

The Pennsylvania State University

The Graduate School

**THE EFFECT OF HUMANISTIC VALUES EXPRESSED BY SUPERVISORS AS PERCEIVED BY
SAILORS, ON SAILOR WORK ENGAGEMENT**

A Dissertation in

Workforce Education and Development

by

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ABSTRACT

The purpose of this study is to explore the effect perceived expression of supervisor values (PSV) may have on workers' level of work engagement (WE). Prospective participants, sailors in the U.S. Navy, were invited, screened, and (if qualified) took part in a four-part survey that incorporated the work concerning the nine Organization Development (OD) humanistic values described in Yoon et al (2020), the Hopeful Career State (HCS) scale, the Assessment of Human Agency (AHA), and the Utrecht Work Engagement Survey (UWES). Structural Equation Modeling was employed to explain the relationships based on prior research to validate theory. PSV and WE were modeled in isolation to demonstrate the relationship as a reflection of the sample and PSV's value and utility. The results are consistent with the theoretical underpinnings of prior studies using the same methodology. The results indicate OD values are important even in one of the most constrained population groups; in turn, contributing to the face validity of those values. The OD community could use the findings to assess whether the nine values identified in Yoon et al (2020) might resonate with workers in a post-COVID environment, to enhance its role in the field of organizational change, and to investigate further the effects leadership can have on work engagement in an ever-changing work environment and evolving worker expectations.

Keywords: Humanistic Values, Leadership, Hopeful Career State (HCS), Work Engagement (WKE), Organization Development (OD), Human Agency.

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Chapter 1

Introduction

Societies and economies evolve and with major developments or events come social changes that affect our interpersonal relationships and roles in broader society and at work. Recently, the United States (as in other countries) has been in the midst of an economic transition, and although changes in the workplace have been slow but growing, with the discovery of the coronavirus disease in 2019 (COVID-19) and the pandemic that followed, efforts to mitigate widespread disease has hastened workplace trends and has exposed or presented various challenges to organizational leadership. Scholarly work has described values as fundamental in affecting behavior and remote work promises to not only to contribute to changing social roles but redefine our relationships with employers (Elsbach et al, 2010; Stanfors & Glodscheider, 2017; Golden & Eddleston, 2020; Criscuolo et al., 2020; and Steemer et al, 2021). In other words, the relationship between the worker and the supervisor needs greater attention because it may be changing in ways that we may not fully understand just yet. The Organization Development (OD) profession has been among those that have helped organizations manage or navigate many of these changes today and in the past, (Torraco, 2016; and Cooke, 1998) and may be among those best suited to help organizations adjust.

In this study, a convenience sample of self-selected U.S. Navy sailors is used to provide some validation to theory and probe into the effect that worker-perceived supervisor values may have on workers' work engagement. This study's goal is to test the validity of a theoretical model and in the context of the

sample population, both involving perceived supervisor values. The study has two parts: one to consider the theoretical model using a convenience sample of Navy sailors and another to probe for the specific indicators that have an effect on work engagement using the same sample. According to Yoon (2019), human agency described in Bandura (2001) could affect a hopeful career state and in turn work engagement (Schaufeli et al, 2002; & Schaufeli & Bakker, 2004). Added to this, alongside human agency is perceived supervisor values. These values have a basis in OD values described in Yoon et al (2020). The second part of this study considers supervisor values and work engagement in isolation from human agency and hopeful career state; it is in itself a separate model. In this way, we may learn something about the sample population; that is, which indicators of perceived supervisor values had an effect on specific indicators of work engagement.

One of the difficulties in the social sciences is teasing out and defining factors from information that is often correlated with other factors or conditions (Cohen, 1988). Researchers don't have the level of control enjoyed in other disciplines that involve non-human subjects. However, there are population groups that allow us to inch closer to help separate the noise (endogeneity) from the data that matters. One of these groups is military service members because they are constrained; that is, military service members are subject to the Uniform Code of Military Justice (UCMJ or 10 U.S.C., Chapter 47), and must follow lawful orders, including those directing them to perform work in arduous conditions. Enlisted personnel sign contracts for a specified period of time in which they subject themselves to the UCMJ and until they are no longer serving on active duty (generally), they are not free to pursue other opportunities or avoid interpersonal conflicts by leaving the organization. A violation of the UCMJ can subject a service member to criminal prosecution that can lead to a federal conviction or administrative separation (i.e., "fired").

Nonetheless, one cannot simply mandate a desirable level of work engagement and a positive working relationship still requires effort from all parties concerned. Leadership is important. This is the reason why this population sample provides an unusual opportunity to study the effects on work engagement and the perceived humanistic values expressed by supervisors that may affect the relationship with the worker; in this case, sailors. In other settings, workers are more likely to change employers if working conditions are intolerable; thus, the expectation is that any such interested prospect from such other settings for a study such as this is likely to be one sufficiently satisfied with their current working environment and more positively biased than a constrained individual with no choice but to continue working with their assigned supervisor with substantial coercive power. The characteristics that are hoped to be accentuated in this constrained group may be useful in studying work engagement where a supervisor's soft skills, particularly in leadership, may necessarily need to be more effective. These same characteristics may also yield useful information for other research involving human resource development that could be harder to come by.

Problem

OD is grounded on humanistic principles and the OD community has been engaged in reflection and consideration for the evolution of the OD field, to maintain or enhance its relevancy (Yoon et al., 2020). Baley and Kurland (2002), Elsbach et al (2010), Stanfors and Goldscheider (2017), Athanasiadou and Therious (2020), Criscuolo et al (2020), Golden and Eddleston (2020), Matli (2020), Steemers, et al. (2021), Quereshi (2021), and many others highlight the dynamics of a changing population and the way we work; undoubtedly, fertile ground for those in the OD profession. Throughout its history, the OD field has been concerned with the traditional workplace (though not explicitly), but the evolution of the workplace

presents new problems that may necessitate further consideration for changes to the practice of OD, as well as opportunities.

As part of an effort to re-envision OD's core values, Yoon et al (2020), through a Delphi study, identified nine core values, humanistic in nature, to help distinguish the OD profession from others in the change management field. For this study, these values were in turn restated to help determine if they held any relevance to the relationship between the worker and the supervisor, and in turn work engagement. The problems highlighted in the references in the previous paragraph have an effect on people. If these values should be of relevance to the worker-supervisor relationship, then it follows that OD should have a competitive advantage relative to other change management practices.

There is, however, a great need to conduct further research and understand many of the changes that are occurring. Caprara et al (2008, p. 525) describe one such challenge: "the accelerated pace of social, informational, and technological change is placing a premium on capability for self-directed learning and self-renewal." Although in describing students the same could be said for workers in the workplace. If the workplace begins to favor those higher in self-efficacy, what does that mean to supervisors and organizations, particularly those who are accustomed to leading and managing people in a command-and-control fashion? How do they motivate workers and align efforts to support organizational goals? How will they manage those with less self-efficacy and how will that dynamic change? Elsbach et al (2010) describes how "face time" has a biased effect on the evaluation of worker performance, but how can that change now that a much greater number of workers work remotely or independently? How does the organization cope? These among others are questions the OD community must confront and consider. Ultimately, worker-

supervisor relationships, regardless of the form they may take, will continue to exist despite technological advances or the evolution of workplace arrangements.

Purpose

The purpose of this study is to explore the effect perceived expression of supervisor values (PSV) may have on sailors' level of work engagement (WE), in combination with human agency (AHA) and as may be mediated by a hopeful career state (HCS); that is, $PSV \text{ and } AHA \rightarrow HCS \rightarrow WE$, and $PSV \rightarrow WE$. To achieve this, structural equation modeling (SEM) is used to model the sample data to validate theoretical models, and consider which PSV indicators and WE indicators contribute to a best-fitting model. The PSV indicators are the values defined in Yoon et al. (2020); that is, the OD values identified by OD practitioners for the future of the OD community.

Research Questions

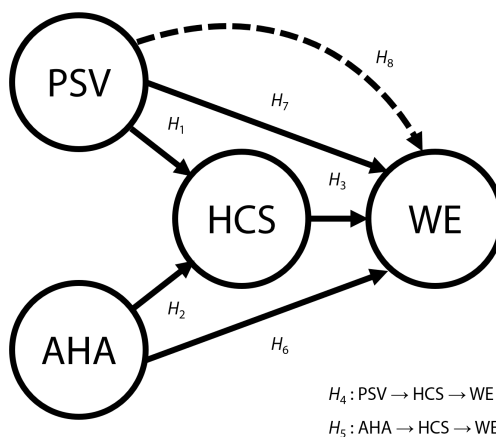
1. With respect to prior research involving AHA, HCS, and WE, how does PSV fit into this relationship?
2. To what extent do the perceived level of supervisors' expression of humanistic values (PSV) affect work engagement (WE) directly?
3. Do sex, supervisor type, and intention to remain in the Navy moderate the effect between PSV and WE?

Conceptual Framework

Figure 1 conceptualizes the research questions, whereby the hypotheses to be tested are represented by arrows from one construct to another.

Figure 1

Conceptual framework



Note. The path model depicted here leans heavily on theory; indicators for exogenous variables will be parceled to contain all elements regarding PSV and AHA, as they were designed, and WE will be represented the Ultrashort UWES (UWES-3) that should encompass the essence of work engagement. H_1 = PSV is positively related to HCS. H_2 = AHA is positively related to HCS. H_3 = There is a positive relationship between HCS and WE. H_4 = PSV is positively related to WE with HCS as a “mediator.” H_5 = AHA is positively related to WE with HCS as a “mediator.” H_6 = PSV is positively related to WE. H_7 = AHA is positively related to WE. An eighth hypothesis will be dependent on a separate model (denoted by the dotted arrow above) in which elements of PSV and WE will be conventionally specified and a measurement model identified in isolation from AHA and HCS, but allow for a closer inspection of the PSV and WE indicators that are reflective of the sample: H_8 = PSV is positively related to WE.

Perceived Supervisor Values (PSV) is a latent variable that is explained by manifest variables (indicators) that represent a worker’s perceived expression of the nine OD values described in Yoon et al. (2020), by the supervisor. For each variable (value), the employee rates the degree of expression on a scale with four-response choices. There are 71 questionnaire items intended to measure what workers believe about their immediate supervisor.

Hopeful Career State (HCS) is a latent variable that is hypothesized to have a causal relationship with PSV, and it is explained by manifest variables from the survey. Yoon et al. (2019) developed an

instrument containing nine items; and these items will serve as the manifest variables that explain HCS.

According to Yoon et al. (2019, p. 12), HCS assesses “how hopeful individuals are at work considering their future career.” HCS is measured on a scale with four-response choices.

Human Agency (AHA) is a latent variable that is explained by manifest variables (indicators) that represent a worker’s level of human agency (Yoon, 2011); that is, the degree to which respondents keep themselves motivated to achieve goals and in considering their future. Like PSV, AHA is measured on a scale with four-response choices. The scale is called the Assessment of Human Agency (AHA).

Work Engagement (WE) is a latent variable that is hypothesized to have a causal relationship with HCS, and it is explained by the manifest variables from the Utrecht Work Engagement Scale (UWES). Engagement “is defined as a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption.” (Schaufeli & Bakker, 2004, p. 295). Here, “work engagement” and “engagement” are used interchangeably. WE is measured on a scale with seven-point response choices. WE is represented by “WKE,” the variable used in the dataset.

Relationship Between PSV and HCS

Perceived humanistic values in supervisors by the sailor would indicate that the sailor detects in some way some degree in which the supervisor is concerned for the wellbeing of others. Thus, trust is not merely dependent on social norms but rather has been cultivated between the supervisor and the sailor. Support for the sailor in the form of resources is likely but so is support for ensuring the physical and psychological wellbeing of the sailor. Since a hopeful career state would indicate that the sailor is supported to perform their jobs well and would feel confident in the career outcomes, it is reasonable that the support

provided by the supervisor greatly contributes to the resiliency of the sailor. Thus, hypothesized here is that PSV is positively related to HCS, that a high level of hopeful career state can be predicted if the supervisor is perceived to express humanistic values.

H₁: PSV is positively related to HCS.

Relationship Between AHA and HCS

According to Yoon (2022), personal agency is measured by the Assessment of Human Agency (AHA) scale, and personal agency is theorized to be a precondition affecting a hopeful career state (HCS). “To be an agent is to intentionally make this happen by one’s actions. Agency embodies the endowments, belief systems, self-regulatory capabilities and distributed structures and functions through which personal influence is exercised, rather than residing as a discrete entity in a particular place” (p. 2). Thus, personal agency is hypothesized to directly have an effect on HCS.

H₂: AHA is positively related to HCS.

Relationship Between HCS and WE

If the sailor is and feels resilient and confident about their role and future, the sailor is likely to be engaged in their work. Alimo-Metcalfe, et al. (2008) found an engaged leadership more so than merely having leadership competencies made the difference in worker outcomes, and such level of commitment was described in Youssef and Luthens (2007) as well. Thus, a hopeful career state as nurtured by the

supervisor can predict higher or positive worker engagement, or HCS is positively related to WE. Yoon et al. (2019) already demonstrated a positive relationship between HCS and WE.

H₃: A positive relationship exists between HCS and WE. Note: Directionality cannot be established in the model and is assumed in accordance with the theory proposed. For more information, see Chapter 5, Limitations.

Relationship Between PSV and WE as “Mediated” by HCS

If the first two hypotheses are true, then we should see a positive relationship between perceived supervisor values and work engagement. Perceived support by and trust in the supervisor favor work engagement. Ultimately, expressing humanistic concerns on the part of the supervisor and perceived by the employee should predict a positive relationship with sailor engagement. According to Yoon (Personal communication, March 15, 2023), the PSV scale may address both proxy and collective agency in his model presented in Yoon (2022), the Agentic Human Resource Development Process (AHRDP).

H₄: PSV is positively related to WE as “mediated” by HCS. Note: True mediation cannot be established in the model and directionality is assumed in accordance with the theory proposed. For more information, see Chapter 5, Limitations.

Relationship Between AHA and WE as “Mediated” by HCS

Satici (2016) demonstrated “full mediation” between resilience and well-being. Yoon (2011), Shao (2022), and Li (2002) all hypothesized the relation between AHA and WE as mediated by HCS. A natural

comparison can be drawn between resilience and agency, and well-being as partly reflected in work-engagement in terms of how workers feel about themselves in relationship to their work.

H₅: AHA is positively related to WE as with HCS as “mediator.” Note: True mediation cannot be established in the model and directionality is assumed in accordance with the theory proposed. For more information, see Chapter 5, Limitations.

Relationship Between AHA and WE

If HCS does not mediate the relationship between AHA and WE, then it is plausible that there exists a direct relationship between the two. Caprara et al. (2008) demonstrated that people with high levels of self-efficacy are more successful in achieving their goals through choices they make in life.

H₆: AHA is positively related to WE. Note: Directionality cannot be established in the model and is assumed in accordance with the theory proposed. For more information, see Chapter 5, Limitations.

Relationship Between PSV and WE Without HCS as a “Mediator”

It is possible that PSV could have a relationship with WE without HCS as a “mediator,” and AHA may not be required to have an effect. This possibility is considered in isolation from AHA and HCS, as an alternative model. A conventionally-specified model will also tell us something about the sample. A separate and simpler model with only the two variables in question that are the focus of this study, provides a clearer understanding of what components of PSV are shared with certain components of WE, in isolation from other factors.

H_7 : PSV is positively related to WE.

H_8 : PSV is positively related to WE, in isolation from AHA and HCS.

Conditions on the Isolated Relationship Between PSV and WE

It is possible that the relationship between PSV and WE may be conditioned by factors associated with societal trends, the organizational status of the supervisor, and intention to remain in the organization long-term.

H_9 : The differences in estimate (slopes) between male and female are significantly different.

H_{10} : The differences in estimate (slopes) between supervisor type groups, “E6-and-below” and “all others” are significantly different.

H_{11} : The differences in estimate (slopes) between the groups with an intention to stay, not stay, and that are unsure are significantly different.

Scope

The values described in this study are not exclusive to OD and is the reason why they are simply referred to here as “values;” however, they currently help define what is important to the OD field. This study is limited to OD values defined in Yoon et al. (2020), and the study does not encompass all of the issues associated with worker-supervisor relationships among various worker types and work conditions, other values defined in previous research in the OD field, nor other values defined outside of the OD field.

This study concerns itself with workers that are individual contributors who are supervised by other workers and their perceptions about those supervisors, as they ultimately relate to work engagement. This study does not examine relationships among other workers within or outside any given organization, such as contractors, external consultants, temporary workers, or individual contributors that work independently. The sample used is one of constrained workers with whom control largely resides with the immediate supervisor. This study presents models based on previous studies and reflective of the data collected, but it does not establish cause and effect nor can transferability be assumed to apply to other settings and other population groups. This study is cross-sectional, based on a convenience sample at one moment in time.

Assumptions

OD values are humanistic in nature. The assumption here is that these values are not limited to the OD field but are of value or at least of interest to, and applicable to a broader population, since workers are human beings and work performance is dependent on the perceptions, decision-making, and actions of those workers. Scholarly work has described values as fundamental in affecting behavior.

The sample being one of constrained, junior sailors offers an opportunity to accentuate the relationship between worker and supervisor in models because these workers cannot readily leave their jobs or the organization as the general population may when matters at work become difficult or at least undesirable for the worker, and because these workers have limited or no prior work experience to draw a basis for comparison with other work environments to identify alternative opportunities. Additionally, the military work environment is characterized by hierarchical and a command-and-control style of

management and leadership that places much of the burden on managing personnel directly on the immediate supervisor. The conditions that could affect the worker-supervisor relationship in the general population are not present or are greatly reduced in the sample population used for this study. In a military environment, both the worker and the supervisor must, at a minimum, tolerate each other, and either one only removed in exceptional circumstances. Supervisors are held accountable for the performance of the teams they supervise.

Lastly, the assumption of normally-distributed data associated with each construct is likely violated (Shi et al, 2019). This is common. To overcome this issue, a large dataset and maximum likelihood estimator are used in the analysis (Rhemtulla et al, 2012).

Research Significance

The OD community could use the findings to assess whether the nine values identified in Yoon et al. (2020) play a role in supervisor-employee relations in a post-COVID environment, to enhance its role in the field of organizational change. OD is grounded on humanistic principles with bottom-up approaches to change management, which means that their interest is in working with regular employees to effect change. Understanding how employees perceive supervisors' expression of values (specifically, the OD values), which influence decision-making and action, in relationship to HCS and WE would be of value to the OD community because the OD community's commitment to these values may affect the relationship OD practitioners could have with employees directly in a client organization. In turn, organizations with employees that share these values could have implications for OD practitioners' success in helping such organizations effect meaningful change.

In addition, the level of work engagement (WE) affected by perceived supervisor expression of values (PSV), whether mediated by a hopeful career state (HCS) or alongside human agency (AHA), could be of interest to business leaders and human resources practitioners in seeking to improve the management or engagement of a workforce, particularly now in a post-COVID environment as worker expectations are invariably affected by the normalization of alternative work environments. In the past, alternative work arrangements were largely voluntary and relatively few, but with greater number of employees now participating in remote or some form of telework, not only is it likely that such alternative work arrangement could become mainstream but those inclined to work in a traditional arrangement may find work more challenging or at least must consider different strategies or develop new skills to work with other employees working remotely to remain at least as effective prior to the onset of the COVID-19 pandemic.

For the U.S. military, particularly because of its hierarchical, command-and-control style of leadership and management, it is important to stress that as it continues to draw in new recruits from general society, new workplace expectations are likely to permeate through its junior ranks and shape new norms. Career decisions will at least depend in part on these expectations with greater weight given on personal work experience and direct interaction with immediate supervisors to shape perceptions about the organization. Further investigation on the effect of leadership on enlisted personnel, especially on what motivates them, could complement and perhaps enhance the Navy's current efforts on sailor resiliency.

Definition of Terms

“Advancement” refers to the promotion of enlisted personnel from one paygrade to a higher paygrade. In the Navy, the term “promotion” is the equivalent term reserved for commissioned officers. In Navy parlance, enlisted personnel are said to be advanced while officers are said to be promoted.

“Causal” refers to relationships between variables in which one or more variable or construct (antecedents) have an effect on another (consequent) to support a conceptual framework or theory, and does not mean nor does it establish cause and effect. (James et al., 1982). In this study, the term “causal” really means “effect” but the term “causal” is more likely to be encountered in literature so it is used here, especially when explaining structural equation modeling (SEM). In this study, however, non-experimental, cross-sectional data is used and cause and effect cannot be established (Bollen et al, 2013).

“Employee” is used to describe workers that are employed by and therefore affiliated with an organization, usually exclusively. Generally, employees are compensated by the organization to perform work on behalf of the organization indefinitely, and the organization extends certain benefits to the employee (which non-employees do not receive). Employers exercise control over employees, including directing the work to be done, when to do the work, conduct performance evaluations, and provide tools and training to perform the work (Internal Revenue Service, 2017). For the purposes of this study, “employee” means those employees that are supervised, and employees that supervise others are referred to as “supervisors.” Employees are the intended respondents of any survey in this study. In lieu of “employee” or “worker,” the term “sailor” is used; respondents to the questionnaire are all service members of the U.S. Navy; therefore, these workers are “sailors” who are largely individual contributors.

“Endogenous variables” are constructs in a path model that are not exogenous variables.

Endogenous variables are dependent on other latent variables that can be either endogenous or exogenous, and have error associated with them called a disturbance. All mediators in a model are endogenous. (Kline, 2016)

“Endogeneity” is distinct from “endogenous variable.” The later refers to a variable affected by another variable in a model whereas endogeneity refers to some unaccounted variable not included in the model. It also refers to other sources of error such as systematic error or inappropriate paths in a model. (Hill et al, 2020)

“Engagement” is defined as a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption.” (Schaufeli & Bakker, 2004, p. 295). In this study, “work engagement” and “engagement” are used interchangeably.

“Exogenous variables” are those variables that occur outside of the path model and have no error associated with them in the model. They are not dependent on other latent variables but have an effect on endogenous variables in a path model (Kline, 2016). They may serve as moderators but never mediators.

“Individual contributor” is used to describe workers that do not supervise others. While it can apply low-level workers as they are generally supervised by others, the term is not limited to low-level workers but can apply to anyone that meet that criterion, such as an internal or external consultant, corporate or management advisors (legal, regulatory, etc.), or highly-specialized analysts that can act and work independently to help or advise management. According to the U.S. Department of Justice’s specified labor categories, for example, subject matter experts can function

As the highest-level individual contributor in at least one technical area. Utilizes expertise in business management practices, industry requirements and information technology

disciplines to develop technical and/or business solutions to client problems. Has a high level of diverse technical and industry experience related to a specific skill set. Typically has specialization in a particular technology or business application. Keeps abreast of technological developments and industry trends.” (U.S. Department of Justice, 2014, p. 2)

In this study, a sample of junior sailors and not higher-level individuals are used to study the relationship with work engagement.

“Latent” refers to that which cannot be observed or measured directly. Latent variables or constructs are hypothetical and presumed to exist through a “concrete realization in a particular[, nonunique] manifest variable.” (James et al., 1982, p.105)

“Loading” or “factor loading” are “direct effects [between a factor and indicator] ... and “are interpreted as regression coefficients.” (Collier, 2020, p. 5)

“Manifest variables” are “variables associated with directly observable events.” (James et al., 1982, p. 55). In other words, they are concrete and can be measured directly. In this study, they are represented in the questionnaire items.

“Mediation,” according to Kline (2020, p. 134), “refers to the causal hypothesis that one variable causes changes in another variable, which in turn leads to changes in the outcome variable.” However, the reader is cautioned: mediation in this study cannot be established for reasons indicated in Bullock, et al (2010), Kline (2015), and Hayes (2018, chapter 4); hence, relationships involving a latent variable in a path between two other variables are simply referred to in terms of “indirect effects.” Causation cannot be established. Nonetheless, for lack of a better term, the latent variable itself will be referred to as a “mediator.”

“Moderation” refers to an interaction, a conditional effect on a causal relationship. (Kline, 2020)

“Rate” is a Navy term associated with position within the naval hierarchy. The officer equivalent in “rank.” Enlisted personnel do not have rank. A Navy rate is most associated with paygrade. Enlisted personnel in the Navy in the paygrades E4 and E5 are Third and Second Petty Officers (rates), respectively. First Class Petty Officers are in the paygrade E6. Chief Petty Officers, Senior Chief Petty Officers, and Master Chief Petty Officers are in the paygrades E7, E8, and E9, respectively.

“Rating” is a Navy term used to describe job specialty of enlisted personnel. Navy commissioned officers do not have ratings but instead have “designators.”

“Sailor” is a term used to describe a military service member affiliated with the U.S. Navy and that is subject to the Uniform Code of Military Justice (10 U.S.C., Chapter 47). While supervisors may be sailors (officer or enlisted) as well; for the purposes of this study, the term is reserved for those in the paygrades E5 and below and intended to be interchangeable with terms “worker” or “employee” used in other studies. It refers to those that are individual contributors, and not otherwise any kind of civilian worker associated with the Department of the Navy.

“Supervisor” is used to describe workers that supervise other workers and can exercise control in the manner in which work is performed. All supervisors are employees of the organization of interest and supervise other employees. Supervisors do not supervise workers that are not employees of the organization of interests, such as independent contractors and external consultants, but may manage a contract (business transaction) that specifies the work to be performed by the contractor. In such cases, supervisors should not direct nor control the manner in which work is performed unless it specified in the contract and limited to cases for which business reasons require control. Generally, supervisors, on behalf of their employer, exercise control over employees they oversee. The Internal Revenue Service (IRS) specifies three criteria:

behavioral control, financial control, and relationship. (IRS, 2017). With respect to the sample used in this study, many supervisors are “sailors;” however, in this study the term “sailor” is reserved, to refer to those that are being supervised as individual contributors.

Summary

This chapter provides an overview of the evolving nature of the workplace and that history serves as a rationale for this study; that is, to explore the worker-supervisor relationship and its effects on work engagement. Certain conditions have been affecting the workplace such as economic changes, changing roles affecting the share of domestic and workplace participation, technological change, the COVID-19 pandemic, and alternative work arrangements are touched to highlight that humanistic factors may be underlying engagement and their effect may be of potential value to understanding the dynamic between worker and supervisor, particularly for those working remotely or through a non-traditional workplace arrangement.

The study uses a sample of U.S. Navy sailors to explore the worker-supervisor relationship and relies on a theoretical model based on the work of Hyung Joon Yoon and Albert Bandura. Because of the specific nature of the sample (its constraints), the sample offers an opportunity to explore the worker-supervisor relationship by excluding other common environmental factors that could be found in most other situations.

Using structural equation modeling (SEM), specific indicators of supervisors’ values are used to identify a best-fitting model that contributes to work engagement, along with other factors related to human

agency and hopeful career state. Perceived Supervisor Values (PSV) and Assessment of Human Agency (AHA) factors are treated as exogenous variables in the model. Hopeful Career State (HCS) is treated as a mediating factor. Work Engagement (WKE) is treated as the ultimate dependent variable. The factors of sex, supervisor type, and intention to remain in the Navy are tested for their moderating effects.

This chapter emphasizes the role that Organization Development (OD) can play in facilitating change because the humanistic values that are studied here are the humanistic values that the OD community has adopted for the profession, potentially offering a competitive advantage over other approaches to organizational change management.

The rest of the chapter lists the research questions, defines the relationships and hypotheses to be explored, and describes the scope, assumptions, and significance of the study. The chapter concludes with a list of terms that serve to clarify the use of terms in this paper as well as define terms commonly found in SEM but that have the potential to be misinterpreted.

Chapter 2

Literature Review

Many elements come to bear in the conceptualization of theory involving the worker and the supervisor. In this chapter, a brief exploration of some of literature involving worker-supervisor relationships; employee support, trust, and values; OD values; human agency; hopeful career state; and work engagement is provided to identify the prospective interactions among the four main constructs used in this study. In short, the literature supports the theory to be tested. Since the main topic is about perceived supervisor values, the review begins with relationships between the worker and supervisor, and touches on issues of trust.

Worker Relationships with Supervisors

Penger & Černe (2014) explored the relationship between authentic leadership, employees' job satisfaction, and engagement at work; and of the literature reviewed, perhaps this study has come closest to evaluating how supervisors are perceived and as this perception relates to employee outcomes (i.e., engagement). However, it is unclear exactly what "authentic leadership" really means, as the authors point out in their limitations section, "...the construct of authentic leadership is still in development, additional work in defining the theoretical conceptualisation, as well as further empirical conformation, will be needed." (p. 523). The idea of "authentic leadership" is important because it is here that they find the strongest link between a characteristic of the supervisor as it relates to employee engagement. Where we

have some problematic information as it may relate to this study, the authors find a “mediating effect of perceived supervisor support in the relationship between authentic leadership and employees’ job satisfaction” but “between authentic leadership and employees’ work engagement, the results showed partial mediation of perceived supervisor support.” (p. 521).

What do respondents think “authentic leadership” means and how do they distinguish it from “supervisor support?” In citing Ilies et al (2005) and Deci et al. (1989), Penger & Černe (2014, p. 511) state, “authentic leaders positively influence followers’ behaviors because such leaders provide support for followers’ self-determination,” suggesting then that supervisor support is perceived by employees as a behavioral indicator consistent with authentic leadership (a trait of authentic leadership). This, then, suggests that there are other distinct behaviors than “support” in which a supervisor may engage, as perceived by employees in that particular setting, that describe an “authentic” leader, but we don’t know what they are in their study and we don’t know how or why respondents made the distinction.

Penger & Černe (2014) studied a manufacturing setting in Slovenia. With this in mind and not really knowing what other behavioral indicators were perceived, we cannot know to what degree the results of their study may be useful in this study where the target population involves Americans living in the United States and across many different occupational groups and industrial sectors, and unlikely in a manufacturing setting; that is, in other settings such as an office environment and in relative isolation.

Support for the Employee, Trust, and Values

Perceived supervisor support for the employee was described by Kottke and Sharafinski (1998), as an extension of Eisenberger et al’s (1986) work on organizational support. Eisenberger et al. describe the

two-way relationship between how commitment on either side is affected by the other. Kotte and Sharafinski were concerned with the employee's view of the supervisor, an agent of the organization who could more directly affect the employee and thus influence their level of commitment (Eisenberger et al.,1986). Kotte & Sharafinski (1998, p. 1079) write that in comparing supervisory and organizational support, their findings support "both the literature and anecdotal evidence that proposed employees prefer feedback and support close to them." However, if the concept of "supervisory support" is an extension of organizational support in terms of "recognition, pay, and promotion," "job security," "autonomy", "role stressors," "training," and "organization size," as described in Rhodes and Eisenberger (2002)—in other words, rewards and favorable working conditions—action as a consequence of expressed values must be observed or perceived by the employee on the basis of how each of those items are overtly managed by the supervisor. What happens when a supervisor is perceived as supportive but doesn't always deliver the support that in turn would be reciprocated by the employee, perhaps for reasons outside of the supervisor's control?

Holland et al. (2017, p. 919) define trust in the following way: "trust is ... contextualized as the confidence that one party to the exchange will not exploit the other's vulnerabilities," and that "trust in supervisor mediates the relationship between supervisory support and employee engagement" (p. 923). They cite various sources to reach their definition of trust but one in particular draws some connection with values: Korczynski (2002) provides a table that outlines the basis of confidence for trust, and writes,

Another such basis is knowledge of the other party's internal norms. Again[,] with the literature there has been a range of labels given to this form of trust, from Casson's (1991) discussion of trust in the context of ethical (as opposed to economic) 'man', to Yamagishi and Yamagishi's (1994) definition of trust as relating to inferences about the other party's motives. Common to these labels is the concept that X is confident that Y will not exploit

his/her vulnerability because X has information on the internal norms and values of Y. (pp. 5–6).

It is by this description that we can begin to connect values (and norms) to the matter of trust. If trust mediates supervisory support and employee engagement, then values must have a role in this mediation, even if it is small. Implied is that values and norms regulate the behavior of those in the position to exploit another's vulnerabilities, and that the other who could be exploited has some level of confidence or expectation of a behavioral outcome based on that assumption. Norms can be viewed as the expected behaviors or customs based on that which is culturally accepted, whereas values are those beliefs and commitment to those beliefs that affect behaviors. In Rokeach (1979):

All values have cognitive, affective, and directional aspects. Values serve as criteria for selection in action. When most explicit and fully conceptualized, values become criteria for judgment, preference, and choice. When implicit and unreflective, values nevertheless perform "as if" they constituted grounds for decisions in behavior. Individuals do prefer some things to others; they do select one course of action rather than another out of a range of possibilities; they do judge their own conduct and that of other persons. (p. 15)

OD Values

In the simplest sense, change management means the process of helping a person, group, or organization change ... OD emphasizes employee participation in assessing the current state and in planning for a positive future state; making free and collaborative choices on how implementation should proceed; and, empowering the system to take responsibility for creating and evaluating results. OD differs from other methods that hold managers or consultants responsible for the success or failure of a change effort (Rothwell et al., 2010, *Change Management Defined*).

Thus, OD is a form of change management whereby OD distinguishes itself from other forms of change management primarily on its humanistic and democratic roots and values. Of particular focus in this section highlights OD's focus on empowering people through humanistic values—specifically, people as empowered workers to drive change in the workplace—as a model to support remote workers. In Yoon et al.

(2020), an effort to envision what OD could be in the future rested in the field's changing values as a reflection of the changing working landscape and evolving organizational needs; in which nine OD values were identified by consensus of OD practitioners world-wide. The values identified in Yoon et al. (2020) are: (1) awareness of self and system, (2) continuous learning and innovation, (3) integrity, (4) courageous leadership, (5) trust and respect, (6) diversity, (7) collaborative engagement, (8) strategic practicality, and (9) client growth and development.

With the current changes underway driven by the pandemic, it is important to test these values to determine whether they make a difference ultimately in worker engagement. For example, if a supervisor is perceived to hold values (that are essentially the same as OD values), do they help or hinder the relationship between the supervisor and the worker? Would we see a difference in the level of engagement ultimately stemming differences in supervisor values that employees perceive; and if so, why? If they do, some or all of these values would indicate that OD as a field could be, at a minimum, clearly useful with a prospect of prominence and relevance in the new workplace that could easily distinguish it from other change management fields, as OD's approach to change management would seem likely to resonate with employees. If no effects are detected, then the OD field would probably find an evolving workplace no less challenging but itself no more distinguished from other change management fields, and the OD community may want to revisit its strategy.

In either case, it would be worthwhile for OD researchers and practitioners to evaluate the implications of the findings and consider what they mean within this new but changing environment. Church et al. (1994, p.34) writes, "One might guess ... humanistic values would be seen as more important when rated in the ideal, [but] there was no empirical support for such an idea ... this outcome may simply

reflect practitioners' current prioritization of business value," suggesting that two sets of values are in competition. However, this long-standing debate, given recent trends, may be moot: The drivers discussed in the introduction seem to point to a direction in which the employee will need to be empowered and supported to be self-directed, work and home lives will continue to intermingle, and the so-called "bottom line" may well depend on how well the organization is able to help manage these employee-related issues and expectations—all of which speak to humanistic concerns. "There is a dire need for managers to not only focus on productivity, but also on the well-being of their workers. Managers need to continuously check on their workers' performance during this challenging period..." (Matli, 2020, p. 1237)

There is no other research concerning OD values beyond Yoon et al (2020) because the OD values in question were just recently developed. However, the exercise of agency provides additional clues.

Human Agency

Yoon (2022) builds on Bandura's work in his development of the Agentic Human Resource Development Process theory in which human agency plays a role that may work with proxy and collective agency in affecting work engagement. Perceived supervisor values may be reflected in the concept of proxy agency, and human agency may work in concert with humanistic values to ultimately contribute to work engagement.

In Bandura's (2001) introduction, he writes, "to be an agent is to intentionally make this happen by one's actions. Agency embodies the endowments, belief systems, self-regulatory capabilities and distributed structures and functions through which personal influence is exercised, rather than residing as a discrete entity in a particular place" (p. 2). Bandura explains the four main characteristics of human agency as

intentionality, forethought, self-reactiveness, and self-reflectiveness to describe purpose and decision-making, goal-setting and anticipation of consequences, motivation and self-regulation, and a kind of introspection, respectively.

In more recent developments, Yoon (2022) has incorporated human agency to propose his Human Resource Development Process (AHRDP) theory. Bandura (2001) presents the notions of personal, proxy, and collective agency. Yoon's theory assumes Bandura's three modes of agency that affect a hopeful career state (HCS) and that in turn affect work engagement (WE) (Yoon, Personal communication March 15, 2023). Human agency's role in Yoon's model is the basis for one of these modes that affects personal agency. "In personal agency exercised individually, people bring their influence to bear on their own functioning and on environmental events" (Bandura, 2006). Additionally, as described by Yoon (2019), proxy agency refers to agency exercised through others through a variety of relationships and not necessarily formal, and collective agency is one exercised as a group such as team or organization. Yoon (2019) provides the following as representative of each concept within the context of "the world of work": (1) "individual development or training and development;" (2) "performance management and leadership, coaching and training;" and (3) "organization development and social change," respectively. Yoon theorizes that both agency and values and their effects on work engagement may be mediated by hopeful career state.

Hopeful Career State (HCS)

The Hopeful Career State (HCS) construct has a basis on the notion of hope. Generally, one thinks of hope as something desirable that we would want to occur. Hope can have a dark side, such as hoping for something undesirable to happen to someone else; but here specifically, hope is considered as a

“mediator” to achieving goals and sustaining performance. Satici (2016) demonstrated “full mediation” between resilience and well-being, and writes, “Hope as a human psychological strength is the cognitive process that helps people to have positive expectation to reach desired goals and to perceive that these goals can be met” (p. 69). Snyder (2002) describes hope as “a positive motivational state” attained through directed energy via goal-setting (“mental targets”), pathways (consideration for the means to achieve goals), facilitated through “agency thinking.” Both Shao (2022) and Liu (2022) considered HCS as a mediator. Shao (2022) draws on a study connecting hope and acculturation to a country’s host culture that correlates with self-efficacy, and then draws a connection with HCS one’s positive outlook on career opportunities. Liu (2022) considered HCS as a personal factor and similar to psychological capital to hypothesize a relationship between HCS and career engagement. Thus, to achieve goals, it helps to be hopeful, suggesting hope may have a mediating effect. HCS has mediation potential in other settings.

Incorporating Snyder’s work and others to develop the HAT model or Hope Action Theory in Niles (2010), Yoon et al. (2019) sought to help individuals with their career planning, to empower them to achieve a hopeful state and thus enabling for themselves achievable aims and self-management. Hope then is considered from a constructive viewpoint as it relates to career development and its effects it may have on work-related engagement and performance, and not in the general sense of merely a desired expectation.

We can see from this alone why hope can be a promising ingredient in employee work engagement (and not just career development) where employees would be required to be more self- and goal-directed where traditional supervisory oversight may not be available (e.g., remote work). Indeed, Youssef and Luthens (2007) found a connection between hope and performance and organizational commitment. “Despite positive correlations among hope, optimism, and resilience in relation to performance and

organizational commitment, the hypotheses were supported only for hope in relation to performance and for hope and resilience in relation to organizational commitment” (p. 792). In another study, Clarke et al. (2018) demonstrated in their study how immigrants were able to overcome challenges and achieve healthcare licensure using a hope-oriented framework, specifically a “targeted, hope-based interventions ... to strengthen pathway, agency, and goal-directed thinking.” (p.165)

The Hopeful Career State (HCS) construct is based on the HCS scale, developed by Yoon et al. (2019). Yoon et al. (2019) describes the indirect effects on work engagement but caution that “more validation studies need to follow to confirm its validity and utility” (p. 17).

Work Engagement

Kahn (1990) describes how people’s identities and the degree that work plays a part in their life can affect people’s level of commitment and involvement in the performance of their work, affecting people’s “calibrations” in reference to the back and forth born from any ambivalences with respect to the self and the environment. These calibrations that are mediated by perception, Kahn (1990, p. 694) calls “engagement” and “disengagement.” Kahn (1990, p. 705) lays out in a table four dimensions that can have meaning to the person: definition, experiential components, types of influences, and influences that affect a sense of safety and ultimately affect the level or type of engagement Kahn calls “availability,” in essence the potential for and availability to be engaged. “It is at the swirling intersection of those influences that individuals make choices, at different levels of awareness, to employ and express or withdraw and defend themselves during role performances” (p. 719). In other words, these “role performances” means work engagement when interpreting “role” to mean a role at work. Schaufeli et al. (2002, p. 74) is more specific in defining work

engagement as “a positive fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption.”

As an outcome that can have business implications as well as indicating a positive aspect of wellbeing, the final component of the conceptual framework involves work engagement. Of all the concepts reviewed, work engagement appears to be the most and broadly-researched topic within the realms of organizational psychology and development, business management, and human resources. Organizations are concerned with managing human resources, targeting their development to achieve business aims, and are interested in outcomes, such as performance, retention, and development to support business goals; however, such successful efforts can also be indicative of positive psychological wellbeing of the employee.

Work engagement has been well-studied. Schaufeli et al. (2002) and Schaufeli and Bakker (2004) found that higher levels of engagement were related to lower levels of stress and burnout. Schaufeli and Bakker (2004, p. 331) assert that “increasing job resources (e.g., through participative management, increasing social support, and team building ... would eventually lead to more engagement at the job.” Baptiste (2007) found that engagement was affected by employee wellbeing (albeit at work, presumably on-site) and trust. “A consistent result in the study was that management relationship behaviour in the form of support and development of trust, promoted employee wellbeing at work amongst workers” and employee engaged was considered vital (p. 303). Alimo-Metcalf, et al. (2008) found that a significant predictor of organizational performance was the ability to for leadership to engage with others, in contrast to competencies, suggesting the supervisor support of the employee plays an important role in business outcomes.

The significant relationships with “engaging with others” are readily interpretable; where staff perceive the leadership as engaging with them by involving them in developing a

shared vision, being loyal to them, supporting them through coaching and mentoring, by involving them in determining how to achieve the vision, positive attitudes to work and a sense of wellbeing at work are to be expected. The evidence is that leadership quality is a significant predictor of goal achievement and that this quality is one of “engaging” leadership. (p. 593)

This finding is particularly powerful in that the authors statement ties elements consistent with Youssef and Luthens (2007) and resonates with much of the work involving hope studies. The leadership aspect ties in with supervisor support discussed earlier and that support can come in the form of development and perceived by the employee. Shusha (2013, p. 27) studied psychological engagement in Egypt with a large sample of 467 participants in 20 work locations, and conclude “the results ... demonstrate that when employees perceived high levels of organizational support, they will reduce their [withdrawal behavior] and [withdrawal intentions].” With respect to role engagement as defined by Kahn (1990), Fletcher (2017, p. 476) found that an increase in resources enhances engagement and hinderances have the opposite effect.

In short, like employee engagement in reference to the organization, other people that work there, and the work involved, work engagement is related but more specifically refers to the level of commitment and investment a worker feels and demonstrates in the approach to and performance of work. Reaching back to Kahn (1990), engagement is complex and work engagement would be one aspect of this bigger concept. Leadership such as supervisors who have the ability to exploit workers are likewise positioned to influence that level of commitment and investment, shape the perceptions of employees, so it is reasonable to assume that work engagement would be a natural outcome of perceiving or being supported by those empowered to do so.

Summary

This chapter discusses literature that provides context in identifying the underlying connections or themes among the constructs used in this study and those related to the worker-supervisor relationship. How supervisors are perceived by the worker has a basis on trust and how that trust is cultivated may be related to values and how the worker is supported in relationship to worker vulnerabilities. The chapter leads to OD values that emphasize humanistic and democratic principles.

The chapter then moves on to work that supports broader interconnections, setting the foundation for a model and exploration of its relationships. The chapter discusses human agency, the actions of one in response to the environment, and how humanistic values may be incorporated into proxy agency, using Yoon's (2022) Agentic Human Resource Development Process (AHRDP) theory. The chapter concludes with hopeful career state (HCS) as a mediating factor between values and agency as precursors to work engagement.

Chapter 3

Method

The purpose of this study is to explore the effect perceived expression of supervisor values (PSV) and human agency (AHA) may have on sailors' level of work engagement (WE) as may be mediated by a hopeful career state (HCS); that is, PSV and AHA → HCS → WE and PSV → WE. To achieve this, structural equation modeling (SEM) was used to model sample data. Alternative models consider which PSV indicators contribute to a best-fitting model. The PSV indicators are the values defined in Yoon et al. (2020); that is, the OD values identified by OD practitioners for the future of the OD community.

At the beginning of the literature review, Perceived Supervisor Support (PSS) is described as a means to point out the value a supervisor can have on employee perception, but it is not included in the conceptual framework as it may have a confounding effect and the point of this study it to explore perceived, expressed supervisor values and not support specifically. Again, these values are the OD values described in Yoon et al. (2020) and these values are of specific interest to the OD community and to this study. OD is grounded in humanistic principles with bottom-up approaches to change management, which means that their interest is in working with regular employees and systems to effect change. Understanding how employees (in this case, sailors) perceive supervisors' expression of values (specifically, the OD values), in which values are the foundation for action, in relationship to HCS and WE would be of value to the OD community because the OD community's commitment to these values may affect the relationship OD practitioners could have with employees directly in a client organization. In turn, organizations with

employees that share these values could have implications for OD practitioners' and the organizations' success in helping such organizations realize meaningful change, or at least reconsider the application of resources or improve the relationship with employees. These are the primary reasons as to why values and not PSS is included in the conceptual framework.

Research Questions

To realize the purpose of this study, the following research questions must be addressed, and to address them, the following hypotheses must be satisfied:

1. With respect to prior research involving AHA, HCS, and WE, how does PSV fit into this relationship? To examine this fit, H_1 through H_7 should be satisfied:

H_1 : PSV is positively related to HCS.

H_2 : AHA is positively related to HCS.

H_3 : A positive relationship exists between HCS and WE.

H_4 : PSV is positively related to WE as "mediated" by HCS.

H_5 : AHA is positively related to WE as "mediated" by HCS.

H_6 : AHA is positively related to WE.

H_7 : PSV is positively related to WE.

2. To what extent do the perceived level of supervisors' expression of these values (PSV) affect work engagement (WE) directly?

H_7 : PSV is positively related to WE (same as in question 1).

H_8 : PSV is positively related to WE, in isolation from AHA and HCS.

3. Is the relationship between PSV and WE conditioned by sex, supervisor type, and intention to remain in the Navy?

H_9 : The differences in estimate (slopes) between male and female are significantly different.

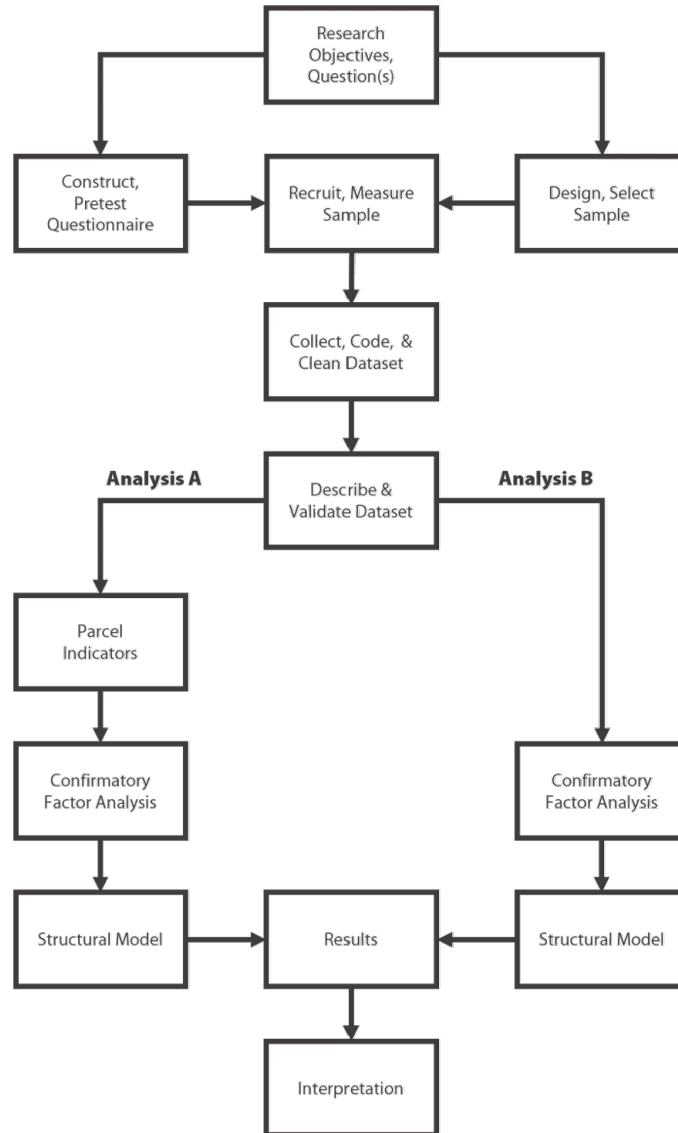
H_{10} : The differences in estimate (slopes) between supervisor type groups, “E6-and-below” and “all others” are significantly different.

H_{11} : The differences in estimate (slopes) between the groups with an intention to stay, not stay, and that are unsure are significantly different.

Design

This study’s purpose does not include the validation of established instruments, but incorporates instruments found in Yoon (2011), Yoon et al. (2019), Yoon (2022), and Schaufeli et al. (2002) to measure HCS, AHA, and WE (“WKE” is used as the variable in modeling to represent WE), respectively; and a modification to the instrument used in Yoon et al. (2020) is used to measure PSV, reinterpreted using plain language in a manner that is conducive to collecting data on a four-factor scale. The survey elements are the manifest variables that are antecedents to (and that are reflective of) each of their respective hypothetical (latent) constructs. The authors that developed each of the instruments employed have sufficiently validated their instruments. No published research reviewed in this study indicated that any of the instruments used were found invalid nor unreliable.

The design of this study is quite simple and generally follows a linear process: survey, clean data, model the data, record the results, and interpret the findings. However, depicted in Figure 2 is the research design, depicting the process with more detail. This study is theory-driven and uses causal models described in the purpose to explain the outcome. Some modification to the relationships among variables may occur to refine the model but no effort is made to develop a purely data-driven model. For this reason, many of the indicator variables have been parceled to ensure that each element in a theoretical construct is included in the model while managing error. If the model holds true (validated through fit indices), then there will be an outcome that explains a relationship among latent variables. Accordingly, structural equation modeling or path analysis with latent variables is employed to model the data and explain any causal relationships, but as with all structural equation models, it does not prove cause and effect and there may be other ways to explain the data. Appendix A outlines a general timeline of the progression of the study. The IRB approval is presented in Appendix B. Appendix C is the informed consent notice to participants. Appendix D is the code book with questionnaire items.

Figure 2*Research Design*

Note. Analysis A refers to the modeling in which indicators for exogenous and the ultimate dependent variable are parceled to retain all indicators and manage all error retained. In this way, the role of the PSV latent variable can be assessed relative to other constructs developed and described in prior research. Analysis B refers to a conventionally-specified approach that provides models that are more reflective of the sample while still being guided by theory (i.e., not purely data-driven). Models developed under Analysis B can be used to assess whether they lend support to models developed under Analysis A, can help validate the construct PSV more directly because indicators are not hidden in parcels, and can tell us something about the population sample.

For a simpler, more pragmatic approach, an alternative model with only PSV and WE, in which the constructs are not parceled is presented following the theoretical models. Indicators with too much error and that do not substantially contribute to the model are excluded. As these models are reflective and not formative, this isn't necessarily a problem theoretically. Sex, desire to remain in military service, and supervisor type are tested for their moderating effect. This model is offered to more directly satisfy the requirement to the U.S. Navy and demonstrate the utility of the PSV construct that is more reflective the sample population, and an approach more agreeable or useful to employers, such as the U.S. Navy. The model itself lends to the validity of the theoretical model. While guided by theory, the model also offers the ability to identify which indicators are responsible for contributing to model fit as a reflection of the sample itself. Indicators were eliminated based on their residual z-score values to a point in which fit indices were near an acceptable range, and the remaining indicators were then allowed to correlate with other theoretically similar indicators to achieve model fit. Modification indices were not used to avoid producing a purely data-driven model. This alternative offers the reader another perspective that can be used to compare with and that supports the theoretical model presented in the main body or support further research in this area.

Instruments

Four instruments are combined into one: Supervisor Values Survey (PSV), Assessment of Human Agency (AHA), Hopeful Career State (HCS), and the Utrecht Work Engagement Survey (UWES). In combination with a demographics section that precedes the combined instruments intended to describe the sample and reduce error, the three instruments that are core to the study are intended to measure perceived

supervisor values (PSV), hopeful career state (HCS), and work engagement (WE). The UWES does not require any special permission to use provided that it is used for non-commercial purposes (Schaufeli & Bakker, 2003b). Appendix C provides a copy of the consent notice and instructions to prospects. Appendix D is the code book that includes the questionnaire items and response choices.

Generally, validity refers to accuracy and plausibility or credibility, and reliability refers to the level of precision as to ensure consistency. Models depend on data, and the investigator invested much effort to ensure that the data collected and used provided a solid foundation for the models produced. The data sources used ensured that the respondents were of the type sought in the design of the study and only those prospects were invited to participate. Screening, a deadline, and traps were imposed to mitigate the possibility that others that are not qualified nor invited to participate contribute information. The investigator cleaned the data in an effort to eliminate error and bias as described in the data cleaning section in this manuscript, and compared the final dataset to what is known about or expected of the target population to ensure credibility. For example, the investigator knows that the majority of the target population should be in their 20's, that the sex ratios are not reflective of the general population (i.e., not roughly equal), and that achieving greater years of service become increasingly difficult. The investigator can also surmise that someone reporting as having at least four years of service should not be under the age of 21 and that anyone serving over the age of 60 is highly improbable due to policy restrictions. The roughly equivalent ratios of males with immediate supervisors in the E6-and-below paygrade category to those whose immediate supervisors in paygrade category of E7-and-above is roughly equal to non-males, providing another dimension of assurance to the dataset's validity. Finally, the models are guided by theory to ensure that the rationale for the arrangement of items in a model are supported by prior research, and if

it is not, to warrant an explanation of rationale. Lastly, a post-hoc Monte Carlo simulation was conducted to validate sample size, in line with Brown (2015, pp 387–395); the results in Appendix G confirm that the sample size was adequate. All of these efforts contribute to face validity.

Internal consistency is a measure of reliability, and refers to the consistency of responses to questionnaire items presented by indicators to a construct. For this purpose, Cronbach's α is used. It is now recommended that McDonald's omega (ω) should be used instead of Cronbach's α , particularly when different scales are used in different indicators under one construct, when there is a large number of indicators per latent variable (Hayes & Coutts, 2020; and Collier 2020). However, this is not problematic in this study since all indicators used in a given construct use the same and limited response choices and the exogenous variables are parceled, essentially ensuring near equal influence. Additionally, previously-conducted research in this area relies on Cronbach's α and its continued use in this study facilitates comparison with previously-conducted research. Generally, an α score greater than or equal to 0.70 is desirable (Collier, 2020, p. 26).

Perceived Supervisor Values (PSV)

PSV is used as an exogenous variable with a basis in Yoon et al.'s (2020) nine humanistic values. The respondent indicates the degree in which the supervisor expresses each of the values as they perceive it. The original nine values identified in that study are (1) awareness of self and system, (2) continuous learning and innovation, (3) integrity, (4) courageous leadership, (5) trust and respect, (6) diversity, (7) collaborative engagement, (8) strategic practicality, and (9) client growth and development. Because that study targeted OD practitioners in the field the nine values were intended to expressed desired values from

a consultant working with clients. In this study, these nine values are modified whereby the employee is seen as the client and the supervisor is the one holding such values. Thus, wherever the client is referenced, the instrument used here substitutes client for employee. To ensure the validity and reliability of these values, both Yoon and Farley were consulted in the modification of the definition of these values. Respondents are asked to rate each value on a four-response scale to ensure a range from 1 to 4, from “very unlikely” to “very likely,” respectively.

Assessment of Human Agency (AHA)

AHA is used as an exogenous variable with a basis on the work of Banduras (2001) and Yoon (2011), to measure the degree of control respondents think they have, with respect to motivation in achieving goals and consideration of their future. These are reflected in AHA’s four domains: intentionality, forethought, self-reactiveness, and self-reflectiveness. Questions include those such as “I monitor my plans and actions so my goals will be met,” “I have a specific purpose when I commit to something,” and “I evaluate my motivations for certain goals.” A four-point response scale was used (1 = Definitely false, 4 = Definitely true). While psychometrically inconsequential, the four-point response scale used in this study differs from the one reported in Yoon (2011): 1 = Never, 2 = Seldom, 3 = Often, and 4 = Almost always.

Hopeful Career State (HCS)

HCS is used as an endogenous variable serving as a mediator in the model. Yoon et al.’s (2019) scale was used to measure HCS. The scale consists of nine items where a high score indicates a high level of

hope. According to Yoon et al. (2019, p.12), “nine items including the following sample items: ‘What I am doing now is helping me to build skills and experiences for the future’ and ‘I am hopeful that what I am doing now will help me in my career journey.’ A 4-point response scale was used (1 = Definitely false, 4 = Definitely true).”

Hopeful Career State (HCS) is not parceled, nor is Work Engagement. According to Yoon (Personal communication, March 15, 2023), HCS is essentially unidimensional and any of the indicators can reflect a hopeful career state and can be identified by removing indicators that do not contribute to the model. Work engagement, as the outcome, is not parceled as to properly reflect theory behind work engagement. The UWES-3 is a reduced form of the UWES that has been validated to represent work engagement with only three question items that is used in the model. (Schaufali et al, 2017).

Work Engagement (WE)

WE is represented by “WKE” in the dataset and in the analyses; thus, “WE” and “WKE” are used interchangeably. WKE is an endogenous variable serving as the ultimate dependent variable in the model. The Utrecht Work Engagement Survey (UWES) is used to measure worker engagement. Yoon et al. (2019, p.12) already demonstrated a positive relationship between HCS and WE, and with respect to the survey, they write, “It includes items such as: ‘At my work, I feel bursting with energy,’ ‘I am immersed in my work,’ and ‘My job inspires me.’ ... The UWES is scored on a seven-point response scale indicating frequency, ranging from 0 (Never) to 6 (Every day).” Schaufeli et al (2017) presents the UWES-3 (i.e., an “ultra-short” version of the UWES) and only uses three indicators; hence, only three indicators are used in the primary model (i.e., questions 1, 3, and 8).

Analytical Methods

The investigator relied on four software packages: MAXQDA 2022, release 22.5, and Foxit PDF Editor Pro, v.12, for document management and support the literature review process; Microsoft Excel 2019 for cleaning and managing the dataset, manipulating or transforming data elements, charting, generating tables, and some testing; and Mplus 8.8 for structural equation modeling and testing. Microsoft PowerPoint 2019 was used to create some of the illustrations of conceptual models.

Sample Size and Selection

The environmental factors for which cannot be controlled in other settings are generally more controlled by using military service members in these particular paygrades, and factors that affect work engagement are most likely to stand out. This study uses a convenience sample of U.S. Navy service members (i.e., “sailors”) in the role of the employee or worker for this study. Using sailors in the paygrades E4 and E5 specifically offers a few opportunities not available otherwise. Sailors are an essential part of the uniformed naval workforce; the majority are in their 20’s with limited or no prior work experience. More mature sailors within this group are in their 30’s and just some in their 40’s and 50’s, with increasingly limited opportunities to remain in military service if they don’t advance (i.e., promote). At four years of service, sailors are generally considering whether to re-enlist and remain in naval service. Those that choose to remain are hoping to advance to a higher paygrade and perhaps develop a career and progress through various other opportunities to re-enlist, generally but not exclusively at four-year intervals. In all, sailors, unlike a regular workforce in industry, private or public service, are constrained by contracts and cannot simply quit their jobs. Sailors are obligated to fulfill the terms of the contract with the U.S. government,

sometimes under the threat of arrest, risk of criminal liability, and imprisonment, or the threat of indebtedness through the repayment of large sums of money (as in the cases of incentives offered to support education and training, or to encourage re-enlistment). Therefore, sailors' relationship with their immediate supervisors may more clearly help explain workers' level of work engagement, influence their attitudes on future prospects, and influence their perception of the organization generally because the workplace is one in which such sailors cannot immediately escape and one in which sailors are likely to have the most work experience with at least four years of military service.

A large sample size is required or recommended, particularly given the categorical nature of the indicators and number of response choices (Rhemtulla et al, 2012). MacCallum et al. (1996) provide tables to calculate an appropriate sample size; however, in modeling using software, software packages commonly used in SEM often provide the necessary feedback to ensure a model is not only well-specified but whether it is underspecified as well. Employing parsimony to adjust the model, it is expected that the minimum required sample size will vary as the model is adjusted; however, aiming for a sample size in the range of 500 to 800 but no less than 300 should provide for an adequate target. According to MacCallum and Austin (2000, p.215), "about 18% of the studies [they] reviewed used samples of fewer than 100 individuals," and caution that "a minimum sample size determined by power analysis for tests of overall fit is not necessarily adequate for other purposes." While costly, setting a high sample size target ensures the study has sufficient power and avoids many issues associated with SEM. A summary of a post-hoc Monte Carlo simulation confirming adequate sample size is provided in Appendix G.

The Navy provided contact information for all E4s and E5s, drawn from the Navy's human resources authoritative information systems. In this way, prospective respondents have been validated to be

in the desired paygrades. The survey was conducted over a period of 60 days. To qualify for the study, prospects needed to be in the paygrades E4 and E5 with at least four years of service and no more than 14 years of service, in any rating (i.e., Navy job specialty). Interested prospects that self-reported as not qualifying were screened out via QualtricsXM before the survey itself would have otherwise been presented. Follow-on questions also provided additional information to corroborate reported information to ensure the validity or plausibility of the final dataset. The response rate was 0.864% ($n_{\text{raw}} = 1,116$). The data collected at this stage represents the raw data. The size of the dataset was reduced to just over half of its original size ($n_{\text{final}} = 594$) after cleaning, but remained within the desired range required for this study. Only these data (valid responses) represented in the final dataset were used in this study's analyses. This study was conducted in accordance with Navy and Department of Defense policy: all respondents voluntarily participated and no incentive (such as gift card) was offered as such practices are prohibited.

Data Cleaning and Exclusion

Data cleaning and exclusion is intended to remove responses from the dataset that contain error and bias, occurring by accident or recorded intentionally. Thomas and Barlas (2014) describe the problem of sub-optimal responses that includes non-differentiation as “dishonest or mistaken,” “inattentive,” or “approximate.” Thomas’s and Barlas’s (2014) definition encompasses Krosnick’s (1991; 1999) definition of “satisficing[; that is,] the first answer a respondent considers that seems acceptable is the one he or she offers.” Thomas and Barlas (2014) describe this problem further pointing out that other forms of sub-optimal responses include “speeding through the survey,” “middling responses,” “respondent discontinuance,” “failure to trap questions,” “random responding,” and “response order effects.”

One of the benefits (normally perceived as an impediment) of structural equation modeling is that it requires large amounts of data, overcoming some bias or error by a small number of individuals. Additionally, the specification of a model or parceling indicators often attenuates the effect any error by a minority of respondents. Nonetheless, in this study a few additional strategies were taken to mitigate bias and error resulting from respondent misconduct: piloting or screening the questions by peers not taking the survey to ensure content was accessible to the target group, requiring that all questions be answered so that missing values or inappropriate answers would not be a problem, having a screening process prior to the presentation of the survey, asking a variety of questions that can be used to corroborate answers of interest, random shuffling of questions to avoid any anticipation, limiting the survey to a specific period of time (i.e., 60 days), and screening for anomalies in the dataset.

According to Thomas and Barlas (2014), egregious non-differentiation, speed, and failing at least one trap was highest among young, less educated males, a group that on the whole describes the majority in the sample. Hence, the cleaning process involved checking and correcting for anomalies in the dataset. There are 71 questionnaire items or indicators that make up the Perceived Supervisor Values (PSV) construct. It is unlikely that any one respondent would respond in the same way across all 71 items. Following the recommendation by Collier (2020, p. 18), in the first step of the cleaning process, response records with a standard deviation equal to or less than 0.25 across all 71 items were excluded from the dataset, reducing the dataset to 984 records. In the second step, the time taken to complete the survey (referred to as “duration”) in a reasonable amount of time was limited the 15th and 85th percentile of the dataset; that is, records indicating a duration of and between 9.233 and 27.896 minutes. Further, records recorded after the survey deadline were excluded, resulting in a new dataset of 684 records. The minimum

amount of time is well above trials with volunteers that suggested 8 minutes and 45 seconds was the absolute minimum time for duration that should be considered reasonable.

The third step involved in cleaning the dataset was adjusting the sample to approximate the E4 and E5 population. Unlike the general population, the sex ratio of the E4-E5 population is not roughly equal; additionally, female respondents were overrepresented in the latest dataset. The Navy provided some demographic data that indicated that at the approximate timeframe when the data was to be collected, males represented about 77.29% and females represented about 22.71% of the population. The female percentage appears much higher in this estimate compared to what was reported to the Department of Defense in the Navy's annual report in which female service members were closer to 20% (Department of Defense, n.d.); however, these populations of sailors tend to be in flux over the course of a year in part due to programmed turnover, separations, and advancements. The estimates provided for this study reflect a population that existed in late 2022. Regardless, female respondents were over-represented and 90 "good" records from female respondents were randomly excluded from the dataset to approximate the sex ratio of the population.

The final dataset with 594 records is the dataset that was ultimately used for the study, representing a dataset that is within the targeted range of 500–800 needed to ensure power and limit the inflation of certain fit indices later used in the course of confirmatory factor analyses (CFA) and building structural models (Mundform & Shaw, 2005; Shi et al, 2019; Lozano et al, 2008; and Kline, 2016).

With respect to other gender and sexual orientation categories that might have been used and perhaps of interest to the reader, the reader should know that any one affiliated with any organization under the Department of Defense (DoD) is prohibited from enquiring about any Service member's gender

identity or sexual orientation. This prohibition extends to anyone performing research funded or endorsed by any organization of the armed forces. Watkins (2022) discusses these restrictions and implications with respect to DoD surveys. This study was constrained because the investigator in this study is an active service member and the study was endorsed (but not funded) by the U.S. Navy. The investigator is subject to and these restrictions are enforceable under various laws, regulations, and policies (Department of the Navy, 2008; Department of Defense, 2011; and Department of Defense, 2021).

With respect to race or ethnicity, the categories and their presentation were intended to follow the format for which some baseline data was provided. The data collected is self-reported data. Since the investigator was unable to force respondents into strict categories, the information collected contributes to face validity having roughly-matched the proportions of the baseline; however, because it is not as reliable as other factors and because this study does not concern issues of race nor ethnicity, it was not used further in this study. It appears that many respondents do not differentiate between race, ethnicity, and nationality, or do not understand how these categories are helpful in quantitative studies when opting for a label that is not part of a standard collection. Lastly, the matter of race and ethnicity categorization is currently under re-consideration by the Chief Statistician at the White House's Office of Management and Budget (Orvis, 2023).

The final dataset ($n_{\text{final}} = 594$) is consistent with the estimates and general description of the population provided by the Navy in terms of sex, years of service, and age. Table 1 provides the descriptive statistics at each step in the process, and the following are charts that represent the respondents' duration by itself and in terms of sex, years of service, and age; and how the data cleaning process ultimately affected the dataset. Records ranked by duration seem to visually indicate that duration generally follows a linear path

between nine and 30 minutes, as demonstrated in Figure 3. Duration times appear to take an exponential turn after approximately 30 minutes. The raw dataset and subsequent versions following each step in the data cleaning process are represented in Figure 4. The solid line represents the final dataset whose pattern is consistent with the raw dataset but without bias and error-prone records that were identified. Indeed, it is a smoother curve. In the second and third representation of steps two and three (chart series), these datasets are largely the same with minor differences due to the exclusion of records that were recorded after the survey's deadline. In the last six charts, the effect of the data cleaning process is demonstrated by the normalization of the sample by duration with respect to sex, age, and year of service. Descriptive statistics are provided in Table 1, in which the progressive improvement of the dataset is also demonstrated.

Table 1
Datasets through the progression of the data cleaning process

	Raw Dataset	After Step 1	After Step 2	After Step 3 (Final)
Number of records	1,116	984	684	594
Duration (in minutes)				
Minimum	3.883	4.333	9.233	9.233
Maximum	321.100	321.100	27.883	27.883
Median	13.850	14.492	14.425	14.325
Mean	19.492	20.169	15.578	15.514
5th percentile	7.045	7.438	9.654	9.667
10th percentile	7.945	8.392	10.200	10.225
15th percentile	8.817	9.233	10.663	10.683
20th percentile	9.433	9.933	11.283	11.283
25th percentile	10.158	10.650	11.575	11.563
75th percentile	20.646	21.458	18.496	18.183
80th percentile	23.860	24.517	19.433	19.450
85th percentile	27.143	27.896	21.246	21.192
90th percentile	32.105	34.092	23.475	23.283
95th percentile	51.701	54.313	25.571	25.605
Standard deviation	21.663	22.165	4.804	4.797
Kurtosis	73.552	74.112	-0.319	-0.237
Skewness	6.997	7.068	0.775	0.818
Standard error	0.648	0.707	0.184	0.197
Sex				
Male	733	649	446	446
Male (%)	65.68	65.96	65.21	75.08
Female	354	309	222	132
Female (%)	31.72	31.40	32.46	22.22
Decline to respond	29	26	16	16
Decline to respond (%)	2.60	2.64	2.34	2.69
Age				
Minimum	21	21	21	21
Maximum	51	51	51	51
Median	27	27	27	27
Mean	28.176	27.949	27.825	27.918
Standard Deviation	5.118	5.008	4.995	4.979
Standard Error	0.153	0.16	0.191	0.204
Years of Service				
Minimum	4	4	4	4
Maximum	14	14	14	14
Median	6	6	6	6
Mean	6.715	6.655	6.646	6.718
Standard Deviation	2.499	2.475	2.462	2.508
Standard Error	0.075	0.079	0.094	0.103

Figure 3

Duration of observations recorded (raw dataset)

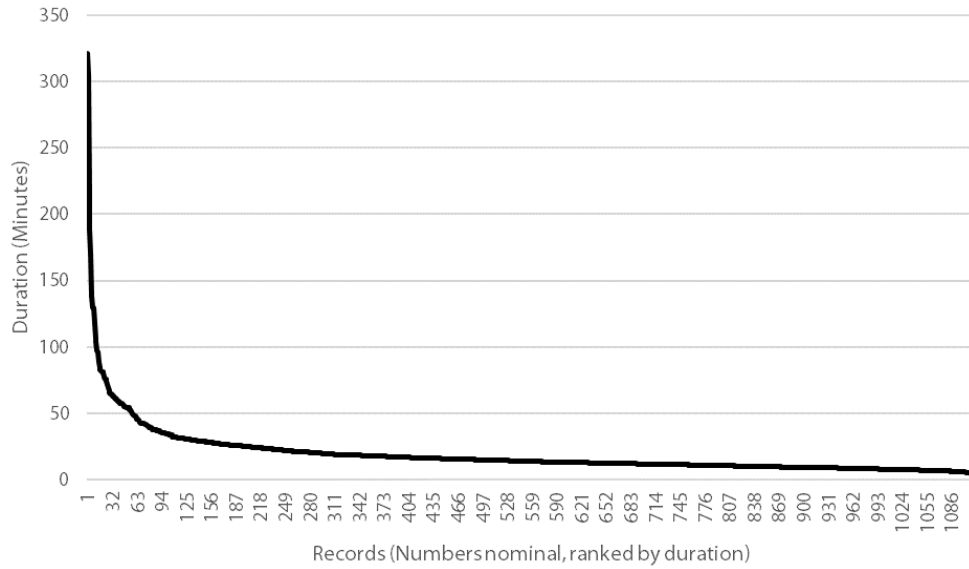
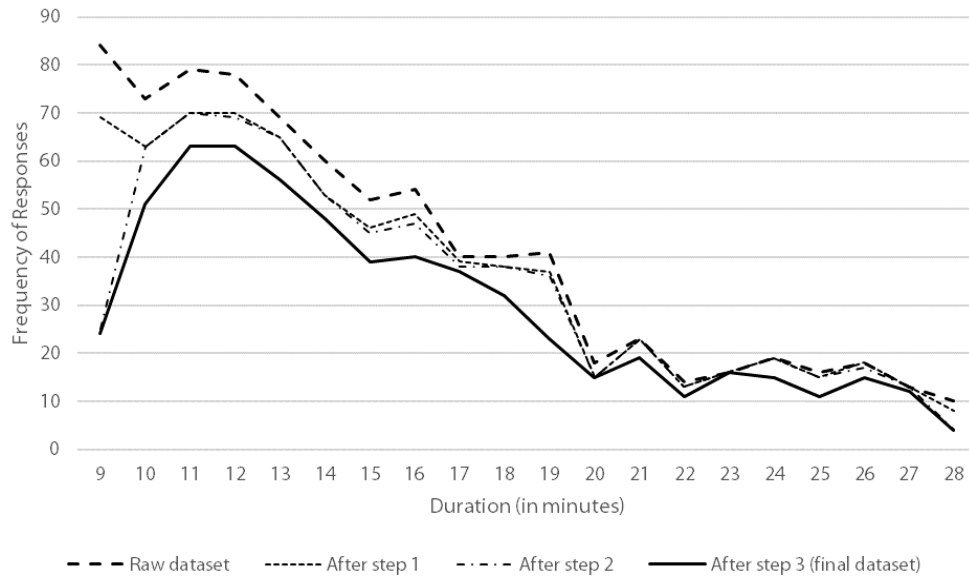


Figure 4

Data cleaning progression changes in duration of the dataset



In Figures 5 through 8, the key demographic factors used to validate the dataset are represented in the raw dataset and in the clean dataset to demonstrate the effect the cleaning process has had with respect to each of the factors. Figures 5 and 6 represent sex, using the raw and clean dataset respectively. Figures 7 and 8 represent age, and Figures 9 and 10 represent years of service, likewise using the raw and clean dataset respectively. The effect shown is that the data is more compact, more normally-distributed, and with the median and means closer together, across all sex, age, and years of service categories. This is consistent with the data shown in Table 1.

For the interested reader, the Department of Defense provides official numbers for media or public consumption at <https://dwp.dmdc.osd.mil/dwp/app/dod-data-reports/workforce-reports>. Infographics and dashboards are available at <https://demographics.militaryonesource.mil>.

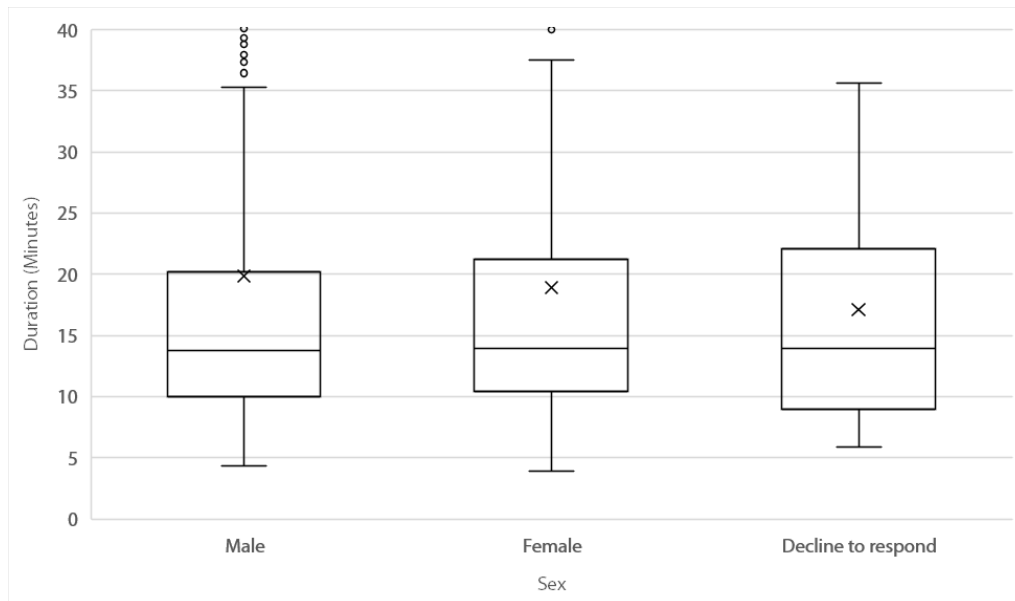
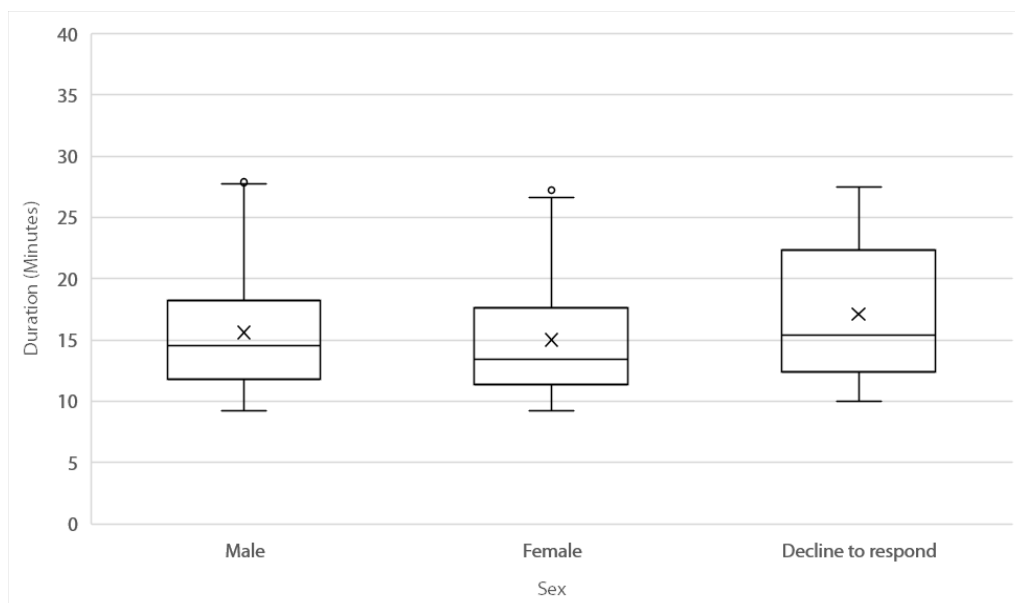
Figure 5*Duration × sex (raw dataset)***Figure 6***Duration × sex (final dataset)*

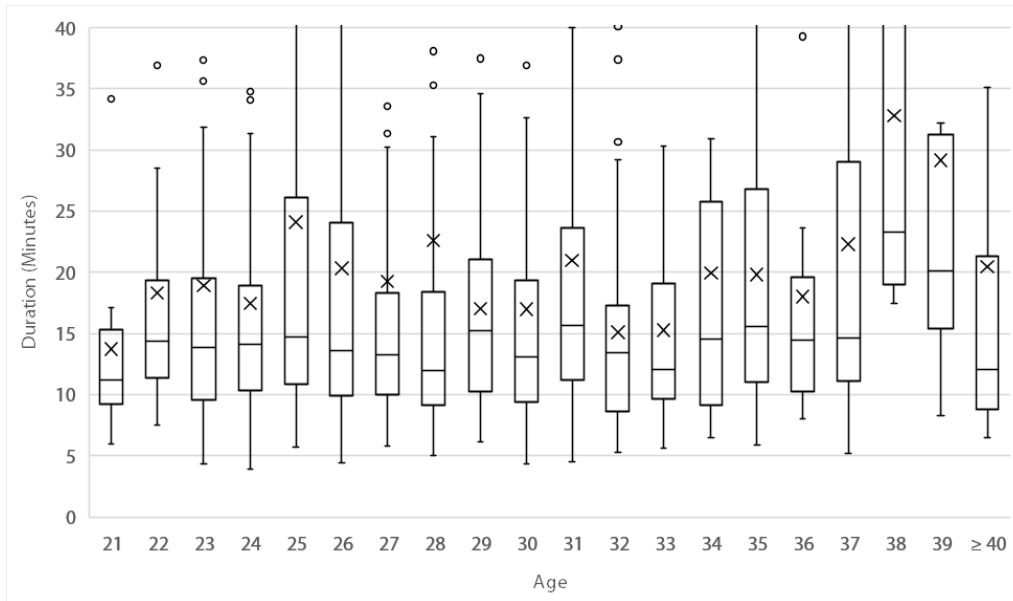
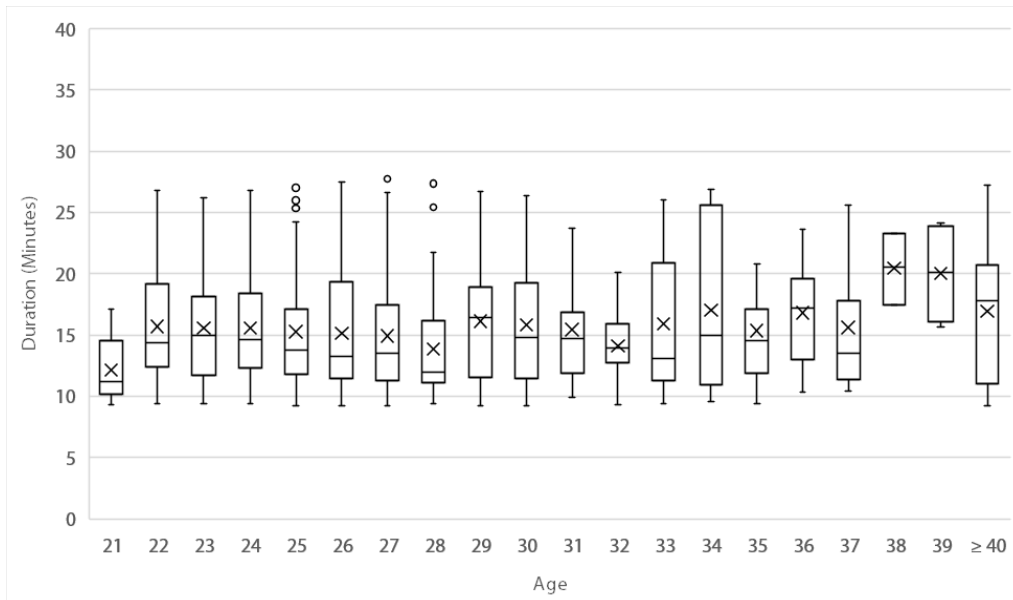
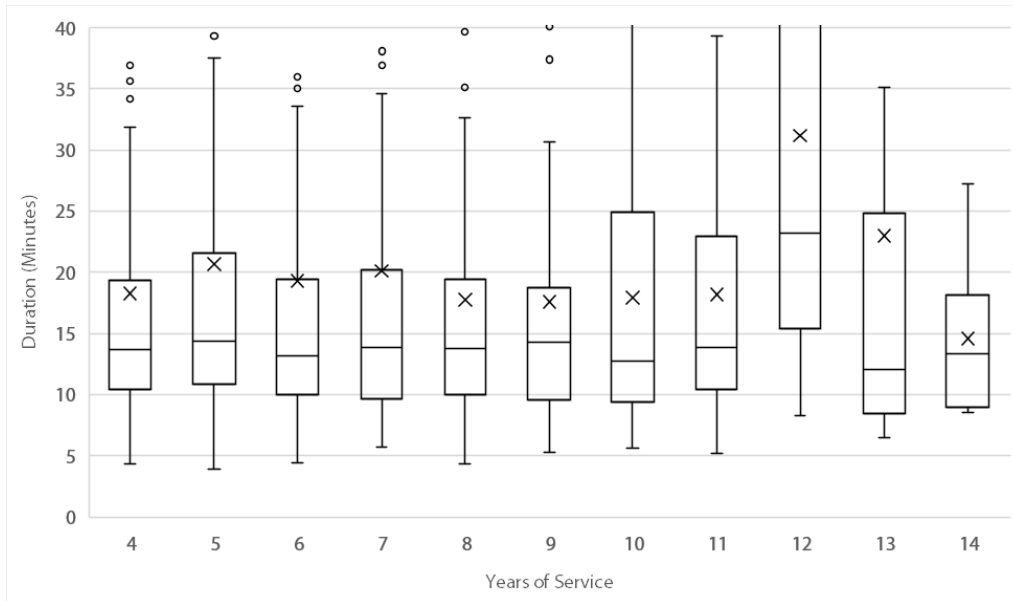
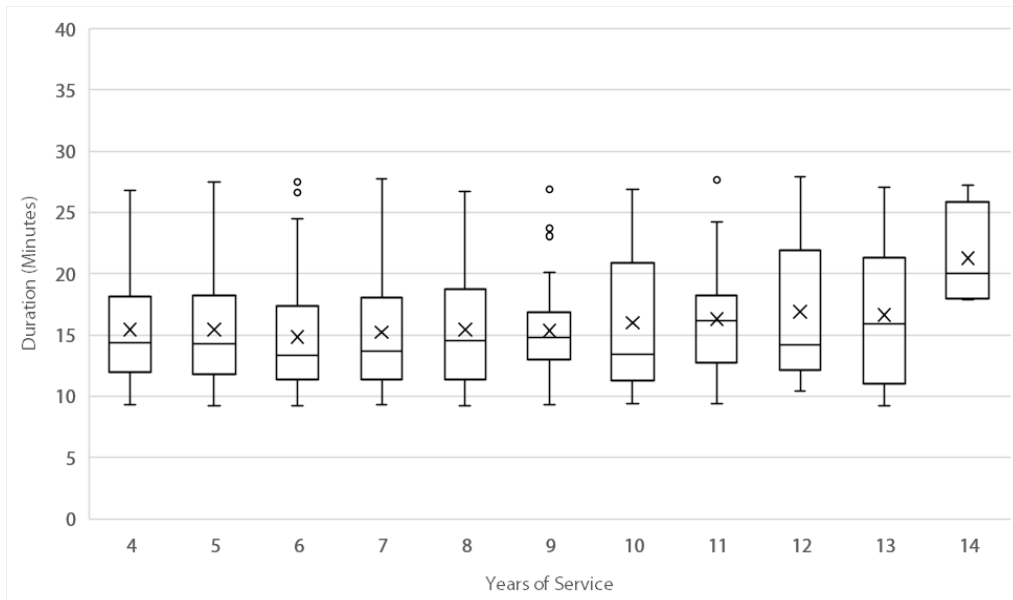
Figure 7*Duration × age (raw dataset)***Figure 8***Duration × age (final dataset)*

Figure 9*Duration × years of service (raw dataset)***Figure 10***Duration × years of service (final dataset)*

Demographics and Other Factors

Figures 11 through 20 are used to visually describe the sample population. Included are the primary demographic factors used to validate the dataset during the cleaning process; that is, sex, age, and years of service. Additionally, race and ethnicity, marital status, level of education, job families associated with the ratings (i.e., Navy job specialties) to which the respondents reported to have, intention to remain in military service, and the type of immediate supervisor respondents indicated to have at the moment the survey was conducted further contribute to the validity of the sample. While none of these factors are used to perform a confirmatory factor analysis nor build a structural model, they may help explain the outcome and are thusly included here for context. Some of these factors are tested for their moderating effect on the structural model; that is, ultimately on the effect on work engagement.

Nothing in Figures 10 through 19 stand out as unusual as to suggest some irregularity with the sample nor as to invalidate the sample. These data do notionally confirm having correctly targeted the population sought. As previously reported, the sample used for analysis consists of a total of 594 records, representing a sizable majority of being young, single, white, male, and with a high-school level of education. Half of the respondents have about four to six years of service. Just under a third of respondents intend to remain in military service long-term. Just over half of the respondents are males led by supervisors that are essentially peers. The proportion of males led by E6 sailors and below (i.e., petty officers) and E7 and above (i.e., chief petty officers or noncommissioned officers, commissioned officers, civilians, and others) is effectively the same for non-males, further supporting the validity of the sample.

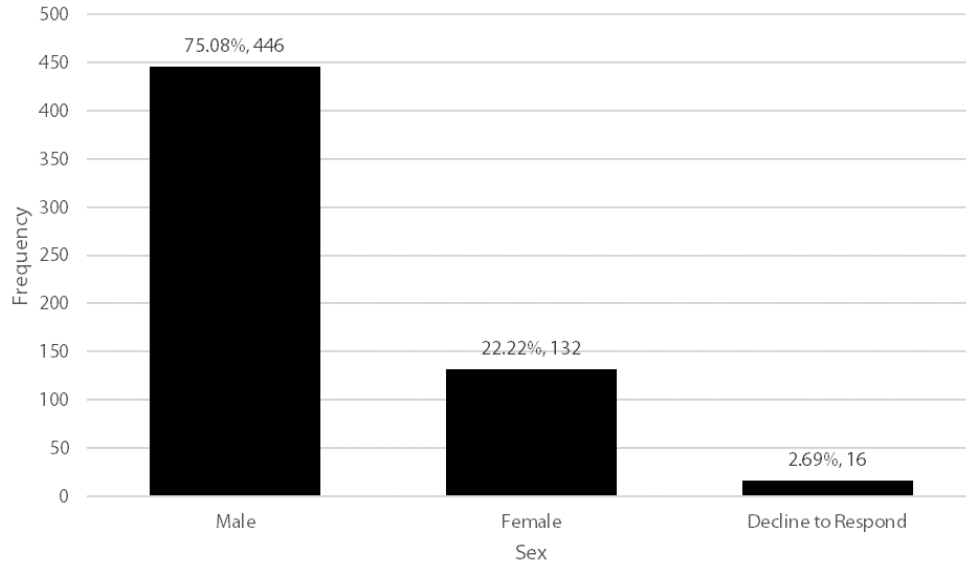
Some categories are reported in aggregate as required Navy policy and job families are reported instead of Navy ratings to ensure the privacy of respondents and to make the information presented more

relatable to readers not affiliated with the Navy, particularly those in fields associated with workforce education and development. The Navy Enlisted Manpower and Personnel Classifications and Occupation Standards (NEOCS) manual provides additional information regarding Navy ratings, job families, and enlisted qualifications standards. The NEOCS manual is accessible at <https://www.mynavyhr.navy.mil/References/NEOCS-Manual>.

Represented in Figure 11 is the proportion of each sex category of male, female, and declined to respond of the final dataset used in the study. The proportions approximate the proportions one would expect to find during the period in which the study was conducted.

Figure 11

Frequency of responses by sex categories

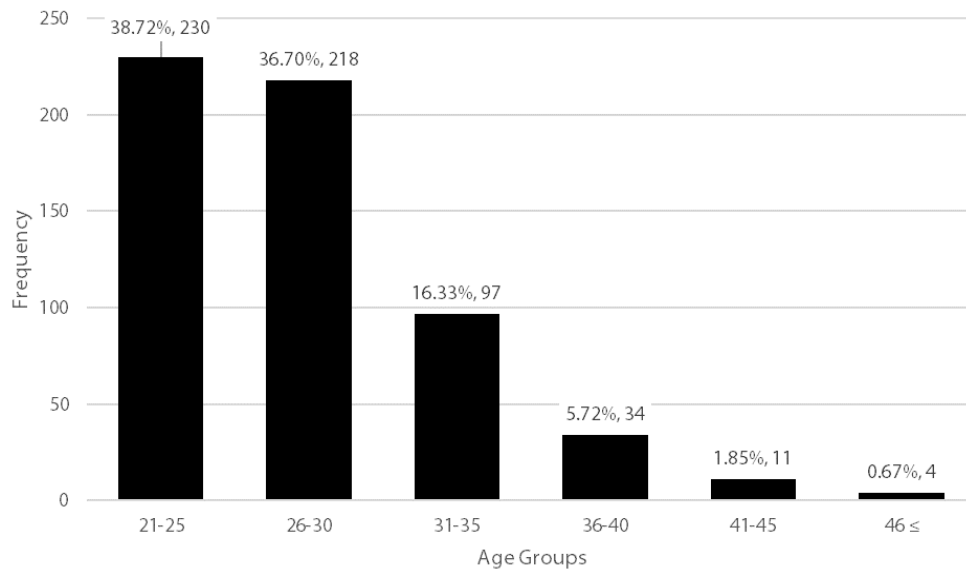


Represented in Figure 12 are age groups represented in the final dataset. The proportions throughout all age groups are consistent with what one would expect to find in the population of E4s and

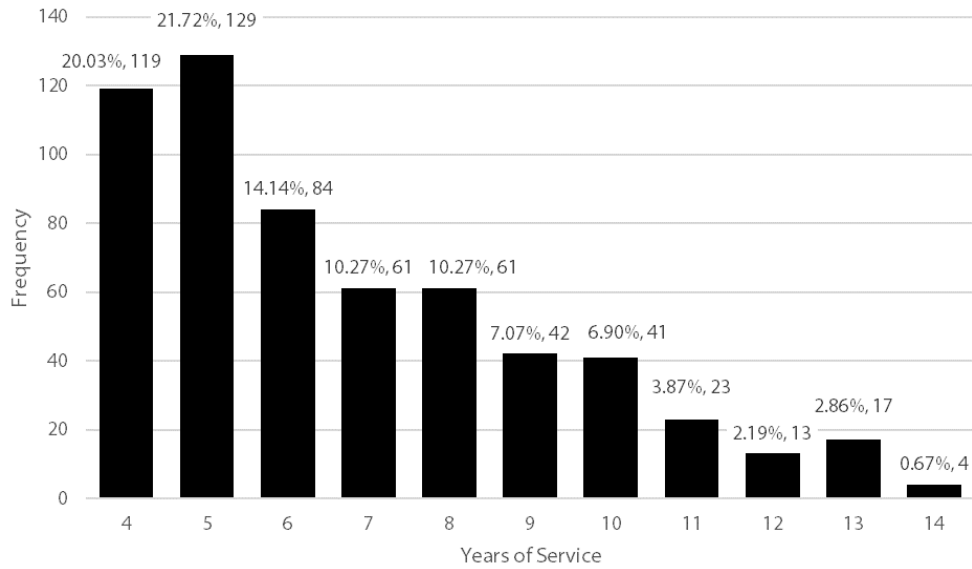
E5s. While the Navy does recruit and retain older individuals, most sailors in these paygrades are younger than 30 years of age.

Figure 12

Frequency of responses by age group categories



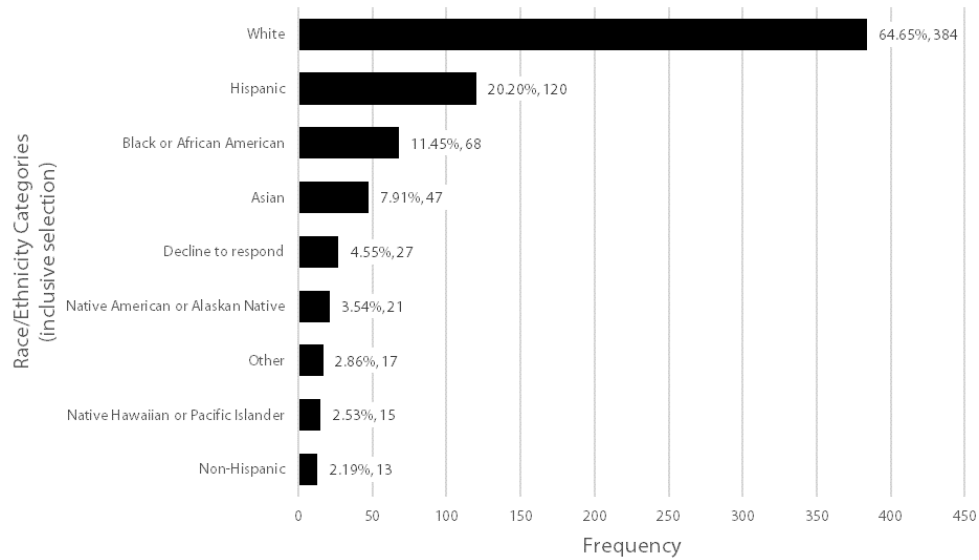
Consistent with Figure 12, represented in Figure 13 is the years of service categories represented in the final dataset. As expected, most sailors represented in the sample have less than eight years of service, suggesting that in their careers, they must have chosen to stay in the Navy after their first contract. Those with longer years of service suggest that the Navy has chosen to retain them even if they were not advancing, or the Navy chose to enlist new recruits with prior service.

Figure 13*Frequency of responses by years of service*

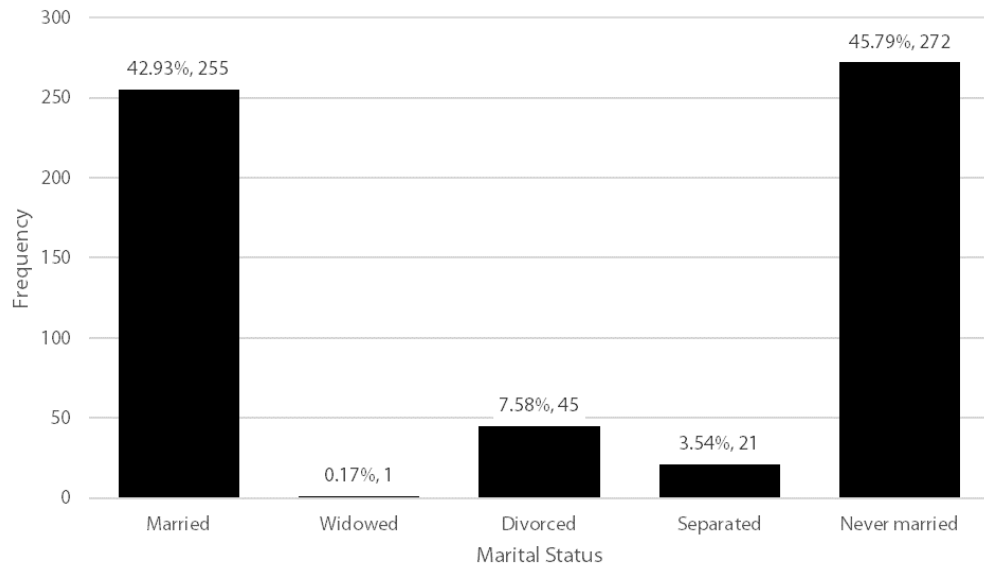
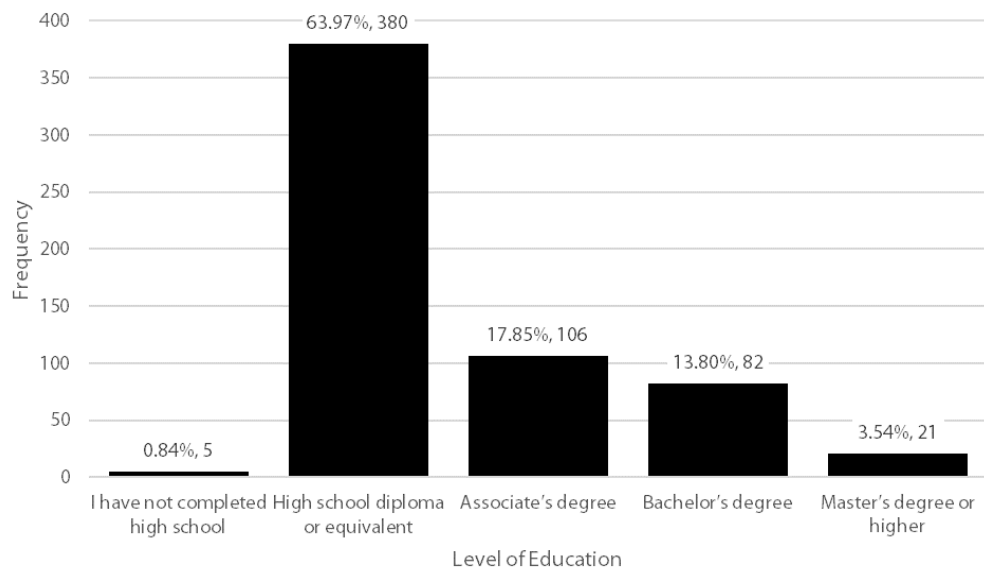
Represented in Figure 14 are the ethnic or race categories as reported by respondents. As expected, the majority of respondents are White, representing almost two-thirds of the sample in the population, consistent with official figures. These categories are difficult to validate given the inconsistent manner in which they are normally reported and how respondents choose to respond. Nonetheless, many of the figures are generally consistent with official reports and thus lend some validity to the sample represented in the final dataset.

Figure 14

Race or ethnic categories by frequency of responses



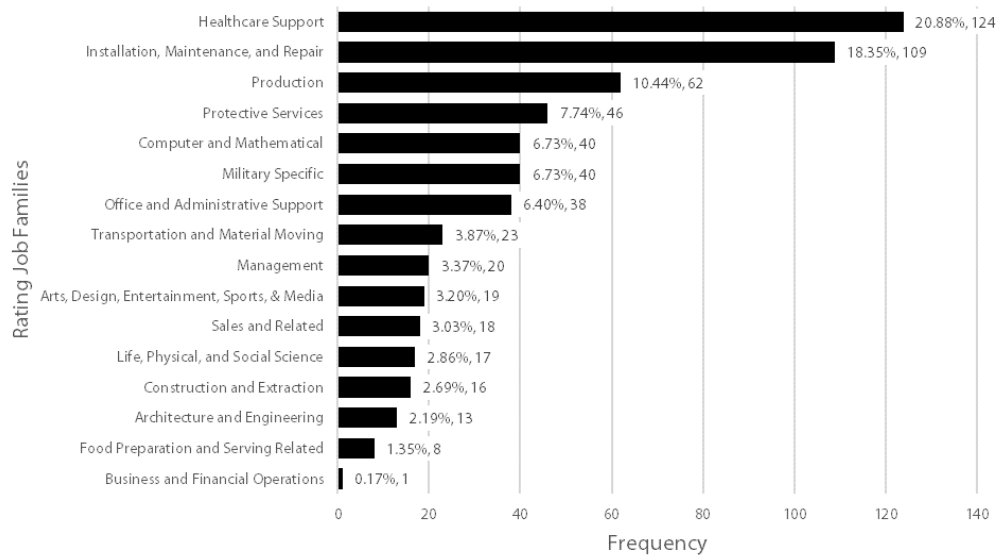
Represented in Figures 15 and 16 are the marital status and level of education categories, respectively. Again, the figures are consistent with expectations: Almost 46% of the respondents have never been married, consistent with a younger population. Additionally, almost 64% of respondents in the sample have an education at the high school level. The Navy requires at least a high school level of education unless a waiver is granted. About 18% have an associate's degree. Only the commissioned corps require at least an undergraduate level of education. Thus, the Figures reinforce the validity of the sample.

Figure 15*Frequency of responses by marital status***Figure 16***Frequency of responses by level of education*

This study did not require respondents from any particular rating. Represented in Figure 17 is a breakdown of job-families to which rating belong. This figure is presented for the benefit of the reader and those in industry to which may find this information more relatable than military job specialties. In all, the figure suggests that the sample is represented by a well-distributed mix of those working in an office environment and those working in a more industrial, operational setting. Attention is drawn here because certain leadership styles may be favored in some environments over others. The sample can be broken down as 53.36% industrial or operational setting and 46.64% in an office setting.

Figure 17

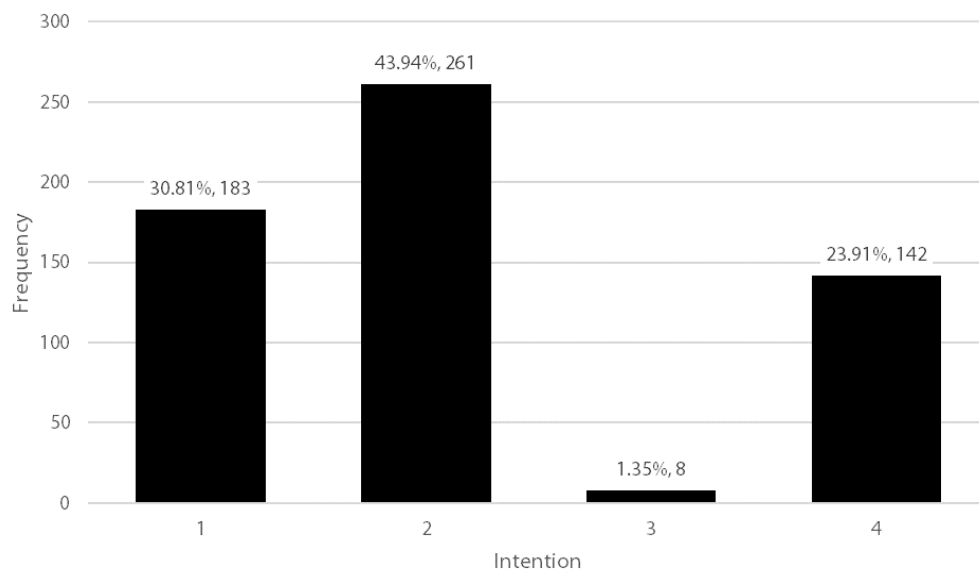
Rating job families by frequency of responses



Represented in Figure 18 is the frequency of responses according to an intention to remain in naval service. Only 30% of respondents have an intention to remain in the Navy, which is not surprising as many recruits are attracted to military service not only to serve their country but to earn benefits that will benefit them professionally in a civilian environment, such as education benefits. A quarter of the respondents in the sample are unsure about their intentions to remain in military service, suggesting that they may be unsure about their future, consistent with a younger and less experienced workforce.

Figure 18

Frequency of responses by intention to remain in military service



Note. 1 = Yes, I intend to remain in the Service for a long time. 2 = No, I do not intend to remain in the Service for a long time. 3 = I don't know. I haven't given it much thought or haven't thought about it. 4 = I don't know. I thought about it but I haven't decided.

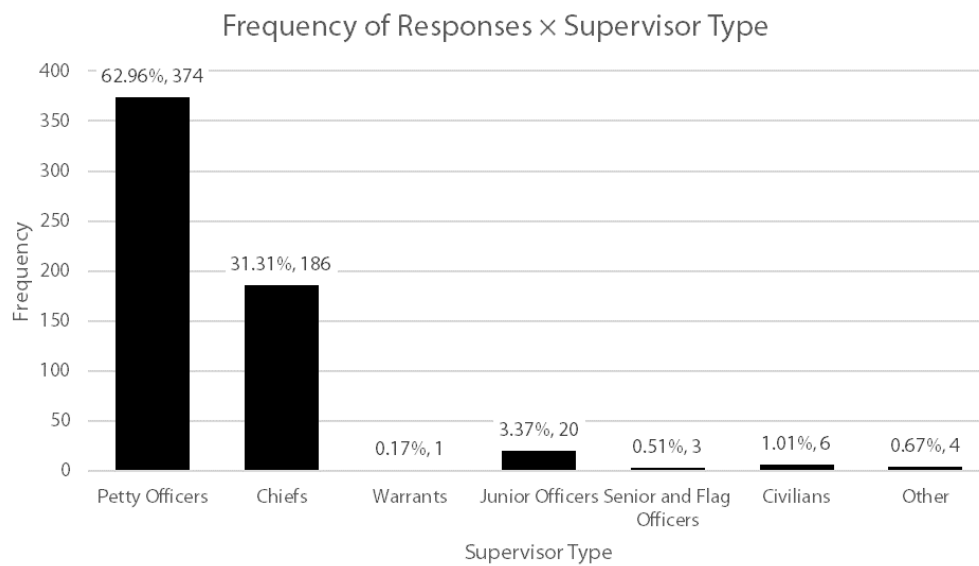
Represented in Figure 19 is a breakdown of supervisor type reported by respondents. Almost 63% of respondents reporting having an immediate supervisor with a paygrade below E7 (i.e., Chief Petty Officer). Many sailors in the E6 paygrade and some others in lower paygrades serve as a Leading Chief Petty

Officer (LPO) that is akin to a line supervisor in industry. These individuals are more experienced peers.

Others report to a Chief Petty Officer and only on a few others report to more senior personnel or civilian personnel.

Figure 19

Frequency of responses by supervisor type categories

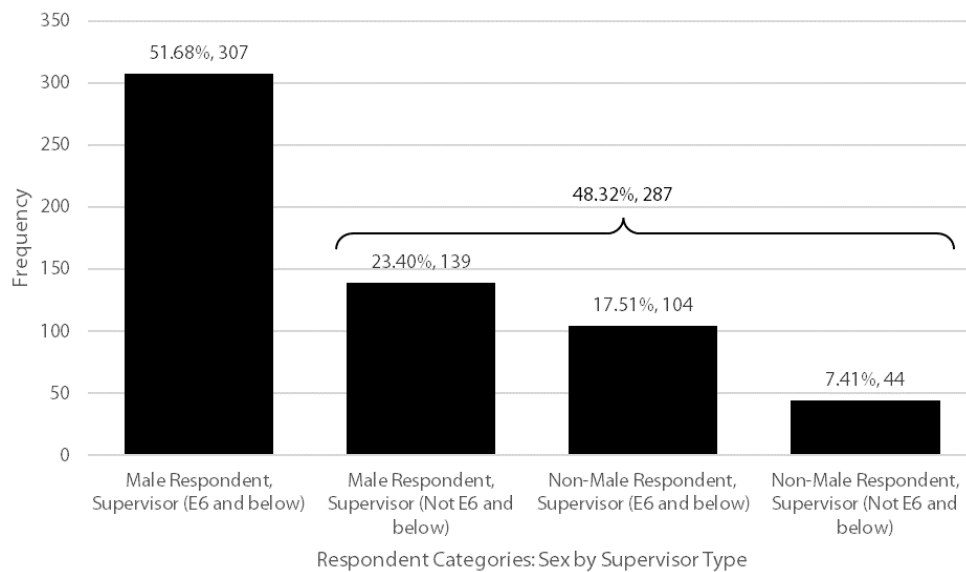


Note. Petty officers are those in the paygrades E4 to E6 (Those in the paygrades E3 and below do not supervise). Chiefs are in the paygrades E7 to E9. Warrants are in the paygrades W1 to W5 (While the Navy has a W1 paygrade, no one is currently assigned to it: All warrant officers in the Navy are assigned at least to the W2 paygrade). Junior officers are in the paygrades O1 to O4. Senior officers are in the paygrades O5 and O6. Flag officers are in the paygrades O7 to O10. For an overview of the military rank system, see: <https://www.defense.gov/Resources/Insignia>. Civilians are generally those in the government schedule (GS) system or senior executive service (SES): see <https://www.opm.gov/policy-data-oversight/pay-leave/pay-systems/general-schedule> and <https://www.opm.gov/policy-data-oversight/senior-executive-service>. The category others refers to all others not captured otherwise, such as those in another branch of the armed forces or foreign service, or other government or political appointee.

Represented in Figure 20 is a breakdown of the frequency of sex according to the type of supervisor a respondent may have. The Navy generally does not actively nor knowingly favor one sex or another duty assignments, and what is demonstrated in Figure 20 bears this out: The proportion of one sex to supervisor type is roughly the same whether it is a sex in the major or minority, given their proportion in the population. Therefore, the sample doesn't appear to be biased in this way and is consistent with expectations in the general E4-E5 population.

Figure 20

Frequency of responses by sex and supervisor type categories



Note. Half of the sample consists of male Sailors supervised by petty officers (paygrades E4 to E6), essentially peers. The proportion of males respondents supervised by petty officers compared to those supervised by all others is roughly equivalent in non-males (i.e., those responded as “female” or “decline to respond”); that is, 2.21 : 1 and 2.26 : 1, respectively. “All others” means chiefs, warrant and commissioned officer, civilians, or those indicated as ‘other’.”

Structural Equation Modeling (SEM)

Structural equation modeling (SEM) serves as an umbrella for various methods used leading up to the building and evaluation of structural models. A structural model is used to explain the causal relationships between latent variables, with a basis in path analysis. Structural models depend on variables that are essentially dependent and independent. These variables can be measured directly or indirectly, but are themselves evaluated to ensure validity and reliability before being used to construct a structural model. For this reason, various techniques such as confirmatory factor analyses are generally used. Latent variables, which cannot be measured directly, are specified using indicator variables which are measured directly, such as through questionnaire items. (Geiser, 2013; Brown, 2015; and Collier, 2020)

The investigator is interested in the theory that concerns these models and the sample, due to its characteristics, is conveniently used for this purpose. In structural equation modeling, “causal” is the term used to describe directionality and not cause and effect; and while there is debate concerning this issue and the use of the term “causal,” addressing such issues here is beyond the scope of this study and will not be debated here. Interested readers concerning some of the controversies regarding SEM should read Bollen and Pearl (2013, chapter 15). In this study, a theoretical model is test or validated; and as a result, the indicators of each exogenous variable are parceled in an effort to retain of the indicators developers intended. Accordingly, they are established by previously-conducted research and assumed true. Parceling is a technique used to mitigate the effects of error while reducing the number of indicators per latent variable to ensure all indicators associated with each latent variable are included as to represent each construct as intended. Little et al (2009) discuss in greater detail the concept of parceling, its benefits as well as its limitations, and the various type of parceling that can be used to achieve a specific end.

The investigator relies on CFA estimates to assess convergent and discriminant validity. The constructs are ones not created in this study but configured together and based on a population sample with unusual characteristics, to test theory. The constructs themselves are based on parceled indicators and not one that exclude the greatest sources of measurement error. For this purpose, the investigator relies on factor loadings to assess convergent validity. Collier (2020, p.83) recommends using the Average Variance Extracted (AVE), which averages the r^2 of each indicator across a construct, and recommends a cut-off of 0.50. Regardless, factor loadings should not be less than 0.50; otherwise, such indicators are not substantially contributing to construct and are introducing too much error, and the investigator simply relies on these instead. Discriminate validity, on the other hand, is measured using factor correlations to ensure that the constructs are different and not essentially describing the same thing. Factor correlations between constructs should be below 0.80. Kline (2016) suggests that a number exceeding 0.9 indicates that two constructs cannot be considered distinct. Collier (2020, p.85) recommends calculating the Heterotrait-Monotrait Ratio of Correlations (HTMT) with a cut-off of 0.85, citing an earlier edition of Kline (2016); however, in the fourth edition, HTMT is no longer mentioned. This study is essentially validating theory and constructs proposed by other researchers and not developing these in this study; thus, relying on correlation coefficients should suffice.

Interested readers' attention is directed to the unparcelled models that are more conventionally-identified with indicators that contribute most to the model. In these models, the concern is how PSV relates to WE directly, to learn something about the sample population on the basis of theory; hence, when measurement models are constructed, the indicators associated with PSV and WE are considered for inclusion or exclusion, to achieve a best-fitting model within the constraints of theory. As such, these

models contribute to the face validity of the theoretical models. These models also provide additional information for further research, and fulfills the requirement to provide the Navy with a more actionable analysis that is “useful” or of “value” (Department of the Navy, 2011).

Other Considerations Affecting Modeling

Any scale with categorical variables, especially those with only four response choices or less, should not claim normal distribution, and yet four response options for an indicator are quite acceptable (Simms et al, 2019). “In many applications, [as in the case in this study,] the assumption of normal data is likely to be violated (e.g., if ordered categorical data are analyzed), where the chi-square test statistics with robust corrections are commonly used” (Shi et al, 2019, p.330). Such scales with any number of factors are intended to represent ordered categorical variables and not continuous variables, but software packages such as SPSS, Stata, SAS, and lavaan nonetheless treat them as continuous. It is a common practice to proceed in this fashion and why large amounts of data and robust corrections are required to make structural equation modeling using categorical variables possible to overcome the limitations of non-normally distributed indicators when ordered categorical variables are treated as continuous (Rhemtulla et al, 2012). Other researchers employ various other strategies to manage error and make non-normally distributed data useable, such as parceling (Little et al, 2009). Software packages such as Mplus utilize estimators such as maximum likelihood or ML (the default) and weighted least square mean and variance or WLSMV to overcome these issues (Brown, 2015, Chapter 9). In this study, maximum likelihood is used to remain consistent with similar studies with which the results of this study will be compared in future research projects and in collaboration with other researchers that do not use Mplus. As of the date of this

manuscript, only Mplus is capable of using a probit-based estimator (i.e., WLSMV) to treat categorical variables as categorical (Brown, 2011). According to Muthén (2013, September 7), however, “WLSMV is not robust to non-normality of continuous variables.”

Regardless, the investigator for this study makes no effort to convince the reader that any of the indicators used in this study are normally-distributed as all indicators for any construct used are fundamentally ordered categorical variables and all but work engagement use a four-response-choice scale. While Rhemtulla et al (2012) recommend other estimators for such conditions, maximum likelihood is nonetheless deemed acceptable; and in an effort to remain consistent with prior research, the investigator employs the default maximum likelihood estimator and uses a large dataset to perform confirmatory factor analyses and develop structural models reflective of the theory and data.

Models

Specification is the construction or statement of a model based on theory. For a simple model as the one proposed here, specification occurred on the basis of having constructed a conceptual framework. Kline (2016) discusses specification and identification in substantial detail in part II of the book. For the primary model in this study, as part of the specification of each exogenous construct (i.e., PSV and AHA), the constructs' indicators are parceled. HCS, being unidimensional, only includes indicators that provide the least amount of error while ensuring that the construct is not under-specified. The Ultrashort UWES (a.k.a., UWES-3) defines the ultimate dependent variable WE in theoretical models (Analysis A).

Confirmatory factor analysis (CFA) is used to estimate the factor loadings on the latent variable; in other words, to assess how well the latent variable is reflected in the manifest variable. CFA precedes path

analysis (which is more associated with regression), at which point the relationships between latent variables are established through the evaluation of variance in common. Loadings are the explained variances associated with each factor and indicator. Essentially, the first step would be to determine how PSV is characterized by indicators before considering how PSV would relate to either HCS or WE, or both, keeping in mind that such models remain reflective and not formative. The variance of the indicator is used to identify the amount variance accounted for in the construct; thus, the variances of all indicators used represent the variance shared with the construct (factor). Parameters displayed in the model are representative of sample's variance-covariance matrix in describing variance between indicators (covariance) and with itself (variance). These are estimations generated by the software and will not be performed manually. Covariance between two variables is equal to product of the Pearson correlation (r) and the standard deviations of each variable compared or $cov_{XY} = r_{XY} \times SD_X \times SD_Y$ (Kline, 2016, pp. 13–14).

In the second analysis, Analysis B, measurement models are achieved by reviewing the z statistics of the residual matrices of the indicators and systematically removing those indicators with highest values to a point just before achieving an acceptable level of model fit. The remaining indicators are assessed for their similarity (i.e., indicators that could plausibly be measuring the same thing) and are allowed to correlate to achieve model fit, while retaining as many of the indicators as possible that contribute to the model and reducing error. In contrast, the models constructed in Analysis A, parceling strategies are employed to combine indicators according to their subconstructs or domains with which they are affiliated, called domain-representative parceling. Parceling is essentially bundling indicators by averaging them out. For example, for the Intentionality domain associated with the Assessment of Human Agency (AHA) variable,

the scores of AHA-01, AHA-02, and AHA-03 are averaged to create the AHAIN T parcel; that is, AHAIN T = $(\text{AHA-01} + \text{AHA-02} + \text{AHA-03}) \div 3$. AHAIN T is then the variable used in the model: all explained and unexplained variances are thus retained while reducing the number of indicators in the model. As described before, Little et al (2009) discuss in greater detail the concept of parceling, its benefits as well as its limitations, and the various type of parceling that can be used to achieve a specific end. The model in derived from Analysis B is more reflective of applied research in an effort to understand something about the sample population whereas the model derived from Analysis A offers a more theoretical perspective, a model more amenable to comparison with other samples in other similar studies and for the development of scales (as may be the case for perceived supervisor values or PSV).

Path analysis is the second part of SEM: it is in practice similar to regression modeling. The coefficients that describe the relationships between latent variables is effectively interpreted like regression weights (β), and the coefficient of determination (r^2) is interpreted in the same way. For indirect effects, the coefficients of each leg that precedes and proceeds a latent variable are multiplied. Once again, software will estimate the path model and will not be performed manually.

Fit Indices and Measures of Effect

Fit indices are used of assess local and the overall (global) fit of the model. There are no agreed-upon standards with respect to fit indices and their use appear to be left to the judgement of the researcher; it is not of primary concern given that many measures considered are commonly used and reported, and the conceptual framework is relatively simple compared to many other studies employing SEM. In this study, the χ^2 statistic, the standardized root mean squared residual (SRMR), the root mean square error of

approximation (RMSEA), and the comparative fit index (CFI) are reported. These are provided by Mplus by default and are commonly reported. The χ^2 statistic measures absolute fit relying on the comparison of covariance matrices. SRMR measures exact fit, relying on error estimates. RMSEA measures parsimony as it favors smaller models. CFI measures incremental fit for model improvement, where the base is at zero. (Hu & Bentler, 1999; Weston & Gore, 2006; Brown, 2015; Shi et al, 2018; Collier, 2020; Pavlov et al, 2021)

With respect to fit indices, there are no agreed-upon standards and “no shortage of controversy” with respect to their cut-offs either, according to Collier (2020, p. 67). CFI should be greater than 0.90 according to Bentler and Bonett (1980) and Hu and Bentler (1999) recommend a value at or higher than 0.95. Additionally, in the model of this study, the χ^2 statistic may be of little value given that the parceling ensures that the model is “just-specified” and resulting in a *p*-value that is likely to be significant. In this case, it is more useful to rely on the SRMR statistic. It is reported here because in almost every case, this statistic is reported. The χ^2 statistic is more useful when a measurement model is conventionally specified or when a latent variable is over-identified (i.e., more than three indicators).

Researchers often report SRMR in combination with or instead of the χ^2 statistic. The χ^2 statistic should not be significant (Jöreskog & Sörbom, 1996). The χ^2 statistic is sensitive to sample size and can be biased. According to Hu & Bentler (1999, p.28), SRMR “tend[s] to reject more simple and complex true-population models under the nonrobustness condition,” and for this reason it is chosen as it tends to offer more conservative estimations. In a combinational rule based on SRMR and RMSEA, for mis-specified models in either robust and non-robust conditions, Type II errors were acceptable, and resulted in the least error rates for Type I and Type II overall. Acceptable fit can be achieved if the root mean square error of approximation (RMSEA) is less than or equal to 0.06 or if SRMR is greater than or equal to 0.08.

In this study, the investigator settled on the following cutoffs that are below the most liberal recommendations and at or exceeding the most conservative recommendations: χ^2 value should be kept to the smallest value, and the p -value should be greater than or equal to 0.05; SRMR should be less than or equal to 0.05, RMSEA should be no higher than 0.06; and CFI should be greater than or equal to 0.95. If a model has poor fit, it may need to be respecified to achieve a better fit, but within limits—the theoretical underpinnings of the model should not be compromised. The goal is not simply to find the best fitting, data-driven model but to faithfully describe the relationships within the model (if any) to identify a plausible model if one can be identified. One possible outcome could be that there is no good model within the constraints of the theoretical underpinnings because there are simply no relationships that could be identified from the data collected, and in such a case it would be appropriate to report it as such. The goal is not to come up with a model with desirable results; it is to describe the data via a plausible model if possible. If it is not, such a negative result would be valuable in its own right with its own set of implications; it would mean that the data could not produce evidence that perceived expressed values by employees in supervisors could have an effect ultimately on work engagement. This would not mean that real relationships between these constructs don't exist but simply that the data could not produce evidence. If enough evidence through various studies is produced indicating poor fit, then the theory may need to be re-considered.

The correlation coefficients (r) and slopes (β) (i.e., the estimates), on the other hand, are used to measure effect size and degree of change and directionality, respectively. Ferguson (2009) discusses issues affecting the social sciences with the problem of measure effect sizes, and cites Cohen (1998), the standard used here to interpret correlation coefficient estimates; that is, what constitutes small, medium, and large

correlations. Cohen (1992, pp. 77–81), discusses r as a measure of correlational effect size. Cohen (1998) defines “small size effect” when r is equal to 0.10, a “medium size effect” when r is equal 0.30, and a “large size effect” when r is equal to 0.50. Pearson’s r is quite adaptable in that when squared it describes the percentage of variance explained and can be converted to Cohen’s d . For interested readers that prefer Cohen’s d to r as a measure of effect, Ferguson (2009) offers two formulae to convert between r and Cohen’s d : $r = [d^2 \div (d^2 + 4)]^{1/2}$ and $d = 2r \div (1 + r^2)^{1/2}$; effect measures in the form of Cohen’s d are not provided here.

With respect to testing the statistical significance of the moderating effects of a variable, the investigator employs Wald’s test of parameter constraints (Cohen et al, 2003; Muthén et al, 2016; and Liu et al, 2019), as recommended by Geiser (personal communication February 20, 2023), and limits the constraints to only a couple or a few categories. Mplus reports slopes that can be compared to demonstrate the magnitude of the moderating effect. Wald’s equation in this context is essentially the difference between the coefficients divided by the variance. The null hypothesis states that there is no difference between the estimates; written another way, $\hat{\beta}_a - \hat{\beta}_b = 0$. Thus, the Wald test can be calculated as $W = (\hat{\beta}_a - \hat{\beta}_b)^2 \div S.E.^2_{\hat{\beta}_a - \hat{\beta}_b}$ and since the estimate divided by standard error is the z statistic, then “the Wald statistic is equal to the squared z statistic” (Geiser, personal communication February 20, 2023). “The Wald test can be significant even when the z -tests for each of the two direct effect estimates are not significant” (Muthén et al, 2016, p.81). The Wald statistic follows a χ^2 distribution, and the p -value will of most interest in deciding whether a moderating or conditional effect (if any) is significant, and can aid in the identification of control variables for subsequent studies.

Summary

This chapter describes the purpose of the study and lists the research questions to be addressed. Accordingly, the chapter begins with the design of the study, identifies the instruments and tools used, and a description of each construct used in the model. The study relied on essentially four instruments corresponding to the four constructs used in modeling: Perceived Supervisor Values (PSV), Assessment of Human Agency (AHA), Hopeful Career State (HCS), and Work Engagement (WKE). The items in PSV are the value indicators used to describe OD values in Yoon et al (2020).

In this chapter, the sample used in the study is described, including how and why participants were selected, how the resultant dataset was cleaned and which and why certain records were excluded, and how the overall dataset was validated. After cleaning the dataset, ultimately 594 responses or records were retained and used that reflect the population makeup of U.S. Navy sailors in the paygrades E4 to E5 of any rating. Various demographic factors are then presented to validate the data against what would be expected of the population, particularly around sex, years of service, and age.

Following the description of the dataset, the chapter presents structural equation modeling (SEM) as the analytical method for model building. Given that complex nature of SEM, in and around structure and effect, this chapter explains which choices were made and for what purpose. Microsoft Excel, the Mplus software package, and the Mplus default maximum likelihood estimator were used; the last two consistent with previous studies of a similar nature. In an attempt to avoid any ongoing controversy with respect to fit indices and their cutoff values, conservative cutoffs were used. Finally, two analyses were performed to assess a model using all constructs previously discussed in order to determine how well the data fit theory,

and the other to determine if there was a moderating effect of sex, supervisor type, or intention to remain in the Navy on a direct relationship between PSV and WKE.

Chapter 4

Results and Interpretation of the Analyses

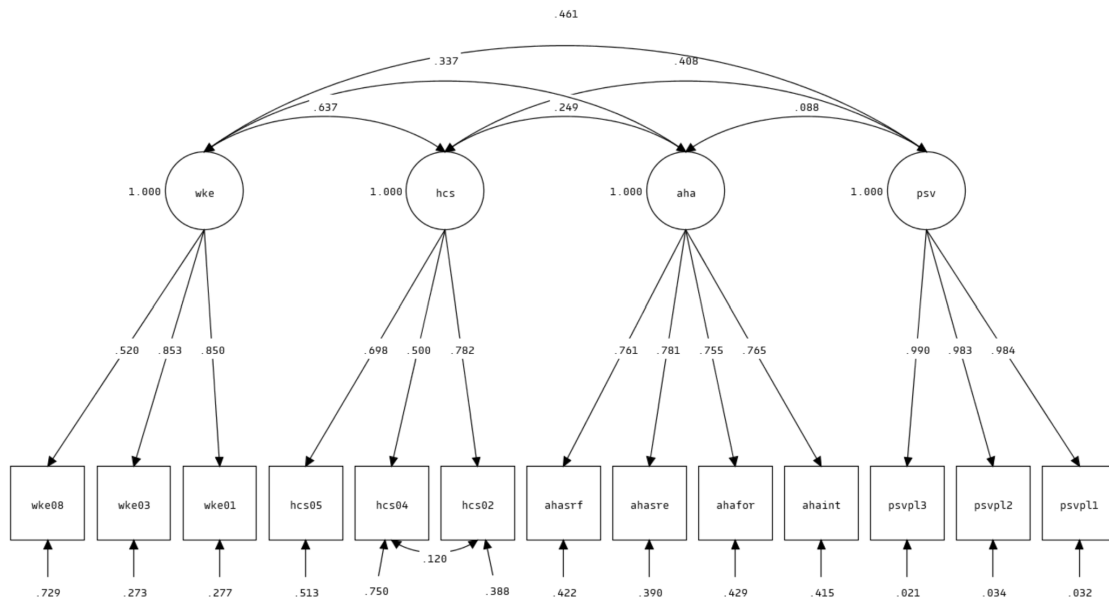
Theoretical Relationships (Analysis A)

Confirmatory Factor Analysis (CFA)

Depicted in Figure 21 is a CFA model; the estimates are presented in Table 2. Model fit indices indicate good fit; however, the χ^2 estimate is significant with the p -value equal to zero. We rely on SRMR because this is not unusual when a measurement model is just-specified as in this case with only three indicators for PSV. SRMR was below the cut-off of 0.05 at 0.025, RMSEA was also below the cut-off of 0.06 at 0.043, and CFI was above the cut-off of 0.95 at 0.989. All factors showed good internal consistency or reliability exceeding the 0.7 minimum: α for PSV = 0.989654, α for AHA = 0.879693, α for HCS = 0.757824, and α for WKE = 0.774405. Factor loadings all exceed the 0.5 threshold, with the lowest at 0.520, just above the threshold. Lastly, factor correlations indicate good discriminant validity, with none exceeding 0.8. The correlation factor between HCS and WKE was the highest at 0.637. In Table 2, the z statistics (Est./S.E.) appear quite high for the PSV indicators but this is not unexpected given the parceling of 71 indicators across three parcels. The covariance matrix for Analysis A is presented in Appendix E.

Figure 21

Confirmatory factor analysis (Analysis A)



Note. Internal consistency: Cronbach's α : $PSV_{\alpha} = 0.989654$, $AHA_{\alpha} = 0.879693$, $HCS_{\alpha} = 0.757824$, $WKE_{\alpha} = 0.774405$.
 Fit indices: $\chi^2 = 122.548$, $df = 58$, $p\text{-value} = 0.0000$; $SRMR = 0.025$; $RMSEA = 0.043$, 90% C.I. [0.033, 0.054], $p\text{-value} = 0.843$ (probability that $RMSEA \leq 0.05$); $CFI = 0.989$.

Table 2*Standardized estimates, standard errors, z statistics, and p-values for CFA, Analysis A*

Relationships	Estimates	S.E.	Est./S.E.	p-values
PSV by PSVPL1	0.984	0.002	584.110	0.000
PSV by PSVPL2	0.983	0.002	562.465	0.000
PSV by PSVPL3	0.990	0.001	737.234	0.000
AHA by AHAIN	0.765	0.022	34.297	0.000
AHA by AHAFOR	0.755	0.023	32.907	0.000
AHA by AHASRE	0.781	0.022	35.926	0.000
AHA by AHASRF	0.761	0.023	33.447	0.000
HCS by HCS02	0.782	0.034	23.020	0.000
HCS by HCS04	0.500	0.044	11.341	0.000
HCS by HCS05	0.698	0.034	20.796	0.000
WKE by WKE01	0.850	0.020	43.077	0.000
WKE by WKE03	0.853	0.020	43.184	0.000
WKE by WKE08	0.520	0.034	15.507	0.000
AHA with PSV	0.088	0.044	1.977	0.048
HCS with PSV	0.408	0.042	9.686	0.000
HCS with AHA	0.249	0.050	5.006	0.000
WKE with PSV	0.461	0.036	12.766	0.000
WKE with AHA	0.337	0.044	7.666	0.000
WKE with HCS	0.637	0.038	16.729	0.000
HCS02 with HCS04	0.120	0.068	1.784	0.074

Note. The contents of the table represent the output in Mplus. "Est./S.E." is the z-statistic in large samples. (Muthén, 2012, p. 719; Geiser, 2013, p. 36). The term "by" indicates factor loading. The term "with" indicates inter-factor correlation. According to Muthén (2012, p. 719), an estimate divided by the standard error should equal to the estimate in column "Est./S.E."; however, the numbers appear to be approximate and not equal. All estimates significant at $\alpha \leq 0.05$.

Structural Model

Depicted in Figure 22 is a structural model; the estimates for the variables are presented in Table 3. The direct, indirect, and total effects are presented in Table 4. Given the simplicity of the model, the indirect and total effects are the same. Cohen (1992) defines “small size effect” when r is equal to 0.10, a “medium size effect” when r is equal 0.30, and a “large size effect” when r is equal to 0.50. The effect estimates are essentially r values. Beta coefficients (β) are the estimates that measure effect and are read as r . The effect between HCS and PSV was “moderately large” ($\beta_{PSV \rightarrow HCS} = 0.389, p\text{-value} = 0.000$). The effect between WKE and PSV was “weak but substantial” ($\beta_{PSV \rightarrow WKE} = 0.244, p\text{-value} = 0.000$). The effect between HCS and AHA was “moderately weak” ($\beta_{AHA \rightarrow HCS} = 0.215, p\text{-value} = 0.000$). The effect between WKE and HCS approached a “large size effect” ($\beta_{HCS \rightarrow WKE} = 0.489, p\text{-value} = 0.000$). The effect between WKE and AHA was “moderately weak” ($\beta_{AHA \rightarrow WKE} = 0.193, p\text{-value} = 0.000$). The indirect effect from PSV to HCS to WKE was “moderately weak” ($\beta_{PSV \rightarrow HCS \rightarrow WKE} = 0.190, p\text{-value} = 0.000$). The total effect of all paths involving PSV was “moderately strong” ($\beta_{PSV \text{ Total}} = 0.435, p\text{-value} = 0.000$). The indirect effect from AHA to HCS to WKE was “weak” ($\beta_{AHA \rightarrow HCS \rightarrow WKE} = 0.105, p\text{-value} = 0.000$). The total effect of all paths involving AHA was of “medium size effect.” ($\beta_{AHA \text{ Total}} = 0.299, p\text{-value} = 0.000$). Table 4 is a listing of the direct, indirect, and total effects. All effects were positive and statistically significant with $p\text{-values} = 0$ ($\alpha \leq 0.05$).

Model indices indicate good model fit. As with the CFA model, the χ^2 estimate is not a reliable measure due to the parceling of PSV; it is best to rely on SRMR: SRMR was below the cut-off of 0.05 at 0.025, RMSEA was also below the cut-off of 0.06 at 0.043, and CFI was above the cut-off of 0.95 at 0.989.

Figure 22

Structural model (Analysis A)

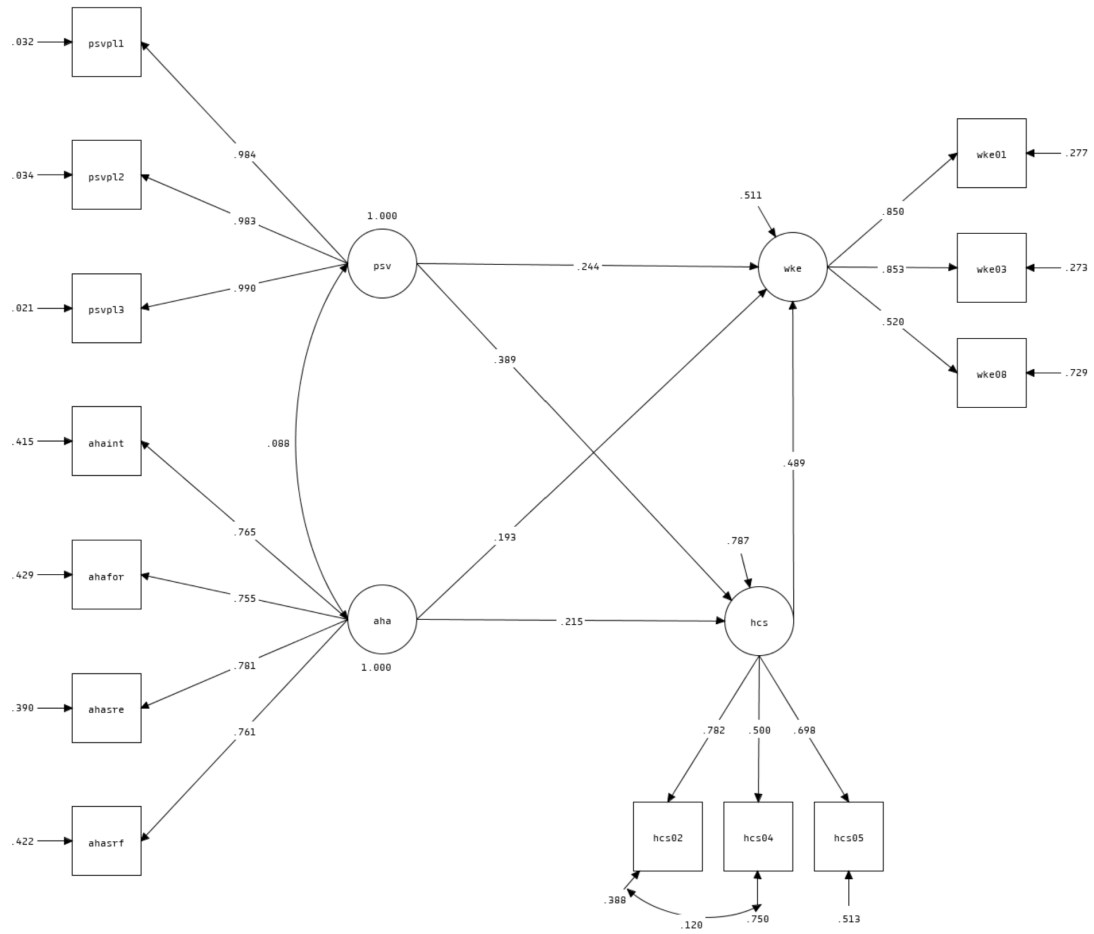


Table 3*Standardized estimates, standard errors, z statistics, and p-values for structural model, Analysis A*

Relationships	Estimates	S.E.	Est./S.E.	p-values
PSV by PSVPL1	0.984	0.002	584.110	0.000
PSV by PSVPL2	0.983	0.002	562.465	0.000
PSV by PSVPL3	0.990	0.001	737.234	0.000
AHA by AHAINTE	0.765	0.022	34.297	0.000
AHA by AHAFOR	0.755	0.023	32.908	0.000
AHA by AHASRE	0.781	0.022	35.927	0.000
AHA by AHASRF	0.761	0.023	33.448	0.000
HCS by HCS02	0.782	0.034	23.020	0.000
HCS by HCS04	0.500	0.044	11.341	0.000
HCS by HCS05	0.698	0.034	20.796	0.000
WKE by WKE01	0.850	0.020	43.077	0.000
WKE by WKE03	0.853	0.020	43.183	0.000
WKE by WKE08	0.520	0.034	15.506	0.000
AHA with PSV	0.088	0.044	1.977	0.048
HCS02 with HCS04	0.120	0.068	1.785	0.074

Note. The contents of the table represent the output in Mplus. "Est./S.E." is the z-statistic in large samples. (Muthén, 2012, p. 719; Geiser, 2013, p. 36). The term "by" indicates factor loading. The term "with" indicates inter-factor correlation. According to Muthén (2012, p. 719), an estimate divided by the standard error should equal to the estimate in column "Est./S.E."; however, the numbers appear to be approximate and not equal. All estimates significant at $\alpha \leq 0.05$.

Table 4*Direct, indirect, and total effects, Analysis A*

Relationships	Estimates	S.E.	Est./S.E.	p-values
PSV				
Direct effect PSV → HCS (a)	0.389	0.042	9.225	0.000
Direct effect: HCS → WKE (b)	0.489	0.047	10.295	0.000
Direct effect: PSV → WKE (c')	0.244	0.042	5.817	0.000
Indirect effect: PSV → HCS → WKE (a × b)	0.190	0.029	6.472	0.000
Total effect: $c = (a \times b) + c'$	0.435	0.036	12.116	0.000
AHA				
Direct effect: AHA → HCS (a)	0.215	0.048	4.526	0.000
Direct effect: HSC → WKE (b)	0.489	0.047	10.295	0.000
Direct effect: AHA → WKE (c')	0.193	0.041	4.692	0.000
Indirect effect: AHA → HCS → WKE (a × b)	0.105	0.025	4.132	0.000
Total effect: $c = (a \times b) + c'$	0.299	0.041	7.297	0.000

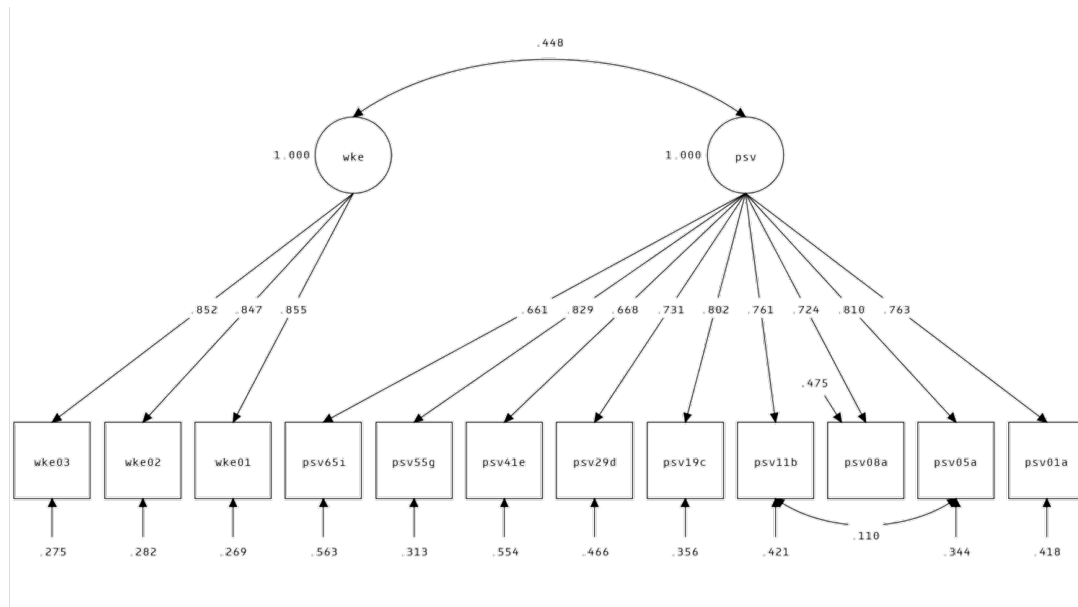
Applied Models (Analysis B)

Confirmatory Factor Analysis

Depicted in Figure 23 is a CFA model; the estimates are presented in Table 5. Model fit indices indicate excellent model fit. The χ^2 value was 64.145, with 52 degrees of freedom, and a p -value = 0.1203. SRMR was below the cut-off of 0.05 at 0.021, RMSEA was also below the cut-off of 0.06 at 0.020, and CFI was above the cut-off of 0.95 at 0.997. Both factors showed good internal consistency or reliability exceeding the 0.7 minimum: α for PSV = 0.920198 and α for WKE = 0.887064. Factor correlations indicate excellent discriminant validity, well below the limit of 0.8 at 0.448. Lastly, all factor loadings were above 0.5, with the lowest at 0.661. The covariance matrix for Analysis B is presented in Appendix F.

Figure 23

Confirmatory factor analysis (Analysis B)



Note. Internal consistency: Cronbach's α : $PSV_{\alpha} = 0.920198$, $WKE_{\alpha} = 0.887064$. Fit indices: $\chi^2 = 64.145$, $df = 52$, p -value = 0.1203; SRMR = 0.021; RMSEA = 0.020, 90% C.I. [0.000, 0.034], p -value 1.000 (probability that RMSEA \leq 0.05), CFI = 0.997.

Table 5

Standardized estimates, standard errors, z statistics, and p-values for CFA model, Analysis B

Relationships	Estimates	S.E.	Est./S.E.	p-values
PSV by PSV01A	0.763	0.019	40.060	0.000
PSV by PSV05A	0.810	0.016	49.400	0.000
PSV by PSV08A	0.724	0.021	33.938	0.000
PSV by PSV11B	0.761	0.020	39.013	0.000
PSV by PSV19C	0.802	0.017	48.242	0.000
PSV by PSV29D	0.731	0.021	34.847	0.000
PSV by PSV41E	0.668	0.025	27.224	0.000
PSV by PSV55G	0.829	0.015	55.256	0.000
PSV by PSV65I	0.661	0.025	26.538	0.000
WKE by WKE01	0.855	0.016	54.514	0.000
WKE by WKE02	0.847	0.016	53.077	0.000
WKE by WKE03	0.852	0.016	53.687	0.000
WKE with PSV	0.448	0.037	12.050	0.000
PSV05A with PSV11B	0.110	0.047	2.322	0.020

Note. The contents of the table represent the output in Mplus. "Est./S.E." is the z-statistic in large samples. (Muthén, 2012, p. 719; Geiser, 2013, p. 36). The term "by" indicates factor loading. The term "with" indicates inter-factor correlation. According to Muthén (2012, p. 719), an estimate divided by the standard error should equal to the estimate in column "Est./S.E."; however, the numbers appear to be approximate and not equal. All estimates significant at $\alpha \leq 0.05$.

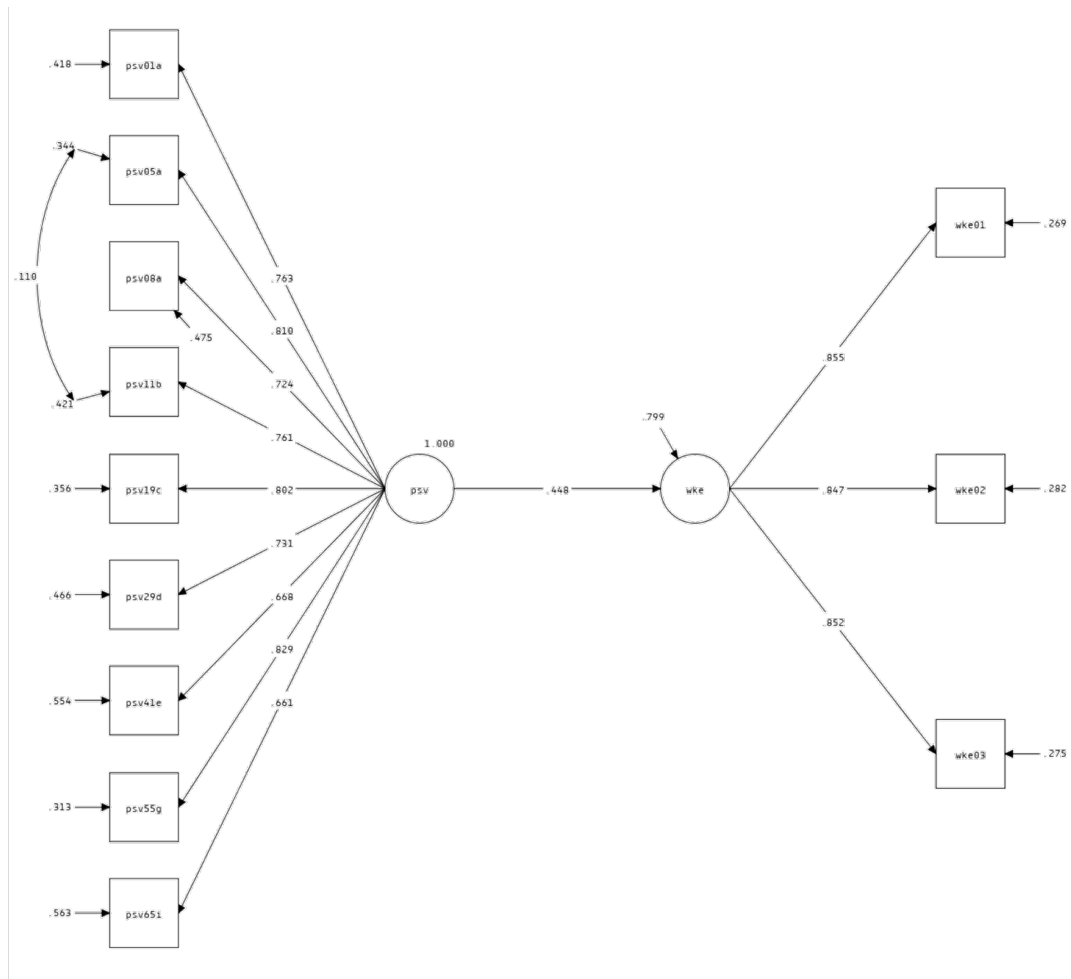
Structural Model

Depicted in Figure 24 is a structural model; the estimates are presented in Table 6. Cohen (1992) defines “small size effect” when r is equal to 0.10, a “medium size effect” when r is equal 0.30, and a “large size effect” when r is equal to 0.50. The only effect in the model is a direct effect and it was “moderately large effect” ($\beta_{\text{PSV} \rightarrow \text{WKE}} = 0.448$, p -value = 0.000), approaching a “large size effect.”

Fit indices indicate excellent model fit. The χ^2 value was 64.145, with 52 degrees of freedom, and a p -value = 0.1203. SRMR was below the cut-off of 0.05 at 0.021, RMSEA was also below the cut-off of 0.06 at 0.020, and CFI was above the cut-off of 0.95 at 0.997.

Figure 24

Structural model (Analysis B)



Note. Internal consistency: Cronbach's α : $PSV_{\alpha} = 0.920198$, $WKE_{\alpha} = 0.887064$. Fit indices: $\chi^2 = 64.145$, $df = 52$, p -value = 0.1203; SRMR = 0.021; RMSEA = 0.020, 90% C.I. [0.000, 0.034], p -value 1.000 (probability that RMSEA \leq 0.05), CFI = 0.997.

Table 6*Standardized estimates, standard errors, z statistics, and p-values for structural model, Analysis B*

Relationships	Estimates	S.E.	Est./S.E.	p-values
PSV by PSV01A	0.763	0.019	40.060	0.000
PSV by PSV05A	0.810	0.016	49.400	0.000
PSV by PSV08A	0.724	0.021	33.938	0.000
PSV by PSV11B	0.761	0.020	39.013	0.000
PSV by PSV19C	0.802	0.017	48.242	0.000
PSV by PSV29D	0.731	0.021	34.847	0.000
PSV by PSV41E	0.668	0.025	27.224	0.000
PSV by PSV55G	0.829	0.015	55.256	0.000
PSV by PSV65I	0.661	0.025	26.538	0.000
WKE by WKE01	0.855	0.016	54.514	0.000
WKE by WKE02	0.847	0.016	53.077	0.000
WKE by WKE03	0.852	0.016	53.687	0.000
WKE on PSV (PSV → WKE)	0.448	0.037	12.050	0.000
PSV05A with PSV11B	0.110	0.047	2.322	0.020

Note. The contents of the table represent the output in Mplus. "Est./S.E." is the z-statistic in large samples. (Muthén, 2012, p. 719; Geiser, 2013, p. 36). The term "by" indicates factor loading. The term "with" indicates inter-factor correlation. The term "on" indicates a regression, a direct effect. There are no indirect effects. According to Muthén (2012, p. 719), an estimate divided by the standard error should equal to the estimate in column "Est./S.E."; however, the numbers appear to be approximate and not equal. All estimates significant at $\alpha \leq 0.05$.

Treatment for Potential Moderation

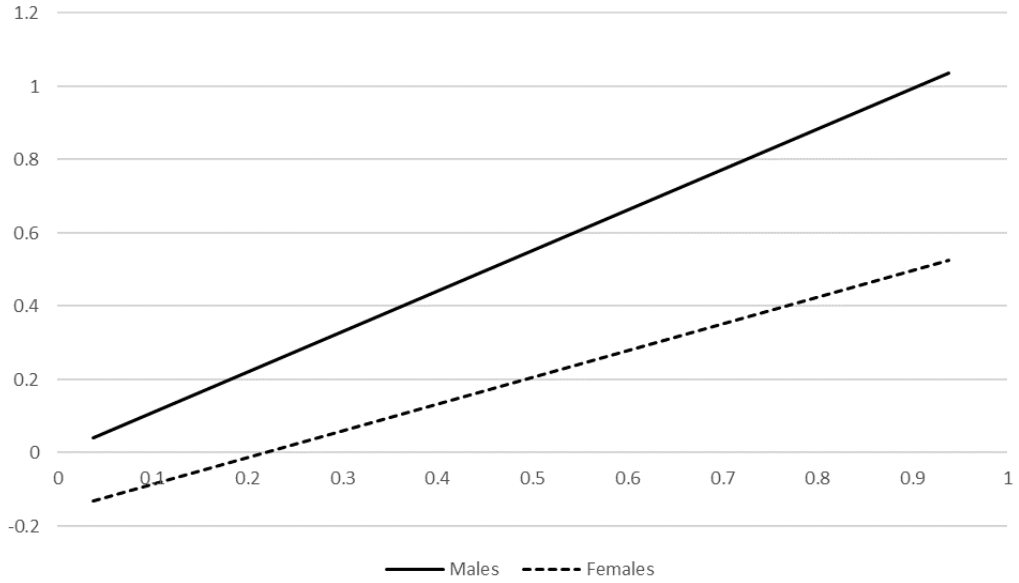
The relationship between PSV and WKE in the isolated model was test for the conditional effect that sex, intention to remain in the Navy, and supervisor type may have had on the relationship. Among the data collected, sex is the most reliable indicator of diversity. Additionally, the sociological trends discussed in Stanfors & Glodscheider (2017) suggest that sex could be a moderating factor because of men's growing participation in domestic life and women's more consistent presence in the labor market, in turn suggesting that there may be other factors (perhaps domestic over work or work over domestic priorities) correlated with sex. Intention to remain in military service indicates a desire to develop a career in the military which touches the notion of a hopeful career state without introducing that factor into the structural model, as it was the most highly correlated with work engagement. Supervisor type is the most relevant with respect to

the issue being investigated at hand concerning the sailor perception of their immediate supervisor. In this case, testing for moderation helps one consider whether the hierarchical status of the supervisor has an effect, given military culture (U.S. Navy Regulations, 1990, chapters 7–12).

There were no significant relationships. The Wald statistic for sex was 2.706 with one degree of freedom and a p -value of 0.100 ($\alpha \leq 0.05$), failing to reject the null hypothesis that there is no difference in the slopes of males and females, 1.105 and 0.730, respectively. However, one may consider this insignificance marginal. The Wald statistic for desire to remain in military service was 0.252 with two degrees of freedom and a p -value of 0.882 ($\alpha \leq 0.05$), failing to reject the null hypothesis that there is no difference in the slopes of yes, no, and maybe, 0.752, 0.764, and 1.050, respectively. The exact language of the categories tested were “Yes, I intend to remain in the Service for a long time,” “No, I do not intend to remain in the Service for a long time,” and “I don’t know. I thought about it but I haven’t decided,” respectively. The Wald statistic for supervisor type was 0.004 with one degree of freedom and a p -value of 0.9468 ($\alpha \leq 0.05$), failing to reject the null hypothesis that there is no difference in the slopes of the “E6 and below” and the “all others” categories, 1.002 and 0.989, respectively. Figures 25, 26, and 27 are depictions of the slopes for visual interpretation of the interactions.

Figure 25

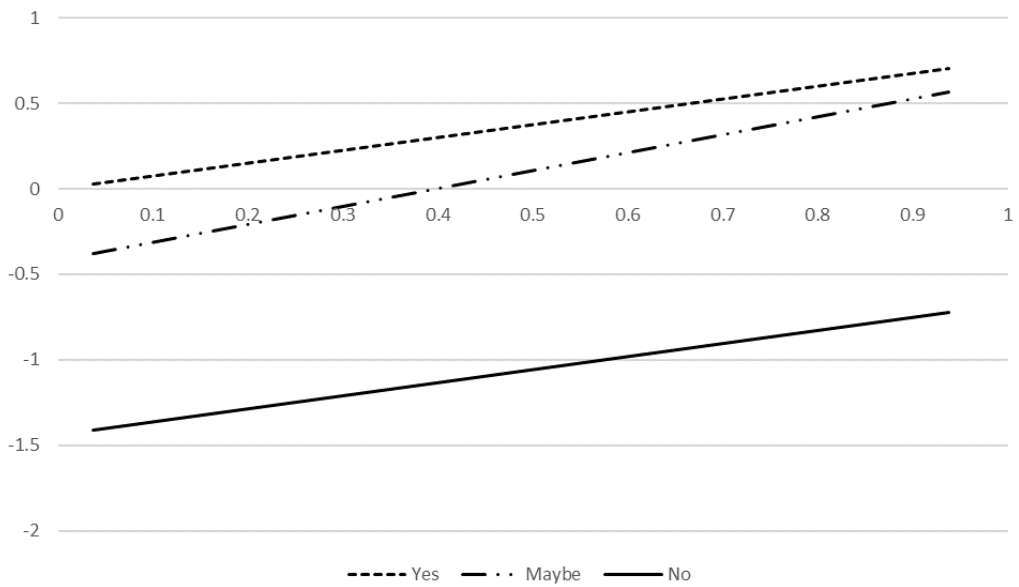
Sex: slopes



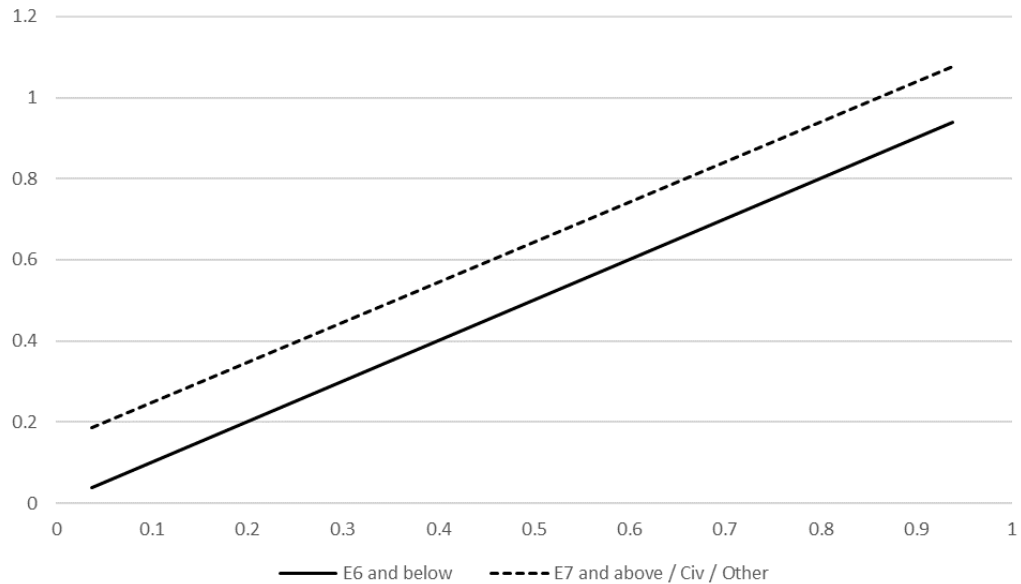
Note. Male $r^2 = 0.228$. Female $r^2 = 0.110$.

Figure 26

Intention to remain in the Navy: slopes



Note. Yes $r^2 = 0.126$, Maybe $r^2 = 0.345$, and No $r^2 = 0.170$.

Figure 27*Supervisor types slopes*

Note. E6 and below category $r^2 = 0.197$. All others category $r^2 = 0.211$.

Summary

In this chapter, two analyses were performed, A and B. Analysis A represents a theoretical construct involving Perceived Supervisor Values (PSV) and Assessment of Human Agency (AHA) as exogenous variables that antecedent to Hopeful Career State (HCS). HCS is an antecedent to Work Engagement (WKE). In Analysis B, PSV is an antecedent to WKE. Confirmatory factor analyses suggest that the constructs are well-distinguished from one another.

In Analysis A, manifest variables are parceled to ensure all elements of the theoretical construct are included in the model, to answer research question 1. The purpose of this analysis was to determine how

well the data fit theory proposed by Yoon (2022). The results suggest that the data fit the model quite well, and that PSV had a greater contribution than AHA to the model.

In Analysis B, the emphasis is on the direct relationship between PSV and WKE, as a reflection of the sample's characteristics, to answer research questions 2 and 3. Manifest variables were not parceled to determine which manifest variables contributed to the direct relationship between PSV and WKE. Additionally, sex, supervisor type, and intention to remain in the Navy were tested for their moderating effect. The results indicate a "moderately large effect" between PSV and WKE. None of the factors tested for moderation indicated that they were significant; however, sex was marginally insignificant with a p -value of 0.100.

Chapter 5

Discussion

In this chapter, the findings of this study are integrated with theory, and limitations of this study and implications to OD practice, organizations, and research are discussed as well. Recommendations for future research close this chapter. Interpretation of the results rely theory because the study cannot prove causation due to its limitations. The finding are consistent with theory but much more work needs to be done to address limitations.

Research Questions

To realize the purpose of this study, the following research questions must be addressed:

RQ1. With respect to prior research involving AHA, HCS, and WE, how does PSV fit into this relationship? The emphasis is on the theoretical model and what defines that theoretical model: If the data fit the model, then one may inspect the strength of those relationships and compare them to others.

RQ2. To what extent do the perceived level of supervisors' expression of these values (PSV) affect work engagement (WE) directly? While guided by theory in the specification process, the emphasis is on sample characteristics and which indicators contribute to the direct relationship.

RQ3. Is the relationship between PSV and WE conditioned by sex, supervisor type, and intention to remain in the Navy? Leveraging common assumptions about sailors and organizational culture, these

factors are tested for their moderating effect. Within the context of this study, they may or may not strengthen or weaken an argument that suggests these factors have a role in the relationship.

Fit With Theory: PSV With AHA, HCS, and WE (RQ1)

Analysis A was conducted to answer research question 1. PSV's effect on HCS ($\beta_{PSV \rightarrow HCS} = 0.389$, p -value = 0.000) was "moderately large," and larger than AHA's "moderately weak" effect ($\beta_{AHA \rightarrow HCS} = 0.215$, p -value = 0.000) on HCS, suggesting that perceived supervisor values would have a greater effect on a hopeful career state (and in turn work engagement) than human agency. Despite the differences, both estimates were positive, and were significant. The effect between WKE and PSV was "weak but substantial" ($\beta_{PSV \rightarrow WKE} = 0.244$, p -value = 0.000) whereas the effect between WKE and AHA "moderately weak" ($\beta_{AHA \rightarrow WKE} = 0.193$, p -value = 0.000). The direct effect between HCS and WKE was positive and considered "large" ($\beta_{HCS \rightarrow WKE} = 0.489$, p -value = 0.000). The indirect effect from PSV to HCS and then to WKE was likewise positive and significant, and considered to be of "moderately weak" effect ($\beta_{PSV \rightarrow HCS \rightarrow WKE} = 0.190$, p -value = 0.000). The indirect effect from AHA to HCS and then to WKE was likewise positive and significant, and considered to be of "weak" effect ($\beta_{AHA \rightarrow HCS \rightarrow WKE} = 0.105$, p -value = 0.000).

In all, the results suggest that PSV has a greater effect on work engagement than AHA. The total effect of all paths involving PSV was "moderately strong" ($\beta_{PSV \text{ Total}} = 0.435$, p -value = 0.000), and the total effect of all paths involving AHA was of "medium size effect." ($\beta_{AHA \text{ Total}} = 0.299$, p -value = 0.000). This suggests that PSV has greater sway over WKE than AHA, perhaps a reflection of the sample. The sample was constrained to respondents that are task-oriented and respond best to their interaction with their supervisor than on personal agency (as trained to do in the military), and not surprising but consistent with

expectations. The results provide evidence to support theory in the sense that it is consistent with the theoretical proposition and such an arrangement of constructs cannot be ruled out, satisfying H_1 through H_7 . The model remains plausible with humanistic values.

With respect to HCS in this study, the findings are consistent with theory. Yoon (2019) hypothesized that HCS could be a mediator affecting work engagement. In that study, Hope2Work participation preceded HCS, and HCS had a “medium sized” effect on WE of 0.320 (p -value = 0.016). Also noted that WE and HCS were transposed and there was only a very weak effect going from WE to HCS of 0.028, suggesting that the directionality was one way. Hope2Work to work engagement was of a sizeable effect but not significant ($\beta_{H2W} = 0.766$, p -value = 0.095). With only a 9.5% chance of committing a type I error, and with such a sizeable effect, Hope2Work should not be ruled out in subsequent studies as an antecedent and should be tested further. As it compares to this study, the effects cannot be compared because such models must be identical for any meaningful comparison (different samples, settings, and structural models means we cannot expect the same outcomes); however, a statistically significant large effect is promising in considering the HCS \rightarrow WE relationship in other models and can at least provide a rationale for including and testing. Satici (2016) demonstrated “full mediation” between resilience and well-being. Yoon (2011), Shao (2022), and Li (2002) all hypothesized the relation between AHA and WE as mediated by HCS. Nonetheless, it is not clear that matters of career goals and development have affected work engagement in this study. There are those that join the military for the benefits they may earn (such as education benefits that can fund a college education), for example. This study shows that only a quarter of respondent have an intention to remain in military service and there is no information in this study to understand the reasons why someone would want to remain affiliated with the Navy or would want to leave.

Also, of that quarter that would want to remain in military service, one cannot infer from the results of this study that the connection between work engagement and a hopeful career state is strong or strong enough, or that the relationship between work engagement and hopeful career state is weak for those that are intent on leaving. This study only tells us that the relationship between these two factors was approached a large size effect ($\beta_{\text{HCS} \rightarrow \text{WKE}} = 0.489$, $p\text{-value} = 0.000$) for the entire sample, which does suggest that at least a positive effect for a good portion of those that do not have clear intentions. Perhaps the career they envision is not a military career but one following military service, and military service is a means to that end.

With respect to AHA, Caprara et al. (2008) demonstrated that people with high levels of self-efficacy are more successful in achieving their goals through choices they make in life. Bandura (2001) describes the four main characteristics of human agency as intentionality, forethought, self-reactiveness, and self-reflectiveness to describe purpose and decision-making, goal-setting and anticipation of consequences, motivation and self-regulation, and a kind of introspection, respectively. These concepts are incorporated into the model using the Assessment of Human Agency (AHA), and were parceled accordingly. In Yoon (2022), the relationships between AHA and career decision self-efficacy was substantial ($\beta = 0.739$), which hints that HCS can serve as a consequent. Considering Yoon's and Bandura's work, it is plausible for both WKE and HCS to serve as consequents in a model where AHA is the antecedent. However, in this study, AHA was not a strong contributor relative to PSV, perhaps due to the nature of a military culture that emphasizes command-and-control over autonomy. The results do not suggest excluding AHA from the model but rather that the findings suggest a reflection of sample characteristics. This suggests that the level of agency, whether personal, by proxy, or by collective agency as Yoon (2022) describes, has some effect on work engagement for the group represented in the sample but

not as much as perceived supervisor values. Perhaps this is driven by the unique circumstances of those represented in the sample, of being constrained and working in a military environment that already emphasizes command-and-control style of leadership (proxy and collective agency).

PSV as applied to the worker-supervisor relationship is a novel idea and it has not been studied since those humanistic values from which PSV is derived were published in Yoon et al (2020). As already discussed, PSV contributes more to the theoretical model than AHA using this particular sample, but having done so demonstrates that PSV can be an effective factor. Thus, it is worth considering PSV as an essential addition to the AHA → HCS → WKE model. If the role of HCS and AHA are not entirely clear, even if we know they are positive and there, then it serves us well to consider PSV and WKE in isolation to better understand this relationship. PSV and WKE are discussed further in RQ2.

Extent That PSV Affects WE (RQ2)

Analysis B was conducted to answer research questions 2 and 3. The only effect in Analysis B is a direct effect and it was positive and significant ($\beta_{\text{PSV} \rightarrow \text{WKE}} = 0.448, p\text{-value} = 0.000$), indicating a “moderately large effect” approaching a “large size effect”. It is notable that all humanistic values except strategic practicality and diversity were represented in at least one indicator in the model that affected work engagement indicators associated with feelings of “burst of energy,” “feeling strong and vigorous,” and being “enthusiastic about [one’s] job.” There were nine PSV indicators that contributed to this relationship with WE indicators (WKE): demonstration of self-awareness, recognizing the value of all perspectives, monitoring environmental changes and potential effects, seeking feedback to learn and improve, consistency between words and behavior, courage to call out injustices, an assumption that everyone

behaves as best they can, ensuring participation of all including those marginalized, and encouraging others to take responsibility for supporting personal and group development. Seven of the nine OD values were represented by at least one indicator: Awareness of self and system, continuous learning and innovation, integrity, courageous leadership, trust and respect, collaborative engagement, and growth and development. Considering the demographics of the sample, such as the ethnicity, junior status, age, and level of experience of the respondents, it is not unexpected that indicators of diversity and strategic practicality did not contribute as much to the model and excluded during the identification process, as such may not have a perceptible or of practical effect on a sailor's day-to-day interaction with their supervisor. The evidence here supports the notion that one cannot rule out that supervisors can have an effect on a worker's level of energy and enthusiasm, contributing to work engagement. The findings here lend support to the theoretical model used to address research question 2, satisfying H_7 and H_8 . The findings are consistent with expectations given the sample's defining characteristics.

Perceived supervisor values (PSV) have a basis in Yoon et al (2020). The humanistic values identified from a pool of OD practitioners envisioning the future OD. These humanistic values were then reinterpreted to assess the relationship between worker and supervisor rather than OD practitioner and client. Church et al (1994, p.34) noted, "One might guess ... humanistic values would be seen as more important when rated in the ideal, [but] there was no empirical support for such an idea ... this outcome may simply reflect practitioners' current prioritization of business value." In this study, we can at least know that values can have a positive, moderately large relationship with certain indicators of work engagement (i.e., not all). However, these results of this study are not compared with business objectives. The closest thing to perceived supervisor values are perceived supervisor support.

Penger & Černe (2014) found “partial mediation” of perceived supervisor support; that is, between “authentic leadership” and “employees’ work engagement.” This suggests that not all factors were captured in the Penger & Černe model, but we can nonetheless see that a direct link between leadership and engagement was drawn. However, unlike Penger & Černe, who in their third hypothesis are concerned with the outcome of “putting in the extra effort into their work to reciprocate the highly valued relationships with their leaders,” (p. 521) the work engagement items that were a fit in this study indicate that sailors simply felt better about themselves in relationship to their work as reflected in the questionnaire items, and no reciprocity can be logically inferred nor speculated. What is “authentic” is a perception; in both cases, they are the perception of the subject concerning their supervisor or leader. Kašpárková et al (2018, p. 44), states, “Whereas job satisfaction is focused on the affective aspects of work, ‘an evaluative description of job conditions or characteristics’ (Christian, Garza & Slaughter, 2011, p. 97), work engagement is focused on physical, emotional, and cognitive aspects of involvement with the job, ‘a description of an individual’s experiences resulting from work’ (Christian et al., 2011, p. 97).” This definition provides greater insight on how these perceptions of the supervisor have an effect on the sailors’ emotional condition as it relates to the work that they do and the job conditions themselves. In this study, work engagement is the ultimate dependent variable, the outcome. The findings are consistent with the definitions and suggest that PSV can serve as an antecedent to WKE directly.

Since the work engagement items that affected sailors were those relating to those associated with feelings of “burst of energy,” “feeling strong and vigorous,” and being “enthusiastic about [one’s] job,” and the items in PSV included those that directly affected respondents, the relationship suggests one that is personal and not general, taking us back to the work of Rokeach (1979), Korczynski (2002), Holland et al.

(2017), and Kottle and Sharafinski (1998). Trust is personal and how sailors trust their supervisor suggests that it can have an effect on work engagement through the supervisor's expressions, actions, and deeds as they are perceived to affect the sailor directly. This suggests that adopting OD values then can serve as a means to contribute to the well-being of workers, heeding Matli's (2002) advice. This does not suggest that the other values are unimportant but that respondents in the particular sample used are not as responsive to them as in terms of the supervisor's expressions, actions, and deeds as they may apply to or affect someone else or affect the larger organization for any number of reasons, particularly if sailors are not motivated to be engaged to develop careers as a military service members. In other words, when career considerations in the organization in which the work is performed are not a strong motivating factor for a worker, perhaps trust in the supervisor becomes a more important factor affecting work engagement.

Sex, Supervisor Type, and Intention To Serve Long-term As Conditions (RQ3)

The findings do not support H_9 through H_{11} . There is no evidence to support that sex, supervisor type, and intention to remain in the Navy have a moderating effect on the relationship between PSV and WKE. In all three cases, there was a failure to reject the null hypothesis ($\alpha \leq 0.05$). The findings here provide some evidence to exclude from consideration certain conditional factors (as control variables) that could affect future research on the theoretical model used to address research question 1. Sex was close with a p -value of 0.100. Estimates for males was 1.105 and females was 0.730. The difference in the effect can be considered marginal: some may consider this significant had the p -value been evaluated with an α of 0.100; therefore, while insignificant it should be tested again in any subsequent studies and should not be ruled out as a potential moderator, especially in studies using a different design or sample. With respect to

supervisor type, the p -value was 0.9468. The estimate for the E6-and-below group was 1.002 and for the all-others group, it was 0.989. The results are surprising given that one with higher status in the military organization is afforded greater deference by regulation, custom, and in practice (U.S. Department of the Navy, 1990, chapters 7–12), and one could expect that working for someone with a higher status might be associated with greater satisfaction at work due to the association. There is no evidence in this study to support that the kind of supervisor a sailor may have moderates work engagement. Lastly, intention to remain in the Navy has a p -value of 0.887. There is no evidence to support that intention had an effect on the relationship between PSV and WKE. The estimate for “yes” was 0.764, for “no” was 0.764, and for “I don’t know” (otherwise, “maybe”) it was 1.05. This could be a reflection that not everyone would want a Navy career but may have enlisted for other reasons, such as family tradition, benefits (such as education), or social status; and in such cases, it is plausible to be engaged in one’s work with an eye to a future outside of military service. Figure 18 indicates that 43.98% of respondents have no intention to “stay Navy,” and 23.91% are unsure. Outside of the military, it is possible that someone may be engaged in their jobs and committed to it because it provides income or perhaps they enjoy the work, independent of any aspirations for a career associated with the work.

The findings here exclude these factors, factors that are sometimes attributed to one’s level of work engagement. By exclusion, the findings provides support that trust remains an important factor in the worker-supervisor relationship.

The findings here exclude these factors, factors that are sometimes attributed to one’s level of work engagement. By exclusion, the findings provide support that trust remains an important factor in the worker-supervisor relationship, and that the PSV and WKE relationship isn’t significantly affected by other

factors either essentially or conditionally. It is nonetheless important to keep in mind that by a large majority, respondents were young, white males.

At least with the factor of sex (as it was marginally insignificant), further study is recommended to determine what facet of sex may be having an effect on the relationship. This study does not tell us, for example, if there is treatment at work, evolving gender roles at play in workforce participation (as indicated earlier in the introduction), or simply chance that makes a difference in the level of effect. The sample used in this study is not reflective of the general population, especially in its proportion of the sexes. Additionally, the military culture has been dominated by men and only recently has the military been more accepting of women in military service, particularly in jobs that used to be exclusively for men. Further study is recommended to investigate this matter in greater detail, particularly with PSV indicators relating to diversity, and factors of human agency, comparing the sexes in military service with respect to personal agency, in consideration of Bandura's (2001 & 2006) and Yoon's (2019 & 2022) work regarding goal setting, action, and achievement. (Similarly, it may be worthwhile to replicate this study using minority groups.)

Implications

This study suggests a few implications. As with many correlational studies, causation cannot be proven; however, nothing in this study threatens the theoretical construct of the relationships between PSV, AHA, HCS, and WKE (i.e., WE). The findings are consistent with what one expects to find. Theory remains plausible and the findings are consistent with the constructs from which they are defined.

OD Practice

For the OD community, this study suggests that perceived humanistic values in supervisors appear to be an important precursor to positive work engagement, as these perceived supervisor values are based on OD values. If the findings continue to hold true through subsequent studies, the OD community may be well positioned to work with clients on the basis of values to which workers are receptive. OD is distinguished by its bottom-up approach that emphasizes the contribution of the worker in effecting organizational change. Additionally, using such values as a foundation could provide an advantage over more purely data-driven methods to drive organizational change when working directly with workers or helping a client develop or improve positive relationships with workers because those same values that could help work with workers are the effectively the same OD practitioners developed in envisioning the future of OD. (Yoon et al, 2020)

However, the results of this study are only meaningful within the context of what defines the constrained group: a strong dependence on an authority figure and less reliance on the individual to trigger change. The results do not explain all other conditions that other workers may experience. The results should not be taken to mean that dependence is a preferred or effective means of leadership over another, but rather that the results suggest that perceived supervisor values have a greater effect on work engagement than human agency *in this particular context and moment in time*. For OD practice, this means that a particular client's circumstances should be taken into consideration before deciding on the best way to advise or steer a course of action. If one takes the results as true and generalizable (which they are not), then it could mean that a focus on perceived supervisor values may be more useful and informative in affecting working engagement than focusing on self-direction (and perhaps even empowerment) in organizations

with a high degree of command and control. The results of the study do not suggest that in an organization that has empowered, self-sufficient workers that perceived supervisor values would be any less important. In other words, there is no evidence in this study to suggest that the outcomes of two disparate scenarios would result in a dichotomy because other scenarios were not studied and not because they do not exist. A dichotomous relationship has not been established. This study does not suggest that greater intervention by a supervisor leads to more engaged employees either. There is evidence in other studies to suggest that this line of thinking is in part biased by traditional norms and there is evidence that even in situations of remote work that workers can be just as effective (albeit stressful for some). (Elsbach et al, 2010; Criscuolo et al, 2020; Golden & Eddleston, 2020; and Steemers, et al. 2021).

Organizations

For organizations, this study can serve as a reminder that the effects of leadership whether actual, intentional, or perceived, can affect work engagement. Change can test an organization's ability to function effectively when the status quo seems threatened; however, despite changes in workplace arrangements, technology, issues threatening public health, etc., the one thing that remains true is that there will always be a worker-supervisor relationship if people continue to be employed. From this perspective, the findings suggest that worker's perception of their supervisor matters in relationship to work engagement. Data- or metric-driven strategies alone do not address motivation that can help workers come together to achieve organizational goals. In addition to the challenges being faced during the COVID-19 pandemic, technology has had a profound effect on the economy in facilitating its transition to a knowledge economy, in shaping the workforce as automation has allowed companies to reduce their number of employees, and in

supporting knowledge workers to gather, store, and use data and knowledge to support the exercise of judgment or communicate information (Qureshi, 2021). Strong leadership will be needed to keep workers engaged during a period that will undoubtedly experience stress and uncertainty. The results of the study, at least with the particular sample used, suggests that leadership can be evaluated by workers in different ways in terms of how supervisors are perceived to do and behave, and that in turn may affect work engagement.

Whether in the Navy or in any other organization, supervisors should take time to reflect on the potential effects of their actions and words. While technology can facilitate management and task execution, it cannot replace leadership. In the absence of face-to-face interaction, or reduced physical presence or proximity, perceptions will be much more difficult to gauge. Some professions (public affairs, marketers, public speakers, executives, etc.) already do this to some degree to work with an intended audience at a distance, and supervisors generally can learn to develop to work in a similar way, to gauge perceptions of their audience (the supervised employee). One may leverage the professional experience of others in their approach to their target audience to draw similarities with the supervisor-employee relationship. The 71-item values questionnaire can help identify areas shown to be of most importance either as a self-assessment or to query those they supervise, and the results can be used to facilitate self-reflection. The results may then be used to identify areas to focus leadership development of a group or individual, to build stronger relationships or partnerships with other supervisors in different organizational functions for support and insight, to target leadership development resources normally reserved for more senior employees, to facilitate regular conversations with employees, and to engage supervised employees in many of the deliberative processes that would affect them and their work. For example, if communication is in need of improvement, another supervisor in public affairs or human resources may be able to lend some insight and

support. Likewise, if results indicate employees perceive a supervisor less than trusting or closed off, engaging employees in the deliberative process may help employees understand some of the nuances and stressors that go into decision-making to which they may not be otherwise be exposed and therefore appreciate.

Research

For researchers, the study opens up new opportunities to study: different sample populations can be used to test theory particularly if they are well-described and any constraints used to better isolate the characteristics being studied. Opportunities abound, particularly with respect to worker status at various levels of an organization, in non-military settings, in different industries, occupations, professions, demographic groups, or otherwise interest groups. For example, much of the literature in OD circles seems focused on collaboration, group interdependence, dependence on the organization for career development, and employee wellbeing, but there are opportunities to study those that are more self-directed with high levels of self-efficacy. Bandura (1997) demonstrated the connection between self-efficacy and behavioral changes: “Self-efficacy predicted subsequent performance as measured at different points in treatment in 92% of the total assessment tasks” (p. 211). Similarly, Caprara et al (2008, p. 525), notes that “the accelerated pace of social, informational, and technological change is placing a premium on capability for self-directed learning and self-renewal ... [that] academic development is a product of a collaborative process within a social system rather than residing solely in students[; and] ... that the study demonstrate[d] that self-regulatory efficacy can affect the course of life paths through choice processes.” In the context of today, it could mean that researchers should not solely rely on assumptions associated with a traditional

workplace and pathways of learning. A deeper understanding of a sample population used will provide greater insight in establishing research parameters and interpretation of results.

In terms of research design, one reason for studying disparate groups is to highlight the differences in models between groups and refine parameters and controls that can in turn be used in future studies. For example, we may assume that self-efficacy is a characteristic of those that are highly independent or self-directed with a high degree of self-confidence, but self-efficacy can be a characteristic of those that work best in teams too and they too can experience high degrees of self-confidence. It's important to work out these details before designing a study and consider them in current studies and in their proper context to refine these defining characteristics, to ensure proper comparison and to properly explain results. It is important to establish proper parameters to avoid over-generalization. Comparing two disparate groups on the characteristics of interest can help tease out details that are helpful to further test, define, or refine precise parameters in lexicon, variable definition, and theory. Additionally, well-designed studies can help control the effects of endogeneity. Hill et al (2020) discusses some of the issues and strategies to mitigate threats to causality, albeit for studies designed for that purpose. Nonetheless, the recommendations offered are worth serious consideration to mitigate the effects of bias and error. Design is a critical component in mitigating bias and error and should not be overlooked. "Such a dire threat to the veracity of research claims warrants serious attention, and papers increasingly discuss and attempt to address endogeneity concerns with a combination of research design, theoretical logic, and statistical analysis." (p. 106)

In terms of methods, there are at least two opportunities worth considering. While a rudimentary comparison was offered in the findings section, such comparisons while interesting are insufficient. Meta-analyses may be conducted to perform meta-analytic SEM (Harrer et al, 2021) to pool the effect sizes from

different studies and study the theoretical models further (with properly-defined parameters). Additionally, validation studies may provide greater assurances of reliability of theoretical models, particularly in the absence of experimental or longitudinal data, help test current assumptions, and refine the identification of parameters and controls. Non-experimental studies can help work out many of the details in advance of and necessary to design a study that allows the use of meta-analytic SEM or conduct other controlled studies.

Limitations

There are several limitations to this study. The study was cross-sectional dependent on a convenience sample of a self-selected group, and is insufficient to establish causality; results (if repeated) could change over time or in different contexts. This is particularly true due to the nature of the Navy from which the sample was drawn. Personnel experience regular, programmed turnover so personnel are not likely to remain with their immediate supervisors over an extended period of time. Additionally, enlisted personnel are regularly advanced (i.e., promoted) therefore the sample is one from a population that is regularly in flux.

The same benefits of using a constrained sample to accentuate certain relationships to help explain the theoretical model can also presents challenges with respect to transference. While sailors are recruited for military service from the general population, the work environments with those in otherwise public service, private industry, etc. are not comparable in key ways. The general public is not constrained with contracts that keep them from leaving the organization, sometimes under the threat of force or prosecution. A worker in the general public is not likely to resolve disputes with employers under potential threat of

nonjudicial punishment or criminal prosecution for matters concerning working conditions or perceived disrespect.

While this study has considered correlating factors, the analyses themselves cannot provide any meaningful reasons for these correlations relative to other unknowns; if there are relationships or conditions on those relationships to be found, they are measured but they don't in themselves provide the meaning behind the relationships. The meaning ascribed in theory is assumed, and while theory may be sound on the basis of reasoning used and results from previous studies, the context of the participants represented in any given sample may be overlooked; and with that, missing will be key information that could inform or test theory further, re-examine assumptions, or consider alternative explanations. For example, it is possible that Navy sailors interpret a question literally in the same way but perhaps attribute meaning differently than others working in industry in terms of how a question might apply in their own circumstances. Qualitative studies provide a means to collect meaningful, substantive data that can complement studies such as these, provide appropriate context, and aid in the refinement of controls and parameters. Likewise, defining controls can help account for or limit the influence of extraneous factors (i.e., account for endogeneity) wherever possible in order to better draw a connection between measures with qualitative meaning and what is being observed, and better contribute to content validity. Counterfactual observations and alternative explanations should be considered to be able to contrast results.

Counterfactual and alternative explanations brings us to the limitations concerning methodology as well. Hill et al (2020), Hayes (2018, chapter 4), Kline (2015), and Bullock et al (2010), remind us of many of these limitations with respect to mediation and endogeneity. This study is neither experimental nor longitudinal. True mediation is defined by its modularity and proof of causation. Similarly, most constructs

associated with a topic at hand in the social sciences are likely correlated at some level and there could be some unknown factor that could also explain the relationship; “partial mediation” and “full mediation” are therefore not considered in this study. Because there is no other term to describe a variable proposed by theory that precedes and follows other variables in a path model that does not fit the definition of a true mediator, the term “mediator” continues to be used in literature and can mislead the reader in conveying certain assumptions that are not true. Unfortunately, much of the literature on structural equation modeling focuses on studies seeking causality with continuous variables and offer little in the way of studies based on convenience samples, that use categorical variables, and theory representation in a modeling that might be useful for theory development. For this reason, the reader is encouraged to rely on theory as a guide through the analysis in this study, keeping limitations in mind. In this study, theory is assumed and is being tested against certain conditions. The results do not preclude the possibility that another theory could work just as well or better, that other factors could explain the results, or that other factors are at play but not accounted for in the model.

Recommendations for Future Research

More validation research is needed on the constructs used in this study, particularly as they may be applied to military and non-military working environments with their characteristic stressors and personalities that may be attracted to the military lifestyle. This may provide greater context to be able to adjust expectation in comparing with other studies involving non-military workers. The same may hold true for those with high levels of self-efficacy.

More studies are needed on the effect of leadership on worker wellbeing, work engagement, and retention, particularly in a post-COVID environment. Social and technological trends are changing workplace expectations; however, some relationships with the employer, particularly through an immediate supervisor, will continue. It is important to understand the dynamics between worker and supervisor and separate that from the expectations that have long been the norm and as interpreted as true, consciously or unconsciously. For example, do different working arrangements favor one personality type over another and could this have implications for how people are best led and supervised, or how workers perceive supervisors? Could old assumptions and biases change to favor another group, in turn changing the workplace dynamic and perhaps bias new research?

More studies on what motivates workers with little to no work experience in comparison with those much more experienced, and with workers that are expected to perform with greater degree of autonomy is needed to appreciate differences at different levels, and on how workers' status in an organizational hierarchy may have an effect within the context of theory and models. Perhaps some aspects of agency or values may be more or less prominent between those that receive or prefer direction or guidance to those that dispense them.

Testing for moderating or conditional effects of demographic and environmental factors, or between groups such as those in different occupations and industries is also recommended. Groups can develop their own culture in ways that could affect or defy expectations and define norms. The assumption in many of these theories is that they are somewhat universal; however, the context and characteristics of the population samples used may yield additional information that can help explain models derived from

them. Greater effort in defining a population to be studied and screening for an appropriate sample should be undertaken.

Qualitative or mixed methods studies are needed to provide context and meaning behind some of the correlations and differences studies such as this provide. For example, the lack of evidence of a moderating effect with respect to supervisor type effect could be indicative of generational perceptions of workplace norms or shift in the value of organizational status, or it could mean that despite status, workers are not all that affected by the status of the supervisor in practical day-to-day interactions. Inquiries into these matters can offer richer perspectives on why we are detecting or not detecting any differences.

Conducting longitudinal and experimental studies to analyze cumulative experience or produce results from a controlled environment, and studies using other samples representing different groups in the general population provide greater validity to the findings of any one study, and can be valuable in developing new scales to guide human resources and organization development efforts.

This study's focus is on perceived supervisor values. Part of this study was to determine how well PSV fit into theory, alongside with AHA, and as they affect HCS and ultimately WKE. In analysis B, specific indicators were examined with the PSV construct, but not with AHA as AHA was not the main focus of this study. Nonetheless, specific indicators and moderating factors associated with AHA and HCS should be examined further as well, in consideration for sample characteristics. Many workers seek to develop their careers within the context of their workplaces and professions, and while research by others including Shao (2002), Liu (2022), Clarke et al. (2018), Niles (2010), Yoon et al. (2019), and Yossef and Luthens (2007) have provided in part a foundation to justify testing PSV alongside AHA to test the effect of HCS and WKE, specific indicators in these other factors were not the primary focus of this study. As with having tested

moderating factors affecting the PSV → WKE relationship, so too factors reflecting common assumptions related to these other factors should be tested for their effect in these other relationships. What this study suggests is that characteristics of a sample can shape the outcome of study, and other relationships could very well be affected in a similar way when greater consideration is given to the nature of the sample. Having these other factors tested here in this study would have caused the study to stray from its original purpose. Nonetheless, demographic factors and associated factors with common assumptions should be tested in these other relationships, as they may yield greater insight levels of strengths in these other relationships, when conditioned for different contexts.

Further study is recommended to investigate the matter relating to diversity, and factors of human agency, comparing the sexes and minority groups in military service with respect to personal agency, in consideration of Bandura's (2001 & 2006) and Yoon's (2019 & 2022) work regarding goal setting, action, and achievement.

Lastly, in line with the recommendations offered by Hill et al (2020), ensuring design is given equal prominence with theory and statistical methods is recommended. Design can help address many issues with error and bias before any statistical analysis can be performed, and can help in establishing controls and parameters of a study that better align with theories proposed to test theory, or for the development of theory. With respect to explaining the rationale for a proposed theory, design and careful selection of a sample population can help provide additional information that is reflective of a sample where theory may not necessarily be concerned. In the case of this study, Navy culture and demographics of the sample may explain some of the results more so than theory, as was the case with AHA and specific PSV indicators.

References

- Alimo-Metcalfe, B., Alban-Metcalfe, J., Bradley, M., Mariathasan, J., & Samele, C. (2008). The impact of engaging leadership on performance, attitudes to work and wellbeing at work: A longitudinal study. *Journal of Health Organization Management*, 22(6), 586–598.
<https://doi.org/10.1108/14777260810916560>
- Athanasiadou, C., & Theriou, G. (2021). Telework: Systematic literature review and future research agenda. *Heliyon*, 7(10), e08165. <https://doi.org/10.1016/j.heliyon.2021.e08165>
- Bailey, D. E., & Kurland, N. B. (2002) A review of telework research: Findings, new directions, and lessons for the study of modern work. *Journal of Organizational Behavior*, 23(4), 383–400.
<https://doi.org/10.1002/job.144>
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191–215.
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology*, 52, 1–26.
 doi:10.1146/annurev.psych.52.1.1
- Bandura, A. (2006). Toward a psychology of human agency. *Perspectives on Psychological Science*, 1, 164–180. doi:10.1111/j.1745-6916.2006.00011.x
- Baptiste, N. R. (2007). Tightening the link between employee wellbeing at work and performance: A new dimension for HRM. *Management Decision*, 46(2), 284–309.
<https://doi.org/10.1108/00251740810854168>
- Bollen, K. A., & Pearl, J. (2013). Chapter 15: Eight myths about causality and structural equation models. In S. L. Morgan (Ed.). *Handbook of casual analysis for social research* (pp. 301–328). Springer.
<https://doi.org/10.1007/978-94-007-6094-3>
- Bowen, N. K., & Guo, S. (2012). *Structural equation modeling*. Oxford University Press.
- Brown, T. A. (2015). *Confirmatory factor analysis for applied research* (2nd ed.). Gilford Press.
- Bullock, Green. (2010). Yes but what mechanism? (Don't expect an easy answer). *Journal of Personality and Social Psychology*, 98(4), 550–558. doi: 10.1037/a0018933
- Caprara, G. V., Fida, R., Vecchione, M., Del Bove, G., Vecchio, G. M., Barbaranelli, C., & Bandura, A. (2008). Longitudinal analysis of the role of perceived self-efficacy for self-regulated learning in academic continuance and achievement. *Journal of Educational Psychology*, 100(3), 525–534.
<https://doi.org/10.1037/0022-0663.100.3.525>

- Church, A. H., Burke, W. W., & Van Eynde, D. F. (1994). Values, motives, and interventions of organization development practitioners. *Group & Organization Management, 19*(1), 5–50.
<https://doi.org/10.1177/1059601194191002>
- Clarke, A., Amundson, N., Niles, S., & Yoon, H. J. (2018). Action-oriented hope: An agent of change for internationally educated professionals. *Journal of Employment Counseling, 55*(4), 155–165.
<https://doi.org/10.1002/joec.12095>
- Cohen, J. (1998). *Statistical power analysis for the behavioral sciences* (2nd ed.). Psychology Press.
- Cohen, J., Cohen, P. West, S., & Aiken (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Lawrence Erlbaum Associates.
- Collier, J. E. (2020). Applied structural equation modeling using AMOS: Basic to advanced techniques. Routledge.
- Cooke, B. (1998). Participation, ‘process’ and management: Lessons for development in the history of organization development. *Journal of International Development, 10*(1), 35–54.
- Criscuolo, C., Nicoletti, G., Gal, P., & Leidecker, T. (2020, September 7). *Productivity gains from teleworking in the post COVID-19 era: How can public policies make it happen?* [Brief]. Organisation for Economic Co-operation and Development. <https://www.oecd.org/coronavirus/policy-responses/productivity-gains-from-teleworking-in-the-post-covid-19-era-a5d52e99/>
- Deci, E. L., Connell, J. P., & Ryan, R. M. (1989). Self-determination in a work organization. *Journal of Applied Psychology, 74*(4), 580–590. <https://doi.org/10.1037/0021-9010.74.4.580>
- Department of Defense (2011). *Certification of the repeal of “don’t ask, don’t tell”* [Memo]. Under Secretary of Defense. Available at:
<https://www.iimef.marines.mil/Portals/1/documents/IG/Certification%20of%20Repeal%20of%20Don't%20Ask%20Don't%20Tell%20Jul%202011.pdf>
- Department of Defense (n.d.). *DoD personnel, workforce reports and publication* (Repository). Defense Manpower Data Center. Available at: <https://dwp.dmdc.osd.mil/dwp/app/dod-data-reports/workforce-reports>
- Department of Defense. (2021). In-service transition for transgender service members (DoD Instruction 1300.28). Office of the Under Secretary of Defense for Personnel and Readiness. Available at: <https://www.esd.whs.mil/Portals/54/Documents/DD/issuances/dodi/130028p.pdf>

- Department of the Navy. (2008). *Coordination and control of personnel surveys* (OPNAV Instruction 5300.8C). Available at:
<https://www.secnav.navy.mil/doni/Directives/05000%20General%20Management%20Security%20and%20Safety%20Services/05-300%20Manpower%20Personnel%20Support/5300.8C.pdf>
- Eisenberger, R., Huntington, R., Hutchison, S., & Sowa, D. (1986). Perceived organizational support. *Journal of Applied Psychology, 71*(3), 500–507. <https://doi.org/10.1037/0021-9010.71.3.500>
- Eisenberger, R., Stinglhamber, F., Vandenberghe, C., Sucharski, I. L., & Rhoades, L. (2002). Perceived supervisor support: Contributions to perceived organizational support and employee retention. *Journal of Applied Psychology, 87*(3), 565–573. <https://doi.org/10.1037/0021-9010.87.3.565>
- Elsbach, K. D., Cable, D. M., & Sherman, J. W. (2010). How passive ‘face time’ affects perceptions of employees: Evidence of spontaneous trait inference. *Human Relations, 63*(6), 735–760. <https://doi.org/10.1177/0018726709353139>
- Ferguson, C. J. (2009). An effect size primer: A guide for clinicians and researchers. *Professional Psychology: Research and Practice, 40*(5), 532–538. doi: 10.1037/a0015808
- Fletcher, L. (2017). The everyday experiences of personal role engagement: What matters most? *Human Resource Development Quarterly, 28*(4), 451–479. <https://doi.org/10.1002/hrdq.21288>
- Geiser, C. (2013). *Data analysis with Mplus*. Guildford Press.
- Golden, T. D., & Eddleston, K. A. (2020). Is there a price telecommuters pay? examining the relationship between telecommuting and objective career success. *Journal of Vocational Behavior, 116*, 103348. <https://doi.org/10.1016/j.jvb.2019.103348>
- Harrer, M., Cuijpers, P., Furukawa, T.A., & Ebert, D.D. (2021). *Doing meta-analysis with R: A hands-on guide*. Chapman & Hall/CRC
- Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression based approach* (2nd ed.). Guilford Press.
- Hayes, A. F., & Coutts, J. J. (2020). Using omega rather than Cronbach’s alpha for estimating reliability. But... *Communication Methods and Measures, 14*(1). <https://doi.org/10.1080/19312458.2020.1718629>
- Hill, A.D., Johnson, S.G., Greco, L.M, and O’Boyle, E.H. (2020). Endogeneity: A review and agenda for the methodology-practice divide affecting micro and macro research. *Journal of Management, 47*(1), 105–143. <https://doi.org/10.1177/0149206320960533>
- Holland, P., Cooper, B., & Sheehan, C. (2017). Employee voice, supervisor support, and engagement: The mediating role of trust. *Human Resource Management, 56*(6), 915–929. <https://doi.org/10.1002/hrm.21809>

- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1–55. <https://doi.org/10.1080/10705519909540118>
- Ilies, R., Morgeson, F. P., & Nahrgang, J. D. (2005). Authentic leadership and eudaemonic well-being: Understanding leader–follower outcomes. *The Leadership Quarterly*, 16(3), 373–394. <https://doi.org/10.1016/j.leaqua.2005.03.002>
- Internal Revenue Service (2017). *Understanding employee vs. contractor designation* [FS-2017-09]. <https://www.irs.gov/newsroom/understanding-employee-vs-contractor-designation>
- James, L. R., Mulaik, S. A., & Brett, J. M. (1982). *Causal analysis: Assumptions, models, and data*. Beverly Hills, CA: Sage.
- Johnson, D. R., & Creech, J. C. (1983). Ordinal measures in multiple indicator models: A simulation study of categorization error. *American Sociological Review*, 48, 398–407
- Jöreskog, K. G., & Sörbom, D. (1996). *LISREL 8 user's reference guide*. Scientific Software.
- Kašpárková, L., Vaculík, M., Procházka, J., & Schaufeli, W. B. (2018). Why resilient workers perform better: The roles of job satisfaction and work engagement. *Journal of Workplace Behavioral Health*, 33(1), 43–62. <https://doi.org/10.1080/15555240.2018.1441719>
- Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*, 33(4), 692–724. doi:10.2307/256287
- Kline, R. B. (2015). The mediation myth. *Basic and Applied Social Psychology*, 37(4), 202–213. <https://doi.org/10.1080/01973533.2015.1049349>
- Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4th ed.). New York, NY: Guilford Press.
- Korczynski, M. (2002). The political economy of trust. *Journal of Management Studies*, 37(1). <https://doi.org/10.1111/1467-6486.00170>
- Kottke, J. L., & Sharafinski, C. E. (1988). Measuring perceived supervisory and organizational support. *Educational and Psychological Measurement*, 48(4), 1075–1079.
- Krosnick, J. A. (1991). Response strategies for coping with the cognitive demands of attitude measures in surveys. *Applied Cognitive Psychology*, 5(3), 213–236. <https://doi.org/10.1002/acp.2350050305>
- Krosnick, J. A. (1999). Survey research. *Annual Review of Psychology*, 50, 537–567. <https://doi.org/10.1146/annurev.psych.50.1.537>

- Little, T. D., Cunningham, W. A., & Shahar, G. (2009). To parcel or not to parcel: Exploring the question, weighing the merits. *Structural Equation Modeling*, 9(2), 151–173.
https://doi.org/10.1207/S15328007SEM0902_1
- Liu, Y. (2022). *Perceived social support and well-being among international students: Hopeful career state and career engagement as mediators* [Dissertation]. The Pennsylvania State University.
- Liu, Y., Andersson, B., Xin, T., Zhang, H. & Wang, L. (2019). Improved Wald statistics for item-level model comparison in diagnostic classification models. *Applied Psychological Measurement*, 43(5), 402–414. <https://doi.org/10.1177/0146621618798664>
- Lozano, L. M., García-Cueto, E., & Muñiz, J. (2008). Effect of the number of response categories on the reliability and validity of rating scales. *Methodology*, 4(2), 73–79. doi: 10.1027/1614-2241.4.2.73
- MacCallum, R. C., & Austin, J. T. (2000). Applications of structural equation modeling in psychological research. *Annual Review of Psychology*, 51(1), 201–226.
<https://doi.org/10.1146/annurev.psych.51.1.201>
- MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods*, 1(2), 130–149.
<https://doi.org/10.1037/1082-989X.1.2.130>
- Matli, W. (2020). The changing work landscape as a result of the Covid-19 pandemic: insights from remote workers life situations in South Africa. *International Journal of Sociology and Social Policy*, 40(9), 1237–1256. <https://doi.org/10.1108/IJSSP-08-2020-0386>
- Mundform, D. J., Shaw, D. G., & Ke, T. L. (2005). Minimum sample size recommendations for conducting factor analyses. *International Journal of Testing*, 5(2), 159–168.
- Muthén, B. O., Muthén, L. K., & Asparouhov, T. (2016). *Regression and mediation analysis using Mplus*. Muthén & Muthén.
- Muthén, L. K. (2013, September 7). WLSMV is not robust to non-normality of continuous variables. [Message Board]. <http://www.statmodel.com/discussion/messages/11/657.html?1342887417>
- Niles, S. G., Yoon, H. J., Balin, E., & Amundson, N. (2010). Using a hope-centered model of career development in challenging times. *Turkish Psychological Counseling and Guidance Journal*, 4(34), 101–109. <https://doi.org/10.1177/15234223211017848>
- Orvis, K. (2023). *Initial proposals for revising the federal race and ethnicity standards* [Blog]. Chief Statistician of the United States, Office of Management and Budget, the White House. Available at: <https://www.whitehouse.gov/omb/briefing-room/2023/01/26/initial-proposals-for-revising-the-federal-race-and-ethnicity-standards>

- Pavlov, G., Maydeu-Olivares, A., & Shi, D. (2021). Using the standardized root mean squared residual (SRMR) to assess exact fit in structural equation models. *Educational and Psychological Measurement, 81*(1), 110–130. doi: 10.1177/0013164420926231
- Penger, S., & Černe, M. (2014). Authentic leadership, employees' job satisfaction, and work engagement: A hierarchical linear modelling approach. *Economic Research-Ekonomska Istraživanja, 27*(1), 508–526. <https://doi.org/10.1080/1331677X.2014.974340>
- Querishi, Z. (2021). *Technology, growth, and inequality: Changing dynamics in the digital era* (No. 152) [Working Paper]. Brookings. <https://www.brookings.edu/research/technology-growth-and-inequality-changing-dynamics-in-the-digital-era/>
- Rhemtulla, M., Brosseau-Liard, P. É., & Savalei, V. (2012). When can categorical variables be treated as continuous? A comparison of robust continuous and categorical SEM estimation methods under suboptimal conditions. *Psychological Methods, 17*(3), 354–373. doi: 10.1037/a0029315
- Rhoades, L., & Eisenberger, R. (2002). Perceived organizational support: A review of the literature. *Journal of Applied Psychology, 87*(4), 698–714. <https://doi.org/10.1037/0021-9010.87.4.698>
- Rokeach, M. (1979). *Understanding human values: Individual and societal*. New York, NY: The Free Press.
- Rothwell, W. J., Stavros, J. M., Sullivan, R. L., & Sullivan, A. (2010). *Practicing Organization Development: A guide for leading change* (3rd ed.). Pfeiffer.
- Satici, S. A. (2016). Psychological vulnerability, resilience, and subjective well-being: The mediating role of hope. *Personality and Individual Differences, 102*, 68–73. <https://doi.org/10.1016/j.paid.2016.06.057>
- Schaufeli B. W. & Bakker, B. A. (2003). *Work & well-being survey (UWES)* [Instrument]. https://www.wilmarschaufeli.nl/publications/Schaufeli/Tests/UWES_GB_17.pdf
- Schaufeli, B., Salanova, M., González-romá, V., & Bakker, A. (2002). The measurement of engagement and burnout: A two-sample confirmatory factor analytic approach. *Journal of Happiness Studies, 3*, 71–92. <https://doi.org/10.1023/A:1015630930326>
- Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior, 25*(3), 293–315. <https://doi.org/10.1002/job.248>
- Schaufeli, W. B., Shimazu, A., Hakanen, J. J., & Salanova, M. (2017). An ultra-short measure for work engagement: The UWES-3 validation across five countries. *European Journal of Psychological Assessment, 35*(4), 1–15. doi: 10.1027/1015-5759/a000430

- Shao, H. (2022). *The role of human agency and hopeful career state in the relationship between family influence and career decision making among Asian international students* [Dissertation]. The Pennsylvania State University.
- Shi, D., Lee, T., & Maydeu-Olivares, A. (2019). Understanding the model size effect on SEM fit indices. *Educational and Psychological Measures, 79*(2), 310–334.
<https://doi.org/10.1177/0013164418783530>
- Shusha, A. (2013). The role of psychological engagement in relationship between perceived organizational support and withdrawal behavior and intentions: An empirical study on small industries in Egypt. *International Journal of Business and Management, 8*(16), 22–29.
<https://doi.org/10.5539/ijbm.v8n16p22>
- Simms, L. J., Zelazny, K., Williams, T. F., and Bernstein, L. (2019). Does the number of response options matter? Psychometric perspectives using personality questionnaire data. *Psychological Assessment*.
<http://dx.doi.org/10.1037/pas0000648>
- Snyder, C. R. (2002). Hope theory: Rainbows in the mind. *Psychological Inquiry, 13*(4), 249–275.
https://doi.org/10.1207/S15327965PLI1304_01
- Stanfors, M., & Goldscheider, F. (2017). The forest and the trees: Industrialization, demographic change, and the ongoing gender revolution in Sweden and the United States, 1870–2010. *Demographic Research, 36*(6), 173–226. <https://doi.org/10.4054/DemRes.2017.36.6>
- Stemmers, F., Erickson, R., Levanon, G., & Ray, R. L. (2021). *The reimagined workplace a year later—human capital responses to the COVID-19 pandemic* [Brief]. The Conference Board. <https://conference-board.org/topics/natural-disasters-pandemics/reimagined-workplace-a-year-later>
- Thomas, R. K., & Barlas, F. M. (2014). *Respondents playing fast and loose? Antecedents and consequences of respondent speed of completion*. In The American Association for Public Opinion Research (AAPOR) 69th Annual Conference.
- Torraco, R. J. (2016). Early history of the fields of practice of training and development and organization development. *Advances in Developing Human Resources, 18*(4), 439–453.
<https://doi.org/10.1177/1523422316659898>
- U.S. Department of Justice. (2014, September 15). *ITSS-4 labor categories: DOJ specified labor categories*. <https://www.justice.gov/sites/default/files/doj/legacy/2014/09/15/itss4-labor-cat.pdf>
- U.S. Department of the Navy. (1990). *U.S. Navy Regulations*.
<https://www.secnav.navy.mil/doni/navyregs.aspx>

- Watkins, E. Y. (2022). Lack of sexual orientation and gender identity data masks important health disparities in Department of Defense surveys. *American Journal of Public Health, 112*(6), 843–845. <https://doi.org/10.2105/AJPH.2022.306834>
- Weston, R., & Gore, P.A. (2006). A brief guide to structural equation modeling. *Counseling Psychologist, 34*(5), 719–751. doi: 10.1177/0011000006286345
- Yoon, H. J. (2011). *The development and validation of the assessment of human agency employing Albert Bandura's Human Agency Theory* [Dissertation]. The Pennsylvania State University.
- Yoon, H. J. (2019). Toward agentic HRD: A translational model of Albert Bandura's Human Agency Theory. *Advances in Development Human Resources, 21*(3), 335–351. <https://doi.org/10.1177/1523422319851437>
- Yoon, H. J., Bailey, N., Amundson, N., & Niles, S. (2019). The effect of a career development programme based on Hope-Action Theory: Hope to work for refugees in British Columbia. *British Journal of Guidance & Counseling, 47*(1), 6–19. <https://doi.org/10.1080/03069885.2018.1544827>
- Yoon, H. J. (2022, May 14). *A foundation for employee engagement and performance: Understanding hope-generating mechanisms* [Keynote speech], 2022 Technology Innovation and Human Resource Development Enhancement Symposium, National Taiwan Normal University, Taipei, Taiwan.
- Yoon, H. J., Bailey, N., Amundson, N. E., & Niles, S. G. (2019). The effect of a career development program based on the Hope-Action Theory: Hope to work for refugees in British Columbia. *British Journal of Guidance and Counseling, 47*(1), 6–19. <https://doi.org/10.1080/03069885.2018.1544827>
- Yoon, H. J., Chang, Y., Sadique, F., & Balushi, I. A. (2021). Mechanisms for hopeful career development in COVID-19: A Hope-Action Theory perspective. *Advances in Developing Human Resources, 23*(3), 203–221. <https://doi.org/10.1177/152342232111017848>
- Yoon, H. J., Farley, S. B., & Padilla, C. (2020). Organization development values from a future-oriented perspective: An international Delphi study. *The Journal of Applied Behavioral Science, 57*(3), 323–349. <https://doi.org/10.1177/0021886320957351>
- Youssef, C. M., & Luthans, F. (2007). Positive organizational behavior in the workplace: The impact of hope, optimism, and resilience. *Journal of Management, 33*(5), 774–800. <https://doi.org/10.1177/0149206307305562>

Appendix A

General Timeline

Phase	Description	End Timeframe
Phase I	Design, Navy Endorsement, Design Changes	July 31, 2022
Phase II	IRB Approval: Exemption Determination	September 13, 2022
Phase III	QualtricsXM Survey Development	September 30, 2022
Phase IV	Recruiting	October 15, 2022
Phase V	Data Collection	November 30, 2022
Phase VI	Data Cleaning and Analysis	February 28, 2023
Phase VII	Write Up	March 27, 2023

Appendix B

IRB/ DOPSR Approvals: Exemption Determination and Security Review



PennState

Office for Research Protections

Human Research Protection Program
Office of The Senior Vice President for Research
The Pennsylvania State University
101 Technology Center
University Park, PA 16802

814-865-1775
irb-orp@psu.edu
research.psu.edu/irb

EXEMPTION DETERMINATION

Date: September 13, 2022

From: Brittany Wickham, IRB Analyst

To: Cesar Padilla

Type of Submission:	Initial Study
Title of Study:	The effect of humanistic values expressed by supervisors as perceived by Sailors, on Sailor work engagement
Principal Investigator:	Cesar Padilla
Study ID:	STUDY00020510
Submission ID:	STUDY00020510
Funding:	Not Applicable
Documents Approved:	<ul style="list-style-type: none"> • HRP-591 - Protocol for Human Subject Research (Navy) rev 2.pdf (0.01), Category: IRB Protocol • Screening and Questionnaire (Navy).docx (0.01), Category: Data Collection Instrument

The Office for Research Protections determined that the proposed activity, as described in the above-referenced submission, does not require formal IRB review because the research met the criteria for exempt research according to the policies of this institution and the provisions of applicable federal regulations.

Continuing Progress Reports are **not** required for exempt research. Record of this research determined to be exempt will be maintained for five years from the date of this notification. If your research will continue beyond five years, please contact the Office for Research Protections closer to the determination end date.

Changes to exempt research only need to be submitted to the Office for Research Protections in limited circumstances described in the below-referenced Investigator Manual. If changes are being considered and there are questions about whether IRB review is needed, please contact the Office for Research Protections.

Penn State researchers are required to follow the requirements listed in the [HRP-103](#) – Investigator Manual, which can be found by navigating to the IRB Library within CATS IRB (<http://irb.psu.edu>).

ID 71

University





DEPARTMENT OF DEFENSE
DEFENSE OFFICE OF PREPUBLICATION AND SECURITY REVIEW
1155 DEFENSE PENTAGON
WASHINGTON, DC 20301-1155

Ref: **DOPSR 23-S-2662**

CDR Cesar Padilla
[REDACTED]

Dear CDR Padilla:

This is in response to your July 6, 2023, correspondence requesting public release clearance of the manuscript titled, "The Effects of Humanistic Values Expressed by Supervisors as Perceived by Sailors, on Sailor Work Engagement." The manuscript submitted for prepublication security review is **CLEARED** for public release.

This clearance does not include any photograph, picture, exhibit, caption, or other supplemental material not specifically approved by this office, nor does this clearance imply DoD endorsement or factual accuracy of the material. The appearance of external hyperlinks does not constitute endorsement by the DoD of the linked websites, or the information, products or services contained therein. The DoD does not exercise any editorial, security, or other control over the information found at these locations.

[REDACTED]

Sincerely,

for WAGNER.MEREDIT Digitally signed by
WAGNER.MEREDIT#A.1151624193
H.A.1151624193 Date: 2023.07.27 08:50:27 -0400

George R. Sturgis, Jr.
Chief

Enclosure(s):
As stated

For more information, visit:
<https://www.esd.whs.mil/DOPSR>

Appendix C

Consent for Research Notice

The Pennsylvania State University

Title of Project: The effect of humanistic values expressed by supervisors as perceived by sailor, on sailor work engagement.

Contact Information: Weekdays: 1000 and 1700 Eastern Time

Principal Investigator: CDR Cesar Padilla, USNR

Telephone Number: [REDACTED]

Penn State: [REDACTED]

Navy: [REDACTED]

Faculty Advisor: Dr. Hyung Joon Yoon Faculty Advisor

Telephone Number: [REDACTED]

You are being invited to volunteer to participate in a research study. Research studies include only people who voluntarily choose to take part. This summary explains key information about this research. You are urged to ask questions about anything that is unclear to you.

- The purpose of this study is to explore any effects on sailors' level of work engagement through the relationship with sailors' perceived expression of certain values in their supervisors.
- You will be asked to read a sentence and rate it on a scale to record your answer.
- Taking this survey may take approximately 15–25 minutes.
- There are no risks that we can anticipate as your responses would be general in nature. Some questions we present will ask you about your characteristics (age, ethnicity, job, etc.); however, this information by itself carries a low risk of being used to identify you specifically.
- There is a risk of loss of confidentiality if your information or your identity is obtained by someone other than the investigators, but precautions will be taken to prevent this from happening. The confidentiality of your electronic data created by you or by the researchers will be maintained to the degree permitted by the technology used. Absolute confidentiality cannot be guaranteed.
- There is no direct benefit to you; however, if the research is published (and made public), you may download a copy of the manuscript.
- To ensure confidentiality to the best of our ability and what technology allows, all accounts used in any service are password-protected. Data used will be encrypted.
- The data collected in the analysis will be retained indefinitely and may be used in future studies.

You have the right to ask any questions you may have about this research. If you have questions, complaints or concerns or believe you may have been harmed from participating in this research, you should contact CDR Cesar Padilla at [REDACTED] or [REDACTED]. If you have questions

regarding your rights as a research subject or concerns regarding your privacy, you may contact the research protection advocate in the Penn State Human Research Protection Program at 814-865-1775. You may call this number to discuss any problems, concerns or questions; get information or offer input.

You do not have to participate in this research. Taking part in the research study is voluntary. Your decision to participate or to decline the research will not result in any penalty or loss of benefits to which you are entitled.

VERBAL / IMPLIED CONSENT TO TAKE PART IN RESEARCH

I have read this consent form and the research study has been explained to me. By participating, I agree to be in the research study described above. A copy of this consent form will be or has been provided to me or I will print a copy for my records. By agreeing to participate, I have not given up any of the legal rights that I would have if I were not a participant in the study.

A link to a copy of this form is provided at the end of the survey.

Appendix D

Code Book with Questionnaire Items and Response Options

Dataset Code	Mplus Variable	Code Category	Grouping: Associated Humanistic Value; Domain; Instrument Variation	Survey Item	Response Options (QualtricsXM coded responses in parentheses) ○ = radio button (exclusive selection) ☐ = check box (inclusive selection)
SCR-01		Screening		Are you a Third or Second Class Petty Officer (E-4 or E-5)?	○ Yes (1) ○ No (2) Must answer yes.
SCR-02		Screening		Do you have more than 4 years of service in the Navy or Navy Reserve?	○ Yes (1) ○ No (2) Must answer yes.
SCR-03		Screening		Do you have more than 14 years of service in the Navy or Navy Reserve?	○ Yes (1) ○ No (2) Must answer no.
DEM-01		Demographic		What is your rating?	{Text}
DEM-01b		Demographic		Job Family	Calculated
DEM-01c		Demographic		Communities	Calculated
DEM-02		Demographic		With which component of the Navy and/or program are you affiliated?	○ Regular Navy ("Active Duty Navy") (1) ○ Navy Reserve: Selected Reservist (SELRES that is not in the TAR program) (2) ○ Navy Reserve: Training and Administration of the Reserves (TAR) (formerly, FTS or Full Time Support) (3)
DEM-03		Demographic		What is your paygrade?	○ E-1 This is a disqualifying answer. ○ E-2 This is a disqualifying answer. ○ E-3 This is a disqualifying answer. ○ E-4 (4) ○ E-5 (5) ○ E-6 This is a disqualifying answer.
DEM-04		Demographic		Enter your age.	{Number} An answer of less than 18 is disqualifying. In combination of required YOS, it's actually 21.
DEM-05		Demographic		How many years of service do you have?	{Number} An answer of less than 4 or more than 14 is disqualifying. An answer of 4 or more with an age of less than 21 is disqualifying.
DEM-06		Demographic		Select your highest level of education.	○ I have not completed high school (1) ○ High school diploma or equivalent (2) ○ Associate's degree (3) ○ Bachelor's degree (4) ○ Master's degree or higher (5)
DEM-07		Demographic		What is your sex?	○ Male (1) ○ Female (2) ○ Decline to respond (3)

RAND No.	Calculated	Random Number	{Number}, randomly generated and fixed so that it doesn't change automatically. Respondent doesn't see this data element.
Grp Assign	Calculated	Random Assignment	{Category, A or B}, randomly assigned and fixed so that it doesn't change automatically. Respondent doesn't see this data element.
DEM-08	Demographic	With which ethnic groups do you identify most?	<input type="checkbox"/> Asian (1) <input type="checkbox"/> Black or African American (2) <input type="checkbox"/> Hispanic (3) <input type="checkbox"/> Native American or Alaskan Native (4) <input type="checkbox"/> Native Hawaiian or Pacific Islander (5) <input type="checkbox"/> Non-Hispanic (6) <input type="checkbox"/> White (7) <input type="checkbox"/> Other _____ (8) <input type="checkbox"/> Decline to respond (9)
DEM-08_8_TEXT	Demographic	With which ethnic groups do you identify most?	{Text} if "Other" was selected in DEM-08.
DEM-09	Demographic	What is your marital status?	<input type="radio"/> Married (1) <input type="radio"/> Widowed (2) <input type="radio"/> Divorced (3) <input type="radio"/> Separated (4) <input type="radio"/> Never married (5)
DEM-10	Demographic	Select any of the following with which you identify.	<input type="checkbox"/> Single parent (1) <input type="checkbox"/> Undergraduate student (2) <input type="checkbox"/> Graduate student (3) <input type="checkbox"/> Enrolled in an online university (4) <input type="checkbox"/> Enrolled in a for-profit university (5) <input type="checkbox"/> To share resources, I live with others who are not my spouse or children. (6) <input type="checkbox"/> None of the choices apply to me (7)
WAI-01	Work Arrangement	Your immediate supervisor can be described as which of the following? - Selected Choice	<input type="radio"/> Petty Officer (E4-E6) (1) <input type="radio"/> Chief Petty Officer (E7-E9) (2) <input type="radio"/> Warrant Officer (W1-W5) (3) <input type="radio"/> Junior Officer (O1-O4) (4) <input type="radio"/> Senior Officer or Flag (O5 and above) (5) <input type="radio"/> Civilian Employee (6) <input type="radio"/> Other (7)
WAI-01_7_TEXT	Work Arrangement	Your immediate supervisor can be described as which of the following? - Other - Text	{Text}

WAI-02		Work Arrangement		Is it your intention to develop a long-term or life-long career with the Navy or Navy Reserve?	<ul style="list-style-type: none"> ○ Yes, I intend to remain in the Service for a long time. (1) ○ No, I do not intend to remain in the Service for a long time. (2) ○ I don't know. I haven't given it much thought or haven't thought about it. (3) ○ I don't know. I thought about it but I haven't decided. (4)
WAI-03		Work Arrangement		Before 2020, what was your current work arrangement?	<ul style="list-style-type: none"> ○ On-site, 100% of my time (1) ○ Mostly On-site, Sometimes Remotely (2) ○ On-site & Remotely, Evenly (3) ○ Mostly Remotely, Sometimes On-site (4) ○ Remotely, 100% of my time (5)
WAI-04		Work Arrangement		Today, what is your current work arrangement?	<ul style="list-style-type: none"> ○ On-site, 100% of my time (1) ○ Mostly On-site, Sometimes Remotely (2) ○ On-site & Remotely, Evenly (3) ○ Mostly Remotely, Sometimes On-site (4) ○ Remotely, 100% of my time (5)
WAI-05		Work Arrangement		Regardless of your personal situation, qualifications, education, money, family circumstances, etc.: Would you be interested in cross-rating to a cybersecurity rating if it were offered to you?	<ul style="list-style-type: none"> ○ No. I'm not interested. (1) ○ No. I am interested in or currently working toward a career in cybersecurity, but I don't want one in the Navy. (2) ○ Yes. I'm interested. (3) ○ Yes. I am a drilling Reservist already with a civilian career in cybersecurity. (4) ○ Yes. I am a drilling Reservist working toward a cybersecurity civilian career. (5) ○ Yes. I am a Regular sailor or TAR with plans to leave the Navy and work or working toward a cybersecurity civilian career. I would like to stay Navy and serve in cybersecurity. (6) ○ Yes. I am a Regular sailor or TAR with plans to be a drilling Reservist and work or working toward a cybersecurity civilian career. I would like to stay Navy and serve in cybersecurity. (7)
PSV-01-V1	PSV01A	Perceived Supervisor Value	Awareness of Self & System	Demonstrates self-awareness of personal choices, biases, values, and perceptions.	<ul style="list-style-type: none"> ○ Very likely (4) ○ Likely (3) ○ Unlikely (2) ○ Very Unlikely (1)
PSV-02-V1	PSV02A	Perceived Supervisor Value	Awareness of Self & System	Demonstrates awareness of the similarities and differences between personal values and group values.	<ul style="list-style-type: none"> ○ Very likely (4) ○ Likely (3) ○ Unlikely (2) ○ Very Unlikely (1)
PSV-03-V1	PSV03A	Perceived Supervisor Value	Awareness of Self & System	Recognizes conflicting demands and values in interactions.	<ul style="list-style-type: none"> ○ Very likely (4) ○ Likely (3) ○ Unlikely (2) ○ Very Unlikely (1)

PSV-04-V1	PSV04A	Perceived Supervisor Value	Awareness of Self & System	Understands how organizational culture influences the way work is done.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-05-V1	PSV05A	Perceived Supervisor Value	Awareness of Self & System	Recognizes the value of all perspectives.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-06-V1	PSV06A	Perceived Supervisor Value	Awareness of Self & System	Identifies interconnections between parts of the organization.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-07-V1	PSV07A	Perceived Supervisor Value	Awareness of Self & System	Takes a holistic view when working.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-08-V1	PSV08A	Perceived Supervisor Value	Awareness of Self & System	Monitors environmental changes and their potential effects.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-09-V1	PSV09A	Perceived Supervisor Value	Awareness of Self & System	Treats each human being as a person with a complete set of needs important for life and work.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-10-V1	PSV10A	Perceived Supervisor Value	Awareness of Self & System	Facilitates awareness and acceptance of the present situation.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-11-V2	PSV11B	Perceived Supervisor Value	Continuous Learning & Innovation	Seeks feedback from others to learn and improve.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-12-V2	PSV12B	Perceived Supervisor Value	Continuous Learning & Innovation	Seeks out new knowledge related to environmental factors and trends that may affect the organization.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-13-V2	PSV13B	Perceived Supervisor Value	Continuous Learning & Innovation	Keeps up-to-date with new developments in relevant fields and beyond.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-14-V2	PSV14B	Perceived Supervisor Value	Continuous Learning & Innovation	Seeks learning opportunities to enhance their skills and knowledge.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-15-V2	PSV15B	Perceived Supervisor Value	Continuous Learning & Innovation	Retires outdated approaches, methods, and techniques.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-16-V2	PSV16B	Perceived Supervisor Value	Continuous Learning & Innovation	Tries new ideas and approaches.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)

PSV-17-V2	PSV17B	Perceived Supervisor Value	Continuous Learning & Innovation	Encourages responsible innovation to address collective needs.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-18-V2	PSV18B	Perceived Supervisor Value	Continuous Learning & Innovation	Uses information from literature or training on human behavior to support job functions.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-19-V3	PSV19C	Perceived Supervisor Value	Integrity	Exhibits alignment between words and behavior.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-20-V3	PSV20C	Perceived Supervisor Value	Integrity	Only promises work that can be competently performed.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-21-V3	PSV21C	Perceived Supervisor Value	Integrity	Works from the premise that the ends do not justify the means.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-22-V3	PSV22C	Perceived Supervisor Value	Integrity	Promotes ethical behavior.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-23-V3	PSV23C	Perceived Supervisor Value	Integrity	Demonstrates fairness.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-24-V3	PSV24C	Perceived Supervisor Value	Integrity	Protects confidentiality.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-25-V3	PSV25C	Perceived Supervisor Value	Integrity	Maintains security practices for sensitive information.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-26-V3	PSV26C	Perceived Supervisor Value	Integrity	Avoids conflicts of interests.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-27-V3	PSV27C	Perceived Supervisor Value	Integrity	Commits to ethical codes and principles.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-28-V3	PSV28C	Perceived Supervisor Value	Integrity	Demonstrates behaviors consistent with stated principles in the work-setting.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-29-V4	PSV29D	Perceived Supervisor Value	Courageous Leadership	Demonstrates courage to call out injustices.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)

PSV-30-V4	PSV30D	Perceived Supervisor Value	Courageous Leadership	Discusses difficult topics directly.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-31-V4	PSV31D	Perceived Supervisor Value	Courageous Leadership	Challenges the status quo and assumptions especially about workplace norms.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-32-V4	PSV32D	Perceived Supervisor Value	Courageous Leadership	Demonstrates decisiveness and confidence through clear, graceful action.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-33-V4	PSV33D	Perceived Supervisor Value	Courageous Leadership	Investigates potential issues that may have gone unnoticed by others.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-34-V4	PSV34D	Perceived Supervisor Value	Courageous Leadership	Demonstrates courage to ask questions and be open about doubts.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-35-V4	PSV35D	Perceived Supervisor Value	Courageous Leadership	Contributes to a working environment where authenticity is commonly demonstrated.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-36-V5	PSV36E	Perceived Supervisor Value	Trust & Respect	Expresses empathy to allow others to feel comfortable to express their positive and negative feelings and thoughts.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-37-V5	PSV37E	Perceived Supervisor Value	Trust & Respect	Seeks to understand and articulate what others are experiencing, emotionally and cognitively, in ways that they feel accurately portray them.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-38-V5	PSV38E	Perceived Supervisor Value	Trust & Respect	Refrains from making judgment about others.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-39-V5	PSV39E	Perceived Supervisor Value	Trust & Respect	Respects everyone including their culture and their environment.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-40-V5	PSV40E	Perceived Supervisor Value	Trust & Respect	Conveys good or bad information in a neutral and respectful manner.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-41-V5	PSV41E	Perceived Supervisor Value	Trust & Respect	Believes that everyone behaves the best they can with the resources available to them.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)

PSV-42-V5	PSV42E	Perceived Supervisor Value	Trust & Respect	Listens, speaks, and acts humbly.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-43-V5	PSV43E	Perceived Supervisor Value	Trust & Respect	Keeps the best interest of others in mind.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-44-V6	PSV44F	Perceived Supervisor Value	Diversity	Demonstrates acceptance of self and others.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-45-V6	PSV45F	Perceived Supervisor Value	Diversity	Shows respect for diverse thoughts, views, opinions, approaches, and people.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-46-V6	PSV46F	Perceived Supervisor Value	Diversity	Appreciates that every individual is unique.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-47-V6	PSV47F	Perceived Supervisor Value	Diversity	Understands that the pace of understanding, development, and change varies among individuals.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-48-V6	PSV48F	Perceived Supervisor Value	Diversity	Promotes diversity, equity, and inclusion.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-49-V6	PSV49F	Perceived Supervisor Value	Diversity	Actively engages diverse voices in the room.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-50-V6	PSV50F	Perceived Supervisor Value	Diversity	Helps others develop the skills and capacity to engage in and navigate conversations around diversity, equity, and inclusion.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-51-V7	PSV51G	Perceived Supervisor Value	Collaborative Engagement	Promotes the importance of meaningfully involving a diverse group of stakeholders.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-52-V7	PSV52G	Perceived Supervisor Value	Collaborative Engagement	Includes diverse viewpoints throughout various methods.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-53-V7	PSV53G	Perceived Supervisor Value	Collaborative Engagement	Creates varied opportunities for the expression of individual viewpoints and needs.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)

PSV-54-V7	PSV54G	Perceived Supervisor Value	Collaborative Engagement	Builds trusting environment that provide a safe space for open, honest, and transparent communication.	<ul style="list-style-type: none"> ○ Very likely (4) ○ Likely (3) ○ Unlikely (2) ○ Very Unlikely (1)
PSV-55-V7	PSV55G	Perceived Supervisor Value	Collaborative Engagement	Designs avenues to balance power and increase participation of all stakeholders, including the marginalized.	<ul style="list-style-type: none"> ○ Very likely (4) ○ Likely (3) ○ Unlikely (2) ○ Very Unlikely (1)
PSV-56-V7	PSV56G	Perceived Supervisor Value	Collaborative Engagement	Promotes an inclusive culture that recognizes, respects, and values people's differences.	<ul style="list-style-type: none"> ○ Very likely (4) ○ Likely (3) ○ Unlikely (2) ○ Very Unlikely (1)
PSV-57-V8	PSV57H	Perceived Supervisor Value	Strategic Practicality	Knows common organization elements such as mission, vision, business strategy, business models, business processes, and budget.	<ul style="list-style-type: none"> ○ Very likely (4) ○ Likely (3) ○ Unlikely (2) ○ Very Unlikely (1)
PSV-58-V8	PSV58H	Perceived Supervisor Value	Strategic Practicality	Supports others to achieve desired goals.	<ul style="list-style-type: none"> ○ Very likely (4) ○ Likely (3) ○ Unlikely (2) ○ Very Unlikely (1)
PSV-59-V8	PSV59H	Perceived Supervisor Value	Strategic Practicality	Ensures strategic alignment of individuals and group goals with the vision, mission, and values of the organization.	<ul style="list-style-type: none"> ○ Very likely (4) ○ Likely (3) ○ Unlikely (2) ○ Very Unlikely (1)
PSV-60-V8	PSV60H	Perceived Supervisor Value	Strategic Practicality	Assesses the impact of change on business results.	<ul style="list-style-type: none"> ○ Very likely (4) ○ Likely (3) ○ Unlikely (2) ○ Very Unlikely (1)
PSV-61-V8	PSV61H	Perceived Supervisor Value	Strategic Practicality	Defines clear, measurable goals and desired outcomes.	<ul style="list-style-type: none"> ○ Very likely (4) ○ Likely (3) ○ Unlikely (2) ○ Very Unlikely (1)
PSV-62-V8	PSV62H	Perceived Supervisor Value	Strategic Practicality	Chooses action most likely to achieve top priorities.	<ul style="list-style-type: none"> ○ Very likely (4) ○ Likely (3) ○ Unlikely (2) ○ Very Unlikely (1)
PSV-63-V8	PSV63H	Perceived Supervisor Value	Strategic Practicality	Ensures clarity and alignment towards long-term goal and overall strategy.	<ul style="list-style-type: none"> ○ Very likely (4) ○ Likely (3) ○ Unlikely (2) ○ Very Unlikely (1)
PSV-64-V8	PSV64H	Perceived Supervisor Value	Strategic Practicality	Encourages developing alternative approaches and solutions.	<ul style="list-style-type: none"> ○ Very likely (4) ○ Likely (3) ○ Unlikely (2) ○ Very Unlikely (1)
PSV-65-V9	PSV65I	Perceived Supervisor Value	Growth & Development	Encourages others to take responsibility for supporting personal and group development.	<ul style="list-style-type: none"> ○ Very likely (4) ○ Likely (3) ○ Unlikely (2) ○ Very Unlikely (1)

PSV-66-V9	PSV66I	Perceived Supervisor Value	Growth & Development	Recognizes the current capacity of the group when planning work.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-67-V9	PSV67I	Perceived Supervisor Value	Growth & Development	Assesses the extent that people are ready to initiate a new project.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-68-V9	PSV68I	Perceived Supervisor Value	Growth & Development	Develops others' capabilities.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-69-V9	PSV69I	Perceived Supervisor Value	Growth & Development	Enables others to initiate and execute change on their own.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-70-V9	PSV70I	Perceived Supervisor Value	Growth & Development	Helps others learn from nonproductive behaviors.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
PSV-71-V9	PSV71I	Perceived Supervisor Value	Growth & Development	Supports continued improvement of interpersonal skills.	<input type="radio"/> Very likely (4) <input type="radio"/> Likely (3) <input type="radio"/> Unlikely (2) <input type="radio"/> Very Unlikely (1)
HCS-01	HCS01	Hopeful Career State		My current work will be helpful for my future career.	<input type="radio"/> Definitely true (4) <input type="radio"/> Somewhat true (3) <input type="radio"/> Somewhat false (2) <input type="radio"/> Definitely false (1)
HCS-02	HCS02	Hopeful Career State		My current work will enable me to be a better worker in the future.	<input type="radio"/> Definitely true (4) <input type="radio"/> Somewhat true (3) <input type="radio"/> Somewhat false (2) <input type="radio"/> Definitely false (1)
HCS-03	HCS03	Hopeful Career State		I feel I am getting closer to better career opportunities.	<input type="radio"/> Definitely true (4) <input type="radio"/> Somewhat true (3) <input type="radio"/> Somewhat false (2) <input type="radio"/> Definitely false (1)
HCS-04	HCS04	Hopeful Career State		I can think of new employment options because of my current job.	<input type="radio"/> Definitely true (4) <input type="radio"/> Somewhat true (3) <input type="radio"/> Somewhat false (2) <input type="radio"/> Definitely false (1)
HCS-05	HCS05	Hopeful Career State		My current job provides resources (e.g., skill development, network, finances) for the next steps in my career journey.	<input type="radio"/> Definitely true (4) <input type="radio"/> Somewhat true (3) <input type="radio"/> Somewhat false (2) <input type="radio"/> Definitely false (1)
HCS-06	HCS06	Hopeful Career State		What I am doing now is helping me build skills and experiences for the future.	<input type="radio"/> Definitely true (4) <input type="radio"/> Somewhat true (3) <input type="radio"/> Somewhat false (2) <input type="radio"/> Definitely false (1)
HCS-07	HCS07	Hopeful Career State		What I am doing now is an important step in my career journey.	<input type="radio"/> Definitely true (4) <input type="radio"/> Somewhat true (3) <input type="radio"/> Somewhat false (2) <input type="radio"/> Definitely false (1)

HCS-08	HCS08	Hopeful Career State		What I am doing now will help me in my career journey.	<input type="radio"/> Definitely true (4) <input type="radio"/> Somewhat true (3) <input type="radio"/> Somewhat false (2) <input type="radio"/> Definitely false (1)
HCS-09	HCS09	Hopeful Career State		I am hopeful that what I am doing now will help me in my career journey.	<input type="radio"/> Definitely true (4) <input type="radio"/> Somewhat true (3) <input type="radio"/> Somewhat false (2) <input type="radio"/> Definitely false (1)
AHA-01	AHA01	Assessment of Human Agency	Intentionality	I have end results in mind before I begin something.	<input type="radio"/> Definitely true (4) <input type="radio"/> Somewhat true (3) <input type="radio"/> Somewhat false (2) <input type="radio"/> Definitely false (1)
AHA-02	AHA02	Assessment of Human Agency	Intentionality	I have specific goals in mind when I complete tasks.	<input type="radio"/> Definitely true (4) <input type="radio"/> Somewhat true (3) <input type="radio"/> Somewhat false (2) <input type="radio"/> Definitely false (1)
AHA-03	AHA03	Assessment of Human Agency	Intentionality	I have a specific purpose when I commit to something.	<input type="radio"/> Definitely true (4) <input type="radio"/> Somewhat true (3) <input type="radio"/> Somewhat false (2) <input type="radio"/> Definitely false (1)
AHA-04	AHA04	Assessment of Human Agency	Forethought	I imagine possible future events in my life.	<input type="radio"/> Definitely true (4) <input type="radio"/> Somewhat true (3) <input type="radio"/> Somewhat false (2) <input type="radio"/> Definitely false (1)
AHA-05	AHA05	Assessment of Human Agency	Forethought	I forecast my future in terms of the next several years.	<input type="radio"/> Definitely true (4) <input type="radio"/> Somewhat true (3) <input type="radio"/> Somewhat false (2) <input type="radio"/> Definitely false (1)
AHA-06	AHA06	Assessment of Human Agency	Forethought	I imagine various opportunities that might be open to me in five years.	<input type="radio"/> Definitely true (4) <input type="radio"/> Somewhat true (3) <input type="radio"/> Somewhat false (2) <input type="radio"/> Definitely false (1)
AHA-07	AHA07	Assessment of Human Agency	Self-Reactiveness	I actively keep myself on track to complete my plans.	<input type="radio"/> Definitely true (4) <input type="radio"/> Somewhat true (3) <input type="radio"/> Somewhat false (2) <input type="radio"/> Definitely false (1)
AHA-08	AHA08	Assessment of Human Agency	Self-Reactiveness	I monitor my plans and actions so my goals will be met.	<input type="radio"/> Definitely true (4) <input type="radio"/> Somewhat true (3) <input type="radio"/> Somewhat false (2) <input type="radio"/> Definitely false (1)
AHA-09	AHA09	Assessment of Human Agency	Self-Reactiveness	I keep myself motivated to reach my goals.	<input type="radio"/> Definitely true (4) <input type="radio"/> Somewhat true (3) <input type="radio"/> Somewhat false (2) <input type="radio"/> Definitely false (1)
AHA-10	AHA10	Assessment of Human Agency	Self-Reflectiveness	I think about why I am passionate about certain things.	<input type="radio"/> Definitely true (4) <input type="radio"/> Somewhat true (3) <input type="radio"/> Somewhat false (2) <input type="radio"/> Definitely false (1)
AHA-11	AHA11	Assessment of Human Agency	Self-Reflectiveness	I think about the meaning of my life pursuits.	<input type="radio"/> Definitely true (4) <input type="radio"/> Somewhat true (3) <input type="radio"/> Somewhat false (2) <input type="radio"/> Definitely false (1)

AHA-12	AHA12	Assessment of Human Agency	Self-Reflectiveness	I evaluate my motivations for certain goals.	<ul style="list-style-type: none"> ○ Definitely true (4) ○ Somewhat true (3) ○ Somewhat false (2) ○ Definitely false (1)
WKE-01	WKE01	Utrecht Work Engagement	Ultra-Short UWES	At my work I feel bursting with energy.	<ul style="list-style-type: none"> ○ Never (1) ○ Almost never—A few times a year or less (2) ○ Rarely—Once a month or less (3) ○ Sometimes—A few times a month (4) ○ Often—Once a week (5) ○ Very often—A few times a week (6) ○ Always—Every day (7)
WKE-02	WKE02	Utrecht Work Engagement		At my job, I feel strong and vigorous.	<ul style="list-style-type: none"> ○ Never (1) ○ Almost never—A few times a year or less (2) ○ Rarely—Once a month or less (3) ○ Sometimes—A few times a month (4) ○ Often—Once a week (5) ○ Very often—A few times a week (6) ○ Always—Every day (7)
WKE-03	WKE03	Utrecht Work Engagement	Ultra-Short UWES	I am enthusiastic about my job.	<ul style="list-style-type: none"> ○ Never (1) ○ Almost never—A few times a year or less (2) ○ Rarely—Once a month or less (3) ○ Sometimes—A few times a month (4) ○ Often—Once a week (5) ○ Very often—A few times a week (6) ○ Always—Every day (7)
WKE-04	WKE04	Utrecht Work Engagement		My job inspires me.	<ul style="list-style-type: none"> ○ Never (1) ○ Almost never—A few times a year or less (2) ○ Rarely—Once a month or less (3) ○ Sometimes—A few times a month (4) ○ Often—Once a week (5) ○ Very often—A few times a week (6) ○ Always—Every day (7)
WKE-05	WKE05	Utrecht Work Engagement		When I get up in the morning, I feel like going to work.	<ul style="list-style-type: none"> ○ Never (1) ○ Almost never—A few times a year or less (2) ○ Rarely—Once a month or less (3) ○ Sometimes—A few times a month (4) ○ Often—Once a week (5) ○ Very often—A few times a week (6) ○ Always—Every day (7)
WKE-06	WKE06	Utrecht Work Engagement		I feel happy when I am working intently.	<ul style="list-style-type: none"> ○ Never (1) ○ Almost never—A few times a year or less (2) ○ Rarely—Once a month or less (3) ○ Sometimes—A few times a month (4) ○ Often—Once a week (5) ○ Very often—A few times a week (6) ○ Always—Every day (7)
WKE-07	WKE07	Utrecht Work Engagement		I am proud of the work I do.	<ul style="list-style-type: none"> ○ Never (1) ○ Almost never—A few times a year or less (2) ○ Rarely—Once a month or less (3) ○ Sometimes—A few times a month (4) ○ Often—Once a week (5) ○ Very often—A few times a week (6) ○ Always—Every day (7)

WKE-08	WKE08	Utrecht Work Engagement	Ultra-Short UWES	I am immersed in my work.	<ul style="list-style-type: none"> ○ Never (1) ○ Almost never—A few times a year or less (2) ○ Rarely—Once a month or less (3) ○ Sometimes—A few times a month (4) ○ Often—Once a week (5) ○ Very often—A few times a week (6) ○ Always—Every day (7)
WKE-09	WKE09	Utrecht Work Engagement		I get carried away when I am working.	<ul style="list-style-type: none"> ○ Never (1) ○ Almost never—A few times a year or less (2) ○ Rarely—Once a month or less (3) ○ Sometimes—A few times a month (4) ○ Often—Once a week (5) ○ Very often—A few times a week (6) ○ Always—Every day (7)

* Schaufeli & Bakker's (2003) Utrecht Work Engagement Survey (UWES) can be used free of charge for non-commercial scientific work and does not require additional permission for use. Permission confirmed via personal correspondence. (See: https://www.wilmarschaufeli.nl/publications/Schaufeli/Tests/UWES_GB_17.pdf). Verbal permission obtained from Hyung Joon Yoon, Ph.D. to use other instruments.

** The dataset is considered a government record pursuant to 44 U.S.C. § 3301, and managed in accordance with 36 C.F.R. Part 1220. Interested parties seeking to obtain a copy of the dataset may submit a Freedom of Information Act (FOIA) request at <https://www.foia.gov> and direct their request to the Department of the Navy and reference the study's approval number NSP5351.2.

Appendix E

Covariance Matrix: Analysis A

	PSVPL1	PSVPL2	PSVPL3	AHAINT	AHAFOR	AHASRE	AHASRF	HCS02	HCS04	HCS05	WKE01	WKE03	WKE08
PSVPL1	0.516												
PSVPL2	0.532	0.587											
PSVPL3	0.536	0.571	0.588										
AHAINT	0.022	0.024	0.029	0.326									
AHAFOR	0.026	0.033	0.035	0.206	0.433								
AHASRE	0.041	0.039	0.047	0.264	0.276	0.529							
AHASRF	0.032	0.032	0.032	0.228	0.285	0.280	0.478						
HCS02	0.244	0.267	0.263	0.065	0.139	0.137	0.111	1.158					
HCS04	0.144	0.148	0.134	0.049	0.127	0.097	0.040	0.545	1.234				
HCS05	0.221	0.240	0.238	0.048	0.101	0.139	0.056	0.625	0.459	1.169			
WKE01	0.502	0.538	0.546	0.229	0.239	0.392	0.267	0.877	0.437	0.802	3.296		
WKE03	0.536	0.577	0.597	0.200	0.214	0.389	0.268	0.855	0.516	0.750	2.569	3.806	
WKE08	0.304	0.322	0.320	0.140	0.139	0.228	0.153	0.695	0.321	0.431	1.470	1.820	3.879

Appendix F

Covariance Matrix: Analysis B

	PSV01A	PSV05A	PSV08A	PSV11B	PSV19C	PSV29D	PSV41E	PSV55G	PSV65I	WKE01	WKE02	WKE03
PSV01A	0.839											
PSV05A	0.584	1.064										
PSV08A	0.496	0.593	0.961									
PSV11B	0.584	0.746	0.593	1.206								
PSV19C	0.569	0.680	0.578	0.680	1.029							
PSV29D	0.547	0.654	0.556	0.654	0.637	1.146						
PSV41E	0.437	0.522	0.444	0.523	0.509	0.489	0.877					
PSV55G	0.570	0.682	0.579	0.682	0.664	0.639	0.510	0.970				
PSV65I	0.455	0.544	0.462	0.544	0.503	0.509	0.407	0.531	0.971			
WKE01	0.486	0.581	0.494	0.581	0.566	0.544	0.435	0.568	0.453	3.296		
WKE02	0.506	0.605	0.514	0.605	0.590	0.567	0.453	0.591	0.472	2.510	3.644	
WKE03	0.520	0.622	0.528	0.622	0.606	0.582	0.465	0.607	0.485	2.579	2.686	3.806

Appendix G

Results of Post-hoc Monte Carlo Estimation of Sample Size and Power (Excerpts)

SUMMARY OF ANALYSIS

Number of groups	1
Number of observations	594
Number of replications	
Requested	5000
Completed	5000
Value of seed	1234
Number of dependent variables	101
Number of independent variables	0
Number of continuous latent variables	4

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MODEL FIT INFORMATION

Number of Free Parameters	309
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Loglikelihood

H0 Value

Mean	-71564.484
Std Dev	176.229
Number of successful computations	5000

H1 Value

Mean	-68927.006
Std Dev	185.191
Number of successful computations	5000

Information Criteria

Akaike (AIC)

Mean	143746.969
Std Dev	352.459
Number of successful computations	5000

Bayesian (BIC)

Mean	145102.514
Std Dev	352.459

Number of successful computations 5000

Sample-Size Adjusted BIC ($n^* = (n + 2) / 24$)

Mean 144121.534
 Std Dev 352.459
 Number of successful computations 5000

Chi-Square Test of Model Fit

Degrees of freedom 4943
 Mean 5274.956
 Std Dev 107.640
 Number of successful computations 5000

RMSEA (Root Mean Square Error Of Approximation)

Mean 0.010
 Std Dev 0.002
 Number of successful computations 5000

CFI/TLI

CFI

Mean 0.988
 Std Dev 0.004
 Number of successful computations 5000

TLI

Mean 0.988
 Std Dev 0.004
 Number of successful computations 5000

SRMR (Standardized Root Mean Square Residual)

Mean 0.030
 Std Dev 0.001
 Number of successful computations 50

VITA

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Professional Experience

- Senior HR Officer (Change Management & Policy Analysis), Force Management, MyNavy HR Transformation and Reserve Personnel Plans and Policy, Office of the Chief of Navy Operations (CNO) for Manpower, Personnel, and Training (OPNAV N13R), Naval Support Facility Arlington, VA
- Board Member and Vice President of Technology, National Society for Hispanic MBAs (NSHMBA) Philadelphia, Philadelphia, PA
- Director, Human Resources Programs, Rodale Inc., Emmaus, PA
- US Human Resources Operations Manager, Applied Materials, Inc., Santa Clara, CA
- Deputy Director, Human Resources Center of Excellence (HRCOE), Graduate School of Business and Public Policy (GSBPP), Naval Postgraduate School, Monterey, CA

Education & Professional Certifications

- Doctor of Philosophy (PhD)—Workforce Education and Development (WFED)(HRD/OD), Pennsylvania State University, University Park, PA, 2023
- Master of Professional Studies (MPS), Organization Development (OD) and Change, Pennsylvania State University, University Park, PA, 2016
- Master of Business Administration (MBA), University of Phoenix, Misawa Air Force Base, Misawa, Japan, 2003
- Bachelor of Science (BS), Biology, Holy Names University, Oakland, CA, 1995
- Senior Professional in Human Resources (SPHR), Human Resources Certification Institute (HRCI), Alexandria, VA
- Society for Human Resources Management, Senior Certified Professional (SHRM-SCP), Society for Human Resources Management (SHRM), Alexandria, VA

Publications

Farley, S. B., Yoon, H. J., & Padilla, C. (2021). What values will define and guide OD in the future? *Organization Development Review*, 53(1), 27–34.

Yoon, H. J., Farley, S. B., & Padilla, C. (2020). Organization Development values from a future-oriented perspective: An international Delphi study. *Journal of Applied Behavioral Science*, 57(3), 323–349. <https://doi.org/10.1177/0021886320957351>