a flight deck environment with limited room, requiring each squadron to work cohesively with regard to equipment and personnel. From the leadership findings of this study, the issue of performance between five squadrons indicates that squadrons lack effective performance while on the flight deck. Each squadron launches a different aircraft in a different order such that if one does not launch in that specific order, then delays result, which prevent other squadrons from accomplishing their mission. Performance and managerial efficiency are two different variables; performance achieves results and managerial efficiency represents organization. To improve squadron performance, the findings pointed to the need for superiors to reengineer methods and form a measurable evaluation system to help identify

improvements of performance for first line leaders to perform effectively on the flight deck.

FLLs seek guidance on performing duties effectively and efficiently. FLLs want to keep learning added leadership skills to become effective in performing duties. Based from the leadership findings, an improvement for effective leadership performance is to train first line leaders from specific leadership training within the organization because FLLs can gain added knowledge from the organization to benefit cohesive performance.

IMPLICATIONS

Personal observations were gathered from 146 participants who had 1 to 20 years of leadership experience with administration, personnel, and operations duties in the U.S. Navy's aviation community. The sample represented 1% of the U.S. naval aviation population stationed outside the United States. Maxwell (2005) claimed leaders adapt to the environment to perform locally, and the leadership perspectives from CVW-5 participants in the Japan region can be different than those of naval personnel stationed elsewhere because the sample consisted of American Sailors working in a foreign region.

Measurement of collegiate education to increase performance and managerial efficiency at the first line leadership level seemed appropriate because the difference between individuals at that rank and higher ranking naval personnel of naval officers is, often, a collegiate education. Hackney's (2004) study involved samples of officers, senior enlisted personnel, and first line leaders and indicated differences of leadership styles. Tankersley (2007) sampled a group of admirals, the senior officers in the U.S. Navy, to determine how effective their leadership skills were and the significance of the criterion of earning a collegiate degree.

Theories from knowledge, andragogy, and sensemaking offer insight on how an individual learns from experiences, signifying that experiences add value of performance within an organization. Fayol (1949) claimed education comes first and work experience comes second. Observation of leaders has changed since the 1940s; first line leaders of the 21st century do not need to have a collegiate background to work efficiently and perform effectively.

The findings were surprising because FLLs did not indicate that a collegiate education assisted in performing first line leadership duties. Top leaders in the U.S. Navy earned a collegiate education and education is presumed to have an influence for advancing to top leadership duties. The ranks of top leaders are naval officers with a prerequisite to earn a collegiate education but to perform in the enlisted ranks, a collegiate education is not recognized as improving abilities to perform advanced administrative, personnel, and operational duties. Expectations of FLLs are to lead personnel and resources through reactive actions, while superiors lead through proactive measures. From the findings of the study, first line leadership is the body of the squadron and FLLs will act when superiors issue commands.

SUGGESTIONS OF FURTHER RESEARCH

Lower-level leadership in military organizations has nominal representation in the leadership and yet, leading at the lowest level supplies a human capital advantage by top leaders developing strategies for dynamic situations over routine leadership duties. The findings for this study revealed a significant difference in first line leadership performance among squadrons. To highlight a broad understanding of lower-level leadership, a replication of the study to include the same population equivalent rank whether military or civilian within the United States and

survey a 360-degree observation from subordinates, first line leaders, and superiors.

Maxwell (2005) explained leadership measurement occurs from all levels of an organization. Further analysis from the observations of first line leaders may not correlate with the observations of subordinates on how effectively first line leaders guide subordinates in administration, evaluation, and operations. In the same vein, the observations of first line leaders may not align with the observations of superiors. Replicating this study to military and civilian counterparts will capture a clear understanding of the necessity of work experience or collegiate education in first line leadership from different organizations.

CONCLUSION

Expectations of U.S. naval squadrons are to reinforce compliance with various processes in the achievement of quality service beginning with the lower echelon. Middle- and upper-level leadership employ numerous methods to uphold control and direction of the organization (Drucker, 2006). Creation of increased duties sometimes perplexes and overwhelms FLLs, resulting in an obscured vision of priorities and expectations. Confusion affects performance and efficiency, triggering stagnation of organizational responsibilities (Drucker, 1999).

Leadership occurs within every region of the organization (Maxwell, 2005). Previous literature lacks representation of leadership responsibilities relative to performance and managerial efficiency according to work experience and collegiate background of FLLs in U.S. naval aviation. This absence creates an implicit hindrance of necessary expectations and exigencies for FLLs to become autonomous entities within the organization. FLLs seek continually for guidance on how to manage conditions, causing work stoppage of their middle-level leaders to guide them through the obstacle. Minor hindrance becomes increasingly time-consuming, producing slower decision making, increased queues, sluggish personnel development, and unsatisfied customers (Bass & Steidlmeier, 1999).

Developing autonomous and empowered FLLs will cultivate responsiveness to meet increasing internal and external demands. Superior unified organizational performance will create a military readiness advantage, improving responsiveness and effectiveness through leadership at the lowest level (Hase, 2007). U.S. naval aviation and other organizational leaders will find value from the information to support organizational decisions, based on determining factors, to increase leadership development to gain a long-term human capital advantage.

This research study added to the body of existing knowledge by documenting a correlation between work experience and collegiate education for improvement of first line leadership competency. The U.S. Navy recognizes the need for first line leaders to learn leadership skills for leading and managing a high-tempo workforce to manage long-term human capital proceeds (Hase, 2007). The results of this study reflected on the importance for organizational leaders to observe and increase first line leadership performance in competitive environments, and the need to invest in human capital.

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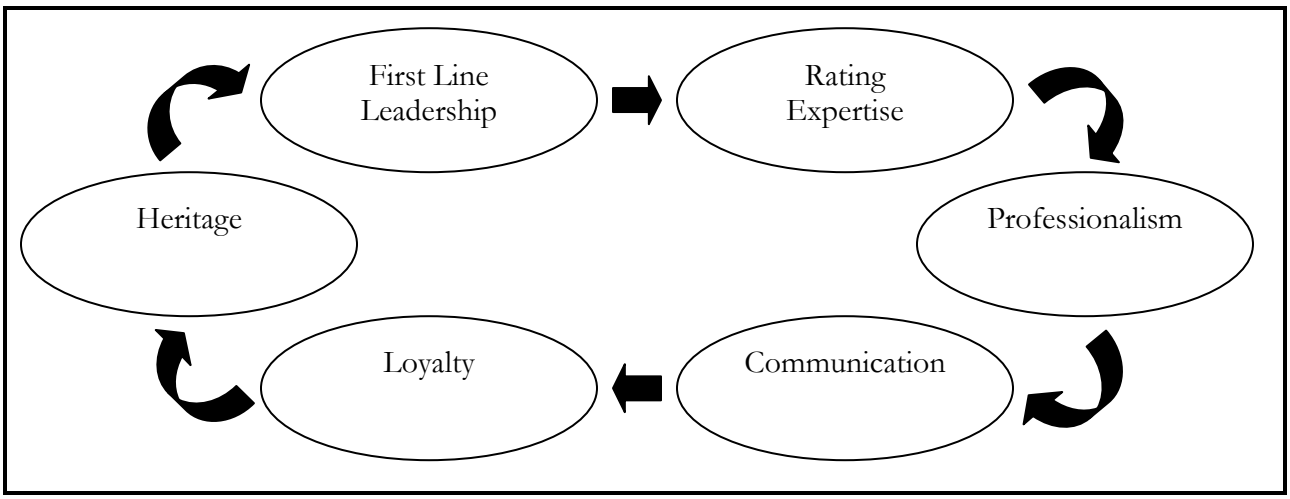

Figure 1. Six Expectations of First Line Leadership

Table 1
Results of Sample for Performance Variable of Work Experience

Years of Experience	N	M	SD	SE
0 – 5 years	43	2.83	0.63	0.10
6 – 20 years	103	2.86	0.54	0.05

Table 2
Independent t-test for Performance Variable of Work Experience (N = 146)

	Levene's Test for Equality of Variances							95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.	SE Diff.	Lower	Upper
Equal Variances Assumed	.949	.332	-.280	144	.780	-.0290	.1035	-.2335	.1755
Equal Variances not Assumed			-.263	69.10	.793	-.0290	.1102	-.2488	.1908

Table 3
Results of Sample for Performance Variable of College Education

Education Level	N	M	SD	SE
No College	48	2.73	0.54	0.08
College	96	2.91	0.58	0.06

Table 4
Independent t-test for Performance Variable of College Education (N = 144)

	Levene's Test for Equality of Variances							95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.	SE Diff.	Lower	Upper
Equal Variances Assumed	.996	.320	-1.74	142	.084	-.1747	.1004	-.3732	.0237
Equal Variances not Assumed			-1.78	99.77	.078	-.1747	.0982	-.3696	.0202

Table 5
Results of Sample Managerial Efficiency Variable of Work Experience

Education Level	N	M	SD	SE
0 – 5 years	43	3.17	0.59	0.90
6 – 20 years	103	3.23	0.62	0.60

Table 6
Independent t-test for Performance Variable of Work Experience (N = 146)

	Levene's Test for Equality of Variances							95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.	SE Diff.	Lower	Upper
Equal Variances Assumed	.543	.462	-.533	144	.595	-.0588	.1103	-.2769	.1592
Equal Variances not Assumed			-.542	81.90	.589	-.0588	.1084	-.2744	.1569

Table 7
Results of Sample Managerial Efficiency Variable of Education

Education Level	N	M	SD	SE
No College	48	3.10	0.54	0.08
College	96	3.27	0.64	0.07

Table 8
Independent t-test for Performance Variable of Work Experience (N = 144)

	Levene's Test for Equality of Variances							95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.	SE Diff.	Lower	Upper
Equal Variances Assumed	2.623	.108	-1.57	142	.118	-.1686	.1073	-.3807	.0436
Equal Variances not Assumed			-1.67	110.16	.099	-.1686	.1012	-.3691	.0320

Table 9
One-Way ANOVA Results for Performance (N = 146)

Performance	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3.829	4	.957	3.142	.016
Within Groups	42.958	141	.305		
Total	46.787	145			

Table 10
Multiple Comparisons among CVW-5 Squadrons – Post-Hoc Tukey Test

Dependent Variable					95% Confidence Interval	
Performance		M Diff. (I – J)	SE	Sig.	Lower Bound	Upper Bound
VFA	VAQ	-.07442	.14694	.987	-.4805	.3316
	VAW	-.44286	.14694	.025	-.8489	-.0368
	VRC	.32436	.21724	.569	-.2760	.9247
	HS	-.07257	.13236	.982	-.4383	.2932
VAQ	VFA	.07442	.14694	.987	-.3316	.4805
	VAW	-.36845	.18932	.298	-.8916	.1547
	VRC	.39878	.24788	.494	-.2862	1.0838
	HS	.00185	.17824	1.000	-.4907	.4944
VAW	VFA	.44286	.14694	.025	.0368	.8489
	VAQ	.36845	.18932	.298	-.1547	.8916
	VRC	.76723	.24788	.020	.0822	1.4522
	HS	.39693	.17824	.236	-.1223	.8628
VRC	VFA	-.32436	.21724	.569	-.9247	.2760
	VAQ	-.39878	.24788	.494	-1.0838	.2862
	VAW	-.76723	.24788	.020	-1.4522	-.0822
	HS	-.39693	.23953	.464	-1.0588	.2650
HS	VFA	-.07257	.13236	.982	-.2932	.4383
	VAQ	-.00185	.17824	1.000	-.4944	.4907
	VAW	-.37030	.17824	.236	-.8628	.1223
	VRC	.39693	.23953	.464	-.2650	1.0588

Table 11
One-way ANOVA Results for Managerial Efficiency (N = 146)

Performance	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.032	4	.508	1.397	.236
Within Groups	51.256	141	.364		
Total	53.287	145			