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**Does Size Really Matter? How Quality Should be Analyzed for
the Acquisition Workforce**

20 December 2012

by

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Abstract

The original purpose of this study was to describe and analyze the success of the acquisition workforce initiative in expanding and improving the quality of the acquisition workforce. Unfortunately, due to lack of data and no clear definition of quality within the acquisitions community, this was not possible. Instead, this study examines and critiques previous notions of workforce quality in the context of government employment. We offer a preliminary framework with which to build and assess workforce quality in the future. We discuss methods used, identify insufficiencies, and provide suggestions for measurement and program evaluation. Furthermore, we provide a conceptual framework behind a generally accepted definition of quality based on the human capital literature and provide recommendations for data collection in order to conduct valid evaluations of the success (or failure) of the Acquisition Workforce Initiative going forward.

Keywords: Acquisition Workforce Initiative, workforce quality, identity insufficiencies, human capital literature, data collection



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I. Introduction

A concern within any internal labor market is whether the quality and productivity of workers match the job requirements. Recently, this was of particular interest within the DoD and its acquisition workforce (AW). The post–Cold War drawdown forced a restructuring of the DoD acquisition labor force, resulting in several challenges. The civilian AW has a disproportionate share of employees at or nearing full retirement eligibility, insufficient end-strength to meet the current contracting landscape, and an overreliance on contractors (Gates et al., 2008). In response to these challenges, Congress enacted legislation in 2009 that allowed the acquisitions department to increase the size of their workforce and emphasized strategic human capital planning. The intent of this legislation was to build and improve the workforce to restore the capabilities of the acquisition community, rebalance the department’s programs, and reform the procurement and contracting procedures. Most important, there was a focus on restoring the AW by improving the quality of the workforce.

Measuring the quality of a workforce is a unique challenge. Previous studies and reports have attempted to measure the quality and productivity of government employees without agreeing on a satisfactory solution. One suggested way to measure the quality of the labor force is to analyze the changes in the workforce output. For the acquisitions community, it would be tempting to measure the number of contracts completed on time in a given time period. However, this ignores other factors that can impact how the AW does their job, and from a human resource planning perspective, it ignores the level of fit between employees’ capabilities and their particular job functions. Hence, while output measures can be compared across time, they tell us very little about the individual and environmental factors that may be driving them. Moreover, they tell us nothing with regard to workforce *potential* (e.g., output expectations or standards) or how to increase potential and output going forward.



The original purpose of this study was to describe and analyze the success of the Acquisition Workforce Initiative in expanding and improving the quality of the AW. Unfortunately, due to lack of data and no clear definition of quality within the acquisitions community, this was not possible. As such, we instead examine and critique previous notions of workforce quality in the context of government employment and offer a preliminary framework with which to build and assess workforce quality in the future. We discuss the methods used, identify insufficiencies, and provide suggestions for measurement and program evaluation. Furthermore, we provide a conceptual framework behind a generally accepted definition of quality based on the human capital literature and provide recommendations for data collection in order to conduct valid evaluations of the success (or failure) of the Acquisition Workforce Initiative going forward.



II. Mistaken Focus

The rapid downsizing of the AW, the support of two wars, and the increasing complexity of contracts required a re-examination of the size and competencies of the AW to determine whether our AW is qualified to achieve current requirements and how to build the AW for future demands (Hogan, Lockley, & Thompson, 2012). The Defense Acquisition Workforce Development Fund (DAWDF) was passed in 2009 in response to a perceived shortfall in the acquisition community. The purpose of the DAWDF was to provide resources to build the AW and evaluate whether the initiative was beneficial. According to the DAW report (Department of Defense [DoD], 2010), “almost every study conducted on defense acquisition has cited the need to improve the quality of the defense acquisition workforce. Most of the studies indicated a need to grow the workforce (p. 1-3).” As a result, one of the goals of the DAWDF was to add approximately 20,000 acquisition professionals to the DAW by 2015 in order to “better address inherently governmental functions and ensure we have appropriate oversight of all acquisition activities” (Department of Defense [DoD], 2010). Moreover, the Navy planned to hire over 5,000 new personnel, of which 4,000 had been hired by the end of Fiscal Year (FY) 2011. As such, the primary response and use of the DAWDF has been to increase the size of the workforce as a means to improve quality and competency.

But, as noted by Under Secretary of Defense for Acquisition, Technology & Logistics, Ashton Carter, “Workforce size is important, but quality is paramount” (Department of Defense [DoD], 2010, p.2). This comment highlights that although size of the workforce can play a role, it is not in and of itself a reflection of quality or competency. A larger workforce does not necessarily imply a better or more efficient one. Yet, to our knowledge, nowhere in the report was there mention of a clear and precise definition of quality or its operationalization within the AW. With this in mind, the primary contribution of the paper is to provide a clear definition and framework of quality rooted in the labor economics and management literatures. In addition, we



propose various ways in which the AW can assess workforce quality and suggest measures that are more appropriate in the context of government employment.

Moreover, we believe that most studies examining the AW look at the output of quality, rather than the characteristics of quality itself. That is, researchers are looking at the wrong side of the equation when evaluating the quality of individual workers within the contracting community. This represents an inherently flawed conceptualization of quality and drastically limits the ability to develop predictive selection, placement, performance, and productivity models. Simply put, it's putting the cart before the horse.

Recently, Reed (2012) evaluated models that both measure the acquisitions contracting workloads and seeks to assign adequate resources to effectively manage the workloads. He found that workload models do not adequately account for any assessment of quality. The way government officials conduct workload assessments today, using measures such as dollars awarded or actions completed, is not sufficient. Failure to include measures of organization size or the type or quality of the work performed results in little valuable insight into the actual work performed. Unfortunately, much of the research we have uncovered succumbs to many similar shortcomings. Of note, though, Asch (2001) represents a concerted effort to examine individual characteristics of DoD employees to assess quality. She used data on all DoD civil service employees between FY1982 and FY1996 to describe variations in promotion speed, retention, and pay. She developed proxy measures of personnel quality at the individual-level (entry education, supervisor ratings, and speed of promotion) and used these measures as predictive indicators for promotions, retention, and pay. As such, she delineated between characteristics of individual-level quality and the output that they are likely to produce. Nevertheless, given the underlying nature of the Government Scale (GS) system, Asch recommends employing different measures of quality that may provide greater insight within the federal employment context. Asch's study provides motivation for new conceptualizations and indicators of workforce quality within the DoD.



Therefore, we seek to assist the acquisition community in its efforts to assess their workforce by noting possible shortfalls in the selection and hiring process and providing a foundational framework with which to assess and enhance the quality of the AW.



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III. A Framework for Assessing and Developing Workforce Quality

The primary purpose behind assessing workforce quality is to ensure sustainable organizational effectiveness. As such, personnel selection and development are fundamentally about acquiring and enhancing the organization's human capital. *Human capital* is defined as the aggregate of individual knowledge, skills, abilities, and other characteristics (KSAOs; Ployhart, 2012). Therefore, in order to assess workforce quality in any meaningful way, it is imperative to first specify the particular KSAOs of relevance to the organization and the specific KSAOs necessary to perform each job function. Doing so enables organizational leaders to conceptualize workforce quality at the individual level, which can then be measured, tracked, and developed at multiple levels of analysis and enable more effective human resource planning and management.

Unfortunately, rather than specifying the unique KSAOs with regard to specialized job positions, it appears that the AW has adopted a far less precise and less impactful method for enhancing human capital. That is, the AW has focused its efforts on simply enhancing the size of the workforce (DoD, 2010), with relatively little awareness of the various KSAOs augmented by this process. Although we could argue that aggregate KSAOs are indeed likely to increase merely as a function of size (i.e., more people yields more KSAOs in general), this method limits the organization's capacity to not only measure but also cultivate and grow its human capital. Without having analyzed the unique competencies required for success in each position, attempts to measure and/or foster workforce quality are inevitably inefficient and relatively haphazard. As such, the sections that follow are intended to enable the AW to progress forward intelligently by first taking a moment to reflect on the core competencies and other characteristics it desires in its workers. In so doing, we provide a framework through which the AW can develop a more precise and, very importantly, more predictive conceptualization of quality at the individual-level of



analysis. As noted previously, to our knowledge, the AW has enacted efforts to build human capital but has neglected to define or outline the precise meaning of quality human capital within the AW context. As a result, the AW is left with no benchmark or rubric with which to effectively analyze the current value of its workforce, no means with which to track changes in workforce quality over time, and therefore also limited capability to develop programs and policies that can increase human capital efficiently and effectively. Continuing the current strategy that “more is better” is inherently flawed because it does not account for redundancies or gaps in important competencies. A more useful approach to human capital management will consider the notions of supplementary and complementary fit, which are discussed in more detail later, and will recognize that the meaning of quality is contingent on unique elements of the job and the organization. That is, the prevailing axiom “more is better” only holds true to the degree that it is more of what the organization truly wants and/or more of what the organization genuinely needs. Currently, it is unclear whether the AW has a lucid and holistic understanding of its human capital desires and necessities.

It should be noted, however, that the AW has made some preliminary efforts to outline necessary KSAOs. To date though, it would seem that the AW’s efforts to meet the initiative have overwhelmingly focused on one fairly simplistic, general, and likely flawed indicator: certifications. The DAW report (Department of Defense [DoD], 2010) suggests the following:

Certification standards drive workforce quality. This objective is focused on improving the percentage of workforce members that meet or exceed certification requirements. Establishing enterprise certification goals as a key metric will provide objective measures of acquisition workforce quality and will drive increased certification levels resulting in a more qualified workforce. (p. 3-4)

Therefore, current practices suggest that the AW views certifications as apparent proxies for knowledge and/or skill. While this is certainly a step in the right direction, simply aggregating the total number of certifications held by individuals within the AW does not provide a complete or accurate representation of quality.



With no established definition of quality or specified set of KSAOs, it is unclear whether certification levels genuinely align with the most important competencies that will enable success. Presumably, certification levels are intended to signal a particular criterion level of knowledge held by the individual worker; but the degree to which these certifications accurately reflect the required knowledge is an area of some suspicion, as is whether the supposed knowledge and skills signaled by a certification actually match the knowledge and skills necessary to perform in particular job positions. To its credit though, The DAW report (Department of Defense [DoD], 2010) concludes that:

Making certification standards more robust will also contribute to a more qualified workforce. The AT&L Core Plus framework enables implementation of a more rigorous certification program. Examples include specialized qualifications that will recognize expertise within a career field such as earned value management. (p. 3-4)

Nevertheless, it is extremely unlikely that any given certification adequately addresses the host of competencies necessary to perform well in the AW. Hence, without a precise evaluation of the KSAOs that foster job-specific performance, there is no existing framework with which to analyze the value of AW-related certifications and, therefore, their usefulness as an indicator of human capital. Nevertheless, certifications offer a starting point from which to build and indicate that the AW, to a limited extent, has begun the process of identifying some basic individual-level KSAOs and has provided rudimentary guidance as to a specific level of training that is of some, albeit vague, value to the organization. The remainder of this section seeks to build from this by providing a guiding framework with which to assess and enhance human capital based on the selection and development of KSAOs. In so doing, the framework also provides a means with which to assess and foster the merit of current human capital development programs. The following framework (see Figure 1) represents a basic personnel selection and evaluation model adapted from Binning and Barrett (1989) and Ployart (2012).



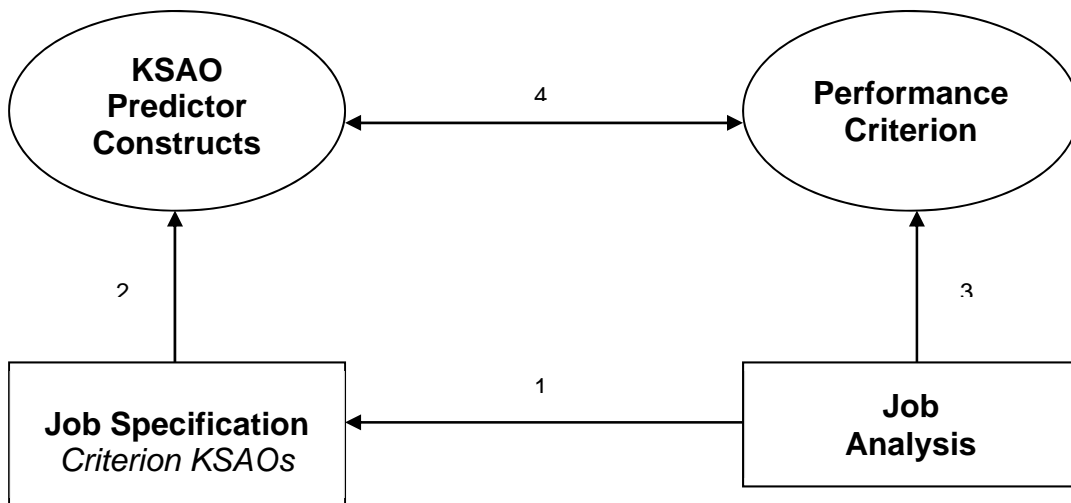


Figure 1. Personnel Selection and Evaluation Model

A. Step 1: Job Analysis

Job analysis is a systematic, purposeful process designed to comprehensively identify the important tasks and KSAOs required for effective performance on the job (Ployhart, 2012). Reflected in the model by Arrow 1, job analysis follows a specific causal sequence. First, the critical tasks of the job are identified, which then inform the specification of the essential KSAOs necessary to perform these tasks, known as job specification (Harvey & Wilson, 2000). We refer to these essential KSAOs as *criterion KSAOs* to recognize that they will be used as the basis for hiring, development, and assessment. It is important to note that this process highlights the fact that the choice of KSAOs, and therefore the standard for quality and value, is inherently determined by the job and in relation to the organizational context.

1. Conducting the Job Analysis Process

There are many ways to collect job analysis and job specification information. Common approaches include interviews with subject matter experts (SMEs), surveys, observation, and reviews of manuals and standard operating procedures, with the most effective analyses done by employing a combination of the relevant approaches. Regardless of which approach is used, it is imperative that a fully



comprehensive job analysis is conducted and the most essential tasks and KSAOs needed to perform are identified. The fundamental purpose across all options is to identify the critical tasks and matching KSAOs. Of the many tasks performed on a given job, not all are essential. Therefore, after a complete list of all job tasks is compiled, it is useful to ask SMEs to rate how frequent, difficult, or critical the task is for the job.

Because these approaches may require greater resources and expense than may be immediately feasible, we can recommend a lesser alternative via the U.S. Federal Government's Occupational Information Network, known as O*NET. The O*NET system provides information on six major content areas for nearly every occupation: worker characteristics, worker requirements, experience requirements, occupation-specific requirements (tasks more specific to the job), and occupation characteristics (labor and economic factors affecting the occupation). Although, in our view, it is less nuanced and less informative than the aforementioned approaches, O*NET offers an inexpensive alternative for organizations that are resistant to allocating the manpower necessary for an in-depth job analysis. Again, though, follow up discussions with SMEs is highly encouraged.

B. Step 2: Selecting Predictors

After identifying the critical tasks and criterion KSAOs, the next steps involve defining the performance and predictor domains. Selecting KSAO predictors determines the types of KSAO constructs and predictor measures that will be used for the basis of making selection, promotion, and developmental decisions. Given that KSAOs necessarily entail implicit attributes, such as tacit knowledge, they are difficult to measure directly. Rather, it is necessary to select predictor KSAO constructs that are likely to signal the presence of a KSAO or lead to the development of a KSAO. The five primary domains of predictor KSAO constructs are outlined below: cognitive, knowledge, personality, values/needs/interests, and physical abilities.



1. Predictor KSAO Constructs

Cognitive. Cognitive ability is important in employment contexts and has consistently shown to be one of the strongest predictors of performance across multiple jobs and functions (Schmidt & Hunter, 1998). Moreover, cognitive ability becomes increasingly salient as the cognitive demands of the job increase (Hunter & Hunter, 1984) and its importance will likely continue to rise given that knowledge work continues to dominate contemporary employment and the modern economy.

However, it should be noted that large racio-ethnic subgroup differences arise with the use of cognitive ability testing. These differences are large enough to skew hiring and development opportunities to the detriment of minority workers (Sackett & Wilk, 1994) and limit organizational diversity, which is often considered a human capital quality at the organizational-level. Hence, although cognitive ability provides strong economic return, it is not without its limitations.

Knowledge. While cognitive ability is applicable across different work situations, knowledge is domain specific and is acquired through education and/or experience. As such, knowledge is not fixed and can be accumulated over the course of one's career (Kanfer & Ackerman, 2004). There are two types of knowledge: (1) *declarative knowledge* – comprehension of facts and principles, and (2) *procedural knowledge* – understanding of processes and how to apply facts and principles to a given problem. This distinction highlights that knowledge may be at the job-level (applying to a specific occupation across firms and industries), or at the organizational-level (applying to the particular rules, norms, and processes within the firm). Because knowledge tests are relatively easy to administer and knowledge indicators (e.g., certifications) are fairly easy to interpret, they offer high economic return.

Personality. Despite a multitude of personality frameworks being utilized in practice, such as the MBTI, most research and employment development has focused on the Five Factor Model (FFM) of personality. Five traits, also known as



the Big 5, comprise the FFM: emotional stability, extraversion, openness to experience, agreeableness, and conscientiousness. Although conscientiousness and emotional stability are almost universally considered positive attributes in employees in most any job, the five traits have been shown to be more or less appealing across various job functions and contexts. For instance, agreeableness is desirable among employees performing team-based work or working in highly interdependent processes. Extraversion has been correlated with managerial success and often desirable in work that requires building external relationships such as sales and customer/public relations positions. Openness to experience has been associated with higher levels of cognitive ability and is an attractive quality in individuals working in creative positions. As such, although personality tests can be susceptible to individuals faking their responses and misrepresentation, personality can be a strong indicator to allow firms to hire, match, and develop employees for positions in which they are most likely to excel.

Values, Needs, and Interests. Values, needs, and interests represent latent individual-level styles, preferences, and desires (Dawis & Lofquist, 1984) that direct motivation and effort. As such, they influence the work setting individuals prefer to enter and the satisfaction they derive from those jobs. They have strong influence on perceptions of fit that individuals have with jobs and organizations. *Perceived fit* is a perception of whether one's KSAOs, values, needs, and interests match the work environment. This can entail a perceived match between the person's values and those of the job (person-job fit), the organization (person-organization fit), and whether the person's KSAOs match those required and rewarded by the job (needs-supplies fit). Moreover, organizations are wise to consider both complementary and supplementary forms of fit. (Cable & Edwards, 2004). *Complementary fit* refers to occasions when "the weaknesses or needs of the environment are offset by the strength of the individual, and vice-versa" (Muchinsky & Monahan, 1987, p. 271). From this perspective, AW hiring practices should not be focused merely on increasing workforce size, but rather targeted toward addressing specific areas of weakness and need. Conversely, *supplementary fit* exists when workers and their



organization share matching characteristics. As such, supplementary fit is usually represented by value congruence between employees and organizations. Not surprisingly, perceived fit consistently predicts job satisfaction, motivation, absenteeism, and retention (Cable & Parsons, 2001; Kristof-Brown, Zimmerman, & Johnson, 2005), making values, needs, and interests a valuable KSAO predictor to the extent that organizations accurately identify job and organizational values and appropriately select, align, and develop compatible employees.

Again, thorough job analysis is necessary to gain a full understanding of the needs and values that specific jobs and organizations are likely to fulfill in employees. But in the absence of full analysis, we can suggest use of the RIASEC model (Holland, 1997), which is part of the aforementioned O*NET system and represents a useful framework for KSAO predictors.

Psychomotor and Physical Abilities. Research delineates between two primary types of physical abilities: (1) *psychomotor abilities* include sensory abilities such as sight, hearing, and dexterity, and (2) *physical abilities* such as strength, endurance, and agility (Hogan, 1991). Although physical ability was a primary indicator of competency in the past, the contemporary economy is increasingly based on mental aptitude. As such, the salience of physical ability indicators is minimal in many positions today. Because the economic return is low due to high costs associated with testing physical abilities, it is not a recommended KSAO predictor unless clearly called for by the employment context (e.g., soldier, professional athlete, pilot, etc.).

C. Step 3: Performance Criteria

Defining the performance domain determines the criteria to be measured as indicators of success in a given job. They represent the anticipated and required levels of output at the individual level. As mentioned previously, prevailing notions of quality throughout the DoD are mistakenly framed around these output measures. (In truth, it appears that they have focused on merely a portion of the potential output



measures, as will be discussed shortly). Rather, we suggest that it is important to distinguish that output and performance are the result of workforce quality, not direct measures of it. Recognizing this enables organizational leaders to shift focus to the individual characteristics that drive organizational success and thereby develop a better understanding as to why the organization is hitting or missing goals and more adequately address human capital strengths and weaknesses. As such, the performance indicators elicited in this step must adequately capture the desired goals and outcomes that the KSAOs are expected to drive. These performance criteria may include traditional job performance indicators such as standard performance evaluations and productivity levels, but many also entail other types of criteria such as absenteeism, turnover, safety, organizational citizenship, and counterproductive work behaviors. As such, it is important that criteria are selected with regard to both *core* and *contextual* performance. Descriptions of the distinction between these two components of job performance are outlined as follows.

1. Components of Performance

Core Technical Task Performance. These are the tasks and activities that contribute directly to the organization by implementing part of its technical process or indirectly by providing it with needed materials and services (Borman & Motowildo, 1997). It entails performance with regard to the core substantive or technical tasks central to the job. It is these job-specific performance behaviors that distinguish the substantive content of one job from another. It should also be noted that these performance criteria (i.e., output measures) represent the prevailing conceptualizations of quality throughout the DoD literature. Typical examples within the AW include contracts completed and contracting completion times.

Contextual Performance. Contextual performance consists of the activities that contribute to organizational effectiveness in ways that shape the organizational, social, and psychological context that serves as a catalyst for task activities and processes (Borman & Motowildo, 1997). They refer to performance behaviors that are relevant to achieving the organization's goals but are not required by the



prevailing job description. Although varying conceptualizations have been developed in the literature to address contextual performance, Podsakoff, MacKenzie, Paine, and Bachrach (2000) provided a useful taxonomy that is relevant across most jobs and contexts.

1. Helping Behavior: voluntarily helping, cooperating, and showing respect for others within the organization. Particularly important for interdependent work.
2. Sportsmanship: tolerating less than desirable organizational conditions for the good of the enterprise.
3. Organizational Loyalty: identifying with the organization's goals and management, and promoting and defending the organization to outsiders.
4. Organizational Compliance: adhering to organizational policies, norms, regulations, and rules.
5. Individual Initiative: going beyond minimum job requirements by taking on additional tasks and responsibilities or committing extra time and resources.
6. Civic Virtue: active participation in organizational administration and policy, such as attending non-required meetings and constructively voicing views on policies and issues.
7. Self-development: Voluntary behaviors to improve one's KSAOs. Note that these behaviors are determinants of performance as well.



IV. Empirical Implementation

A. Data

As alluded to earlier, data on output should not be interpreted to measure the quality of an individual government worker nor should the Navy assume that simply hiring additional workers would increase the quality of its AW. Researchers focusing solely on the size of the workforce and the level of output may not accurately capture the initiative's effect on AW quality. The assessment of performance and outcomes is of importance to the acquisitions community; however, because these are aggregate measures, they do not directly relate back to an individual employee. For example, it is tempting to measure the number of contracts completed on time in a given time period as a measure of quality. However, this ignores other factors that can impact how the AW does their job, such as whether an educational degree matches their role and job description. It is difficult to separately identify how 50 on-time, completed contracts might correspond to a particular worker and how one can infer that the completed task is reflective of the degree of competency and quality of the worker. Another factor one must consider is whether the worker's pay is commensurate with the level of difficulty and importance of their job and whether coworkers value the work and knowledge that is being produced by the employee. As such, the topic of assessing workforce quality will require a mixed-method approach of qualitative interviews and empirical methods to better understand the mechanisms that contribute to improving quality as well as defining various variables for measuring changes in quality. To start the assessment process, we suggest examining the current data to determine what is needed going forward.

The data that is currently available on civilian federal employees includes the following: basic demographic information such as gender, age, and education; salary; promotions; separations; occupation code; career field; pay plan; federal years of service; and certification. Because we are analyzing government employees, measuring changes in quality will be more challenging. Typically in the



economics literature, quality is measured using an individual's wages, speed of promotion, incentives for effort such as bonuses, or human capital measures such as education and experience (see Mincer [1958], Curme and Stefanec [2007], Lazear [2000], and Figlio [1997]). The basic idea is that higher wages should be indicative of a higher quality individual. Those with more education are more likely to be of higher ability and therefore experience steeper wage profiles. Furthermore, studies have found that individuals who work in industries with personalized incentive plans have better quality workers. However, due to the nature of the GS system, there is very little room for individual managers to vary bonuses to motivate higher quality workers to enter and stay and to incentivize effort within the DoD. In fact, the automatic promotions built into the GS system could actually bias the true quality of the worker if we assume that those who get promoted more often are of the higher quality type, especially when promotions within the DoD are usually vacancy driven (Asch, 2001). Thus, if the Navy would like to accurately measure changes in quality, then they must implement new data collection processes that take into consideration the framework presented in the previous section. Table 1 provides some indicators that can be used (and have been traditionally used in this literature) to measure individual worker quality.



Table 1. Indicators to Measure Individual Worker Quality

Quality Indicators	Source of data
Knowledge, skill, ability	
Education	
<i>Years of Schooling</i>	Employee survey
<i>Degree(s) awarded</i>	Employee survey
<i>Date of degree(s)</i>	Employee survey
<i>Grade-point average</i>	Employee survey
<i>Rank in class</i>	Employee survey
<i>Institution attended</i>	Employee survey
<i>Major field of study</i>	Employee survey
<i>College entrance test scores</i>	Testing organization
<i>Other test scores</i>	(to be determined)
Continuing education, training^a	
<i>Quantity (hours, days, units, credits)</i>	Employee Survey
<i>Kind (course names)</i>	Employee Survey
<i>Source</i>	Employee Survey
Professional certificates, licenses	
<i>Examination scores (CPA, bar)</i>	Employee Survey
<i>Certification, licensure record</i>	Employee Survey
Work experience^a	
<i>General work experience</i>	Employee Survey
<i>Specialized work experience</i>	Employee Survey
<i>Promotion history</i>	Employee Survey
<i>Awards (monetary and other)</i>	Employee Survey
Attitudes, values, and motivation	Employee Survey
Match of individual capacities and job needs	Not Applicable

^a Applicable to recently hired employees with prior work experience

Note. This table is a replication of Table 4.2 in General Accounting Office. (1988).



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V. Implementing the Assessment

The original purpose of this study was to describe and analyze the success of the Acquisition Workforce Initiative in expanding and improving the quality of its AW. Unfortunately, because we did not receive the data or a clear definition of quality due to not receiving the data and no clear definition of quality within the acquisition community, we were unable to assess the success of the initiative with respect to increasing workforce quality in this current study. However, we do present an empirical framework for future research if one were to have access to the newly defined variables that measure quality.

In order to help the acquisition community and assess their shortfalls in hiring processes and attract better-qualified candidates, we suggest that researchers examine one specific occupation within acquisitions to properly identify potential problems and assess the success of the initiative. The proposed study would be in the context of analyzing changes in a subset of the civilian Navy employees who work within the contracting department. It will be important to focus on one sub-department within the organization in order to properly identify the causal impact that the initiative has on quality. Each organization/department will require different competency levels, job-specific requirements, and so forth. As a result, not accounting for job-specific characteristics and individual heterogeneity across all departments will lead to incorrect inference. Thus, a simpler task would be to restrict the sample data to those in the AW who are employed within contracting. We focus on contracting for several reasons. First, it is tempting to suggest that the quality of a contracting employee would be easily measured, as mentioned before, by researchers simply counting the number of contracts completed in a given period, along with the time it took to complete them, and rank each employee based on these measures. As previously explained, this method assumes that the number of contracts completed and the time it took to complete them are accurate measures of



quality. Second, contracting employees require a broad set of skills, and lastly, contracting is one of the largest departments within the DoD.

Suppose we had access to all relevant individual-level data that is already available through the Defense Management Data Center (DMDC) as well as new measures that were obtained via survey and/or interviews that provide new indicators for supervisor ratings, personality traits, and job capabilities. There are many program evaluation techniques in the econometrics literature (see Imbens and Wooldridge [2009] for a summary) that researchers can use to determine whether the DAWDF improved quality and whether the benefits of the program outweighed the costs of the initiative. The method used will ultimately be determined by the design of the program and the type of data obtained.¹

A simple method is the Difference in Difference (DID) approach, which measures the change, induced by a particular treatment or event (Imbens & Wooldridge, 2009). The basic idea is that one cannot just compare changes in quality before and after the initiative. This would fail to capture any changes in individual quality that occur over time that had nothing to do with the actual initiative and could bias the estimate of the impact that the DAWF had on quality. The basic setup for the DID is one where outcomes are observed for two groups for two time periods. In this context, researchers could use different measures of quality. One of the groups is exposed to a treatment (the DAWF) in the second period but not in the first period. The second (control) group is not exposed to the treatment during either period. In the case where the same units within a group are observed in each time period, the average gain in the second (control) group is subtracted from the

¹ We were never aware of how the funds were appropriated. Going forward, policy-makers should work with researchers to determine how resources should be allocated. Assessing the success of a program requires information on how the resources are allocated. Identifying the causal impact of the initiative on quality will be partly determined by the design of the “experiment.” Typically, economists randomize who receives the “treatment” to obtain an unbiased measure of the effect. In this context, researchers can randomly select certain installations to receive funds. Then one can compare the differences in quality over time between groups. This will allow researchers and policy-makers to determine whether the funds had a statistically significant impact in actually improving quality.



average gain in the first (treatment) group. This removes any changes in quality that would naturally occur over time for both the control group and the treatment group. The net difference would provide us with the average gain in quality as a result of the initiative.



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VI. What Can Be Done With the Current Data?

While we do not have access to all variables required to assess quality, there is a variety of individual-level data that can be obtained from the DMDC or O*Net for preliminary analysis. This data was not designed for research purposes; however, we believe that we can still extract some useful pieces of information from administrative data that is currently available. If the initiative had a substantial impact in improving quality, then we might observe a structural shift in 2009 with any one of the available variables that could proxy for quality. For example, one could graph the number of certifications completed over time within contracting. If there is a structural shift (jump) in the number of certifications awarded in 2009, then we could infer that it was a result of the initiative. Furthermore, we would continue to observe an upward trend for at least a few years after the start of the initiative. We could also do the same for years of education. One could examine the education level for the contracting employee when first hired and observe whether the AW has hired more educated individuals over time. We would be able to determine whether the new hires have higher education levels on average than those hired prior to the initiative.

An issue that researchers should consider is whether those who enter employment with the federal government are inherently different than those who work in the private sector. It is difficult to determine whether the government is attracting the best person to fill the position and whether the employee will stay for the long haul. There are three things that researchers should consider with the given data.

1. First, how qualified are the employees that are hired within the contracting department and how do they compare with employees performing the same work in the private sector? Researchers could construct proper counterfactuals to compare average characteristics that represent quality across groups to determine whether an agency is hiring the right person for the job.



2. How qualified is the AW within contracting, and how has that changed over time? Researchers can plot trends of various variables that proxy quality.
3. Finally, it is important to understand who the acquisitions community is losing in terms of their workforce. Is the contracting workforce losing its most qualified employees? If so, are those employees attracted to jobs outside of the agency? Are the separation rates different across departments within the acquisitions community? Separation data is available for all departments as well as the reason for the loss.

The bullet points listed above will provide us with a very good sense of what is going on with quality and the AW (within contracting); however, these methods should also be applied to the new data with alternate measures of quality to provide a more comprehensive assessment.

A. Recommendations

Quality can be defined as some combination of the extent to which an individual has desired characteristics such as education, job-related experience, specific skills, motivation, or personality traits, or one can assess quality against a standard of need (General Accounting Office [GAO], 1988). With respect to policy, we recommend that the acquisition community within a DoD agency set up a specific target of quality that they would like to achieve as a result of the initiative. This will provide a baseline to compare to future quotas and requirements for manpower rather than an undefined goal of “higher levels of quality.”

We also recommend better documentation of the hiring process. It is important to understand what the actual output is of a given job and what is required to achieve that output. That is, what are the skills needed for the job, and what is the type of work required? It is important to understand the capabilities of the individual and the degree of capability needed for the work. This will allow researchers to examine whether a department has hired the right quality and quantity of individuals.



Finally, we propose that the selected agency collect more data on their AW. As suggested in the conceptual framework, better measures of quality are needed. These include a variety of variables that measure knowledge, skill, ability, and personality traits. Furthermore, we recommend that the acquisitions community collect data on peer evaluations as well as supervisor evaluations. This will provide better information on whether an individual is matched well to the job.

B. Conclusion

In summary, although the acquisition community is dedicated to improving the quality of the AW, our analysis suggests that the current efforts are likely somewhat misguided and do not allow for appropriate measurement and assessment of changes in workforce quality. To begin with, an agency must develop a clear and precise definition of quality before any efforts to analyze quality can be undertaken. Without an ad hoc definition, any attempts to assess quality and/or implement plans to increase quality will be inherently imprecise, flawed, and frankly, driven by chance. Continuing to try to develop AW quality without a genuine and clear sense of what this actually entails is both inefficient and largely ineffective. Moreover, hoping to increase quality merely as a function of size is rather inefficient as well. Work units are more than merely the sum of their parts, meaning that effective human capital management can enable organizations to reach end goals at less cost. This is because there is often, or can be, an inverse relationship between workforce quality and workforce size. Put simply, the greater the quality of the workforce, the fewer the actual number of workers needed. That is, why hire 50 workers to complete a task if it can be completed by hiring “the right” 25 workers? Unfortunately, because current efforts have focused solely on size and output measures, we are left with very little sense of who “the right” workers might be. As such, we have developed a preliminary framework that may help an agency to both define and assess quality. We have left the framework malleable enough to guide efforts to increase quality while still allowing policy-makers and SMEs to define and implement human capital programs that meet the specific needs and functions of



their contexts. In the end, this framework should be revised and narrowed for each element of the workforce. Once organizational leaders and researchers have developed these specified frameworks, more refined and useful programs can be implemented to facilitate hiring practices and also augment the various human-, social-, and psychological-based competencies of the individual workers. Doing so will enable an agency to have a much clearer understanding of the nature of its human capital and, more importantly, provide an agency with a map to increase workforce quality more efficiently and effectively in the future.



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