

THE IMPACT OF DEGREE OF VIRTUALNESS ON PERFORMANCE APPRAISAL
SCORES AND ORGANIZATIONAL JUSTICE IN THE
U.S. NAVY RESERVES

By

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Abstract

With advances in information and communication technology, many organizations no longer require employees to work in the same location as their leader. This results in employees having different amounts of face-to-face and electronic-mediated communication, or different *degrees of virtualness*, with the leader. While virtualness can provide benefits to organizations, virtual workers' contributions may not be properly recognized. This dissertation investigated the relationship between the degree of virtualness and both performance-appraisal scores and subordinates' perceptions of the fairness of the performance appraisals in the Navy Reserve. The study also examined the mediating effects of Leader-Member Exchange (LMX), a measure of relationship quality between the leader and subordinate. Finally, the study investigated leader inclusiveness as a moderator between the degree of virtualness and LMX, performance appraisal scores, and perceptions of organizational justice, suggesting that leaders who foster inclusiveness may mitigate the potentially harmful effects of virtualness. Results show that the degree of virtualness is, in fact, negatively related to performance appraisal scores and organizational justice through the mediation of LMX. Control variables showed that women were rated lower than men and supervisors were more likely to communicate performance evaluations in person when scores were higher. Interestingly, tenure with supervisors had a negative effect but tenure in the unit had a positive effect. This study contributes to the literature degree of virtualness, performance appraisals, organizational justice, and leader inclusiveness. Managerial implications and future research opportunities are also discussed. Findings suggest the Navy Reserve should consider evaluating virtual workers as a separate category.

Keywords: virtual work, degree of virtualness, performance appraisals, LMX, organizational justice, inclusiveness, Navy Reserve

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CHAPTER 1 – INTRODUCTION

Since Jack Nilles coined the term “telecommuting” in 1975 to describe alternatives to working in the traditional office, some organizations have offered the opportunity to perform work away from the office as a way to improve the work-life balance for employees and increase commitment to the organization (as cited in Redman et al., 2009). The opportunity to spend less time commuting and reduce expenses related to transportation and work location is a welcome benefit to many workers (Pérez et al., 2002). While the flexibility to work remotely has benefited both the organization and employees, not having performance be fairly assessed using the same criteria as their in-office coworkers can demotivate remote workers and reduce their commitment to the organization (Ushakov, 2021). Biased performance appraisals can become a self-fulfilling prophecy as virtual workers’ ensuing lack of motivation to apply their best efforts to job performance might lead to lower performance assessments and dissatisfaction with the organization in later time periods (Seifert et al., 2016).

“Teleworkers” refers to workers who complete job responsibilities at a different location than the main office but can work in the main office when necessary (Rozier, 2022). This is different than remote workers, who permanently work away from the main office and do not have the opportunity to work at a company-sponsored location, and from telecommuters, who have the opportunity to work in the office but choose to avoid commuting to and from work (Nicklin et al., 2016). While each term represents a different description, telework has been

referred as telecommuting, teleworking, remote work, virtual work, home-work, distance work, distributed work, and flexible work by various authors (Lautsch et al., 2009; Morganson et al., 2010; Nicklin et al., 2016). The commonality across the listed descriptions is that the worker is performing job responsibilities at an alternate worksite away from the central office location (Bentley et al., 2016; Department of Defense, 2020). In this study, teleworkers are workers who perform assigned responsibilities at an alternate worksite and use some form of information and communications technology to accomplish their work (Lamond, 2008).

Teleworkers often experience mental stress and feelings of professional isolation (Vander Elst et al., 2017), lower salary growth and fewer career opportunities (Golden & Eddleston, 2020), and perceive that there is bias with working away from the office (Munsch et al., 2014). Being isolated is a concern to teleworkers when they observe that coworkers who are in the office receive preferred assignments, are invited to more meetings, and have better relationships with others on the team (Morrison-Smith & Ruiz, 2020). The belief of being disadvantaged is consistent with a 2021 survey of U.S. workers that indicated two-thirds of the respondents believed having less interaction with their coworkers and supervisors and less face time in the office lowered the perception of their value in the organization (Rodriguez & Townsend, 2021). The disparity between how in-office workers and teleworkers are assessed creates a perception of unfair treatment and bias against teleworkers (Boyarsky, 2021; Johanson, 2021).

This research examines the impact of employees' degree of virtualness on performance appraisal scores and on employees' perceptions of the fairness of the performance appraisals. The quality of the relationship between an employee and supervisor was examined to determine its impact on appraisal scores, employee and supervisors' perception of performance, and employee perceptions of fairness of the performance appraisal. Because isolation is a concern

for remote workers, the employee's perception of the supervisor's effort to foster inclusivity was considered as a moderator of the relationship between degree of virtualness and the quality of the relationship between the supervisor and worker, performance appraisal scores (archival performance appraisals, supervisors' perceptions, and employee perceptions), and employee perceptions of the fairness or "organizational justice" (which includes distributive, procedural, interpersonal, and informational justice (Colquitt, 2001) related to the performance appraisal. The results of the study provide insights on how to improve teleworkers' perceptions of fairness in performance appraisals and suggest supervisor actions to foster equity in the evaluation of remote workers' performance.

Increased Use of Remote Work

The American Time Use Survey (ATUS) was initiated by the U.S. Bureau of Labor Statistics in 2003 to provide estimates of how, where, and with whom Americans spend their time. By collecting the data on a continual basis, the information can be used to measure changes in how Americans spend time working or performing leisure activities (U.S. Bureau of Labor Statistics, 2011). One metric that the ATUS captures is the primary place where workers perform their job – at the workplace, at home, or at another location.

From 2003 to 2017, the Bureau of Labor Statistics identified that more workers were working from a location other than the office. In 2003, ATUS indicated that 87.2% of workers were performing work at the workplace (U.S. Bureau of Labor Statistics, 2009), but by 2019 the percentage of workers performing work at the workplace had decreased to 83.7% (U.S. Bureau of Labor Statistics, 2021). This increasing trend in working away from the office was confirmed by a recent Gallup poll (Hickman & Robison, 2020) and the PricewaterhouseCoopers U.S.

Remote Work Survey (PwC, 2021) that show organizations increasingly support working outside of the traditional workplace.

Until 2013, the Bureau of Labor Statistics categorized workers as either working in the office or working from home. Due to organizations offering more flexibility to employees, the Bureau of Labor Statistics began recognizing that employees could work both from the office and from a different location. Employees who always work in the office have continuous face-to-face contact, employees who split their time in the office and at a different office location practice a hybrid version of being virtual, and employees who are never in the office are considered as purely virtual (Fiol & O'Connor, 2005). In order for workers to continue to work and to communicate while away from the office, companies have invested in various forms of computer-mediated communication (CMC) to eliminate barriers of time and geographic distance and to allow workers the option to use the communication method that is appropriate to convey the necessary information (Ean, 2011).

How Workers Complete Work Virtually

Computer-mediated communication (CMC) is the term used to represent the various forms of communication through networked computers (Cleveland, 2020). Ever since the first electronic message was sent in 1969 over ARPANET (Advanced Research Projects Agency Network), the predecessor of the internet, communication technology has advanced to include e-mails, videoconferencing, social network services, instant messaging, text messaging, and online forums (Thorne, 2008). CMC now allows workers to communicate with coworkers, supervisors, and teams using synchronous communication methods (phone, videoconferencing, text messages) or by asynchronous communication methods (e-mails, chats, and text messages). The advances in communication technology allowed workers to perform work responsibilities

without being in the traditional office.

With the advances in information technology and CMC, work can be completed from any location. Being connected to the internet is not a barrier for most workers since, as of January 2021, 4.66 billion of the total world population of 7.9 billion, 58.9%, utilize the internet to either work, perform leisure activities, or socialize (Statista, 2021). As long as an internet connection can be made, many workers could perform their work responsibilities as if they were located in the office (Allen et al., 2015).

Degree of Face-To-Face Interaction Creates Disparity in The Workplace

When working away from the office is an option, workers who have more face-to-face interactions with their managers may be rewarded more than workers who have fewer face-to-face interactions. Virtual workers who produce quality deliverables, work long hours, or take on extra work may not see their contributions resulting in the outcomes they expect (Cristea & Leonardi, 2019). Managers often reward workers they see in the office with higher pay, more promotion opportunities, and higher performance evaluations (Elsbach & Cable, 2012).

The disparity in rewards between remote workers and non-remote workers is sometimes, but not always, intentional. Google, Facebook, and Twitter reduced pay for individuals who relocated to locations with lower costs of living during the COVID-19 pandemic, but unintentional actions may be the result of unconscious bias on the part of managers (Elsbach & Cable, 2012; Gorbatov & Lane, 2018; Kaye, 2021). Cognitive bias in performance appraisals for remote workers stems from manager and coworker beliefs that individuals who show up at the office are more committed to the job and to the organization (Cristea & Leonardi, 2019; Munsch et al., 2014; Posseriede et al., 2014).

The U.S. Navy Reserve

One organization that has made extensive use of performing work virtually is the U.S. Navy Reserve, hereafter referred to as the Navy Reserve. Navy Reserve recruiters are tasked to enlist citizens and prior military members for their skillsets, certifications, and job experiences they have attained and not to specifically fill a vacancy at a particular location. Because Reservists are considered “part-time” workers in the Department of Defense, accommodations are made to allow Reservists to focus on their civilian employment, to continue their college education, or to address family matters (Department of Defense, n.d.). Every state in the U.S. has a Navy Reserve Center that allows a Reservist to perform their military requirements without relocating to their assigned Reserve organization or “Reserve Unit.” Each Reserve Unit is part of a larger organization referred to as a Command. For example, Navy Cargo Handling Battalion TEN Air Cargo Company is a Reserve Unit that is part of Navy Cargo Handling Battalion TEN that is a Command consisting of multiple Reserve units. The Reserve units are assigned to a specific Navy Reserve Center that serves as a location where Reservists are able to perform military responsibilities. Some Reserve units are specialized, such as Aviation Squadrons, that require Reservists to perform military responsibilities at a different location because the equipment needed for training is not available at the Navy Reserve Center.

The U.S. Navy Reserve had its earliest formation during the American Revolution when Citizen Sailors manned sailing vessels to increase the number of ships in the Continental Navy. The use of non-military individuals was a benefit to the new American government, which incurred debt supporting the military during the conflict. When the American Revolution ended, the Citizen Sailors were no longer needed in the military, and the government was no longer required to continue providing employment compensation. In 1915, Congress appropriated

funding to establish the Navy Reserve Force, which eventually became the present-day Navy Reserve. The concept still remains the same – the Navy Reserve is a manning force comprised of private citizens who revert to being military members during times of need.

There are different categories of Navy Reservists: Selected Reserve, Individual Ready Reserve, and Retired Ready Reserve. The Selected Reserve are further classified by the amount of support being provided – monthly or daily. Drilling Reservists provide monthly support and focus on training to be prepared for humanitarian assistance, disaster relief, and other contingencies. These Drilling Reservists may or may not be co-located with their supervisors and receive compensation for the support provided. Full-Time Support (FTS) Reservists are Reservists who provide daily work support and have high face-to-face interactions with their supervisor. The FTS Reservists receive a performance appraisal that reflects a high degree of interaction and are compensated as salaried workers similar to active-duty military personnel. Individual Ready Reserve are Reservists who are not routinely providing support but are still affiliated with the Navy Reserve. These Reservists have very little interaction with their supervisor and do not receive regular performance appraisals. The Retired Ready Reserve are Reservists who no longer provide support and are either receiving retirement pay or are waiting for retirement pay to commence. The Reservists in this category do not receive a performance appraisal. Drilling Reservists will be the focus of this study, and the term “Reservist” will refer to the Drilling Reservist in this paper.

When a Reservist participates in supporting military responsibilities, they commit 16 hours over one weekend a month to train and maintain readiness. The job that a Reservist holds is called a billet. Reservists are assigned a list of tasks to complete during those 16 hours, such as required training delineated by the Navy Reserve, required training by the Reserve Center where

the Reservist is completing the military responsibilities, required training by the assigned Reserve organization, administrative requirements, and maintaining readiness to deploy for military operations. The majority of the 16 hours is allocated to resolve deficiencies that arise on a monthly basis and to complete administrative requirements. The deficiencies occur as a result of a change in medical status, such as expired vaccinations or expired dental examinations. To address something as simple as receiving a vaccination, a Reservist may need to allocate several hours to travel to a medical facility, wait for a medical provider to become available, and then travel back to the Reserve unit. This results in very little opportunity for Reservists to focus on tasks that contribute towards the Reservist's job if recalled to active duty.

Reservists are able to further receive training and on-the-job experience when performing a required two-week support with the military organization each year. While the two-week exposure is beneficial to the Reservist and the supported military organization, the supervisor is often not able to observe the Reservist's performance because each Reservist, including the supervisor, is assigned a specific requirement to support. Instead of being around other Reservists from the same Reserve unit, Reservists may be in a situation where they perform the two-week support alone and then get replaced by another Reservist fulfilling their two-week support.

Some Reservists are assigned to a Reserve unit near their home and report to that unit in-person during the 16 hours per month and two weeks a year they work. Other Reservists are assigned to a Reserve unit that would be a long drive or flight from their home. This can happen because the Reservist's skills fit the needs of that distant Reserve unit in the event that the Reserve unit was required to deploy and perform its assigned mission. For example, a particular Navy unit may need truck drivers or heavy-equipment operators. Furthermore, Reservists can

change positions every two to five years, which can result in the Reservist being assigned to a Reserve unit that is far from their home.

The Navy Reserves does not require Reservists to relocate to be near their assigned Reserve unit as the intent is to promote military service while Reservists pursue a full-time education, a civilian career, or focus on family life (Naval Reserve, 2022). Reservists who are within six months of ending a Reserve assignment are required to apply for a new assignment that balances their career interest, family responsibilities, work/school commitments, and proximity to their residence. They can reapply for the same assignment if no other Reservist has requested to be assigned to that billet or request an assignment to a different Reserve unit that aligns with their interest. During the assignment application period, Reservists have the option to request performing their 16 hours a month at the Naval Reserve Center closest to their home or commit to travelling to the assigned Reserve unit. Requesting to telecommute increases the risk of not being selected for an assignment, and not being selected for a Reserve assignment carries the risk of changing a Reservist's category from a Selected Reserve, where pay is received for military support, to an Individual Ready Reserve, where no pay is received.

During the six months before the Reserve assignment ends, Reservists are required to apply each quarter for a minimum of one Reserve assignment and can request a maximum of seven potential selections. The assignments are available because other Reservists are reaching the end of their tenure. The minimum application of one assignment each quarter exists to ensure the Reservist can be selected, as failure to submit for at least one Reserve assignment results in the automatic change of category from Selected Reserve to Individual Ready Reserve. The available assignments during the quarter may not be of interest to the Reservist due to location, incompatible career desires, or support responsibilities, but a request for assignment has to be

made by the Reservist. Conversely, for the Reserve unit that has an assignment available during the quarter, a selection from the available Reservists that are interested in the assignment also has to be made by the Reserve unit's leadership. This process is to ensure vacancies are minimized as much possible. However, it creates situations where Reservists are selected for assignments at Reserve units far from their homes.

Many Reservists choose to report to the closest Naval Reserve Center or complete their assignments virtually rather than traveling to a distant Reserve unit. This is a common choice because travel costs are not reimbursed, or because family issues, such as being a single parent or a caretaker, prevent travel. If a Reservist is not selected for a new assignment by the end of their tenure, they can be involuntarily reassigned by the Navy Reserve. This is not an ideal as situation as neither the Reservist nor the Reserve unit has input into the result. To make the most of the situation, an agreement between the Reservist and the Reserve unit is made that both consider to be reasonable. The outcome may be that the Reservist schedules the two-week support in three-day increments at the Reserve unit since funding for travel expenses is included as part of the two-week support (a Reservist performing four three-day assignments would receive funding for travel four times). Alternatively, the Reservist might commit to complete training by specific months to continue to work remotely. The situation is a win-win for the Reservist who is not required to travel over a weekend and can be more productive working from home, while the Reserve unit benefits from increasing readiness as long as the training is completed. Thus, some Reservists work in-person all of the time, some work remotely all of the time, whether from home or from a different Navy organization than their assigned unit, and some work remotely a portion of the time and in-person a portion of the time.

Reservists in supervisory roles are typically not offered the option to work remotely.

This is because they are assigned to a Reserve unit for the purpose of providing career guidance, mentoring on the Navy's core values, and, at times, disciplining or counseling Reservists to correct behavior.

The Navy Reserve is a good context in which to study the influence of the degree of virtualness on performance appraisal scores and fairness in performance evaluations, for a number of reasons. One is that 42.7% of the Navy Reserve teleworks. This is often because the Reservists are not located within 100 miles of the Reserve unit they are assigned to. Another reason is that the Reserve requires regular performance appraisals, which are used by others in the Reserve to make selections for promotion to higher ranks and for special programs. Completed performance appraisals are available for review since Reserve units maintain them for two years. Finally, the study is important to the Reserve. Navy Reserve senior leadership has concerns that teleworkers' performance may not be being appraised on an equitable basis with non-teleworkers, but they have not had data to support this. The use of the Navy Reserve in this study would address the concern.

Frequency and increase of virtualness in the Navy Reserve. In June 2019, 39.2% of Reservists the Navy Reserve were not co-located with their supervisors, and the percentage increased to 42.7% by March 2022 (Chief of Naval Reserve Force Command, 2022). With a personnel force of approximately 58,000, the increase represents 2,030 additional Reservists not performing military duty with their assigned Reserve unit.

The driver for having large number of workers not co-located with supervisors was the goal of having 95% of the Navy Reserve force focused on increasing the lethality of its support capabilities, surge capacity, and a scalable combat-power to transition from peacetime operations to military conflict (Department of the Navy, 2018b). The goal represented the Navy Reserve's

support for the 2018 National Defense Strategy, which is updated every four years and provides long-term guidance to individual Department of Defense organizations on the national goals and objectives (Mattis, 2018). The 2019 and 2020 personnel changes reflect the outcome of the Navy Reserve making adjustments to support the 2018 National Defense Strategy that reduced the number of people in the organization. Unlike public corporations that can hire and fire as needed, the military has restrictions that limit the size of its population, and personnel adjustments often take several years to complete.

The Navy Reserve tasked its sub-organizations to conduct a top-down review of personnel assignments to identify low-value capabilities and administrative support roles that could be eliminated or consolidated (McCollum, 2019). The review identified some Reservists who then had their assignment eliminated or were reassigned to a different Reserve unit. This resulted in an increase of Reservists who were not located with their assigned Reserve unit because they were now reassigned to a different Reserve unit farther from home and would not be able to have face-to-face interaction with their new supervisor.

Once COVID-19 was identified as a pandemic by the World Health Organization in March 2020, urgent and aggressive action was needed to reduce the infection rate (Ghebreyesus, 2020). To minimize the spread of COVID-19, the Navy Reserve directed all Reservists to work remotely beginning in March 2020. With travel restrictions and limitations on in-person interactions mandated by the Department of Defense, the Navy Reserve was challenged to provide trained Reservists for contingencies, such as humanitarian crisis, disaster relief, and armed conflict. Prior to the COVID-19 pandemic, the Navy Reserve was already operating under the three categories of employment – some Reservists in the assigned unit always met in person and had face-to-face interactions, some Reservists in the assigned unit always met by Computer-

Mediated Communication (CMC) and were purely virtual, and some Reservists were not located with the assigned unit but were able to periodically meet in person under the hybrid-virtual category.

When COVID-19 vaccinations became available in December 2020, Reservists who received vaccinations were allowed to resume normal activities, but Reserve units were allowed discretion for resuming face-to-face contact because state and local government mandates varied from location to location. Some Reservists requested to continue working remotely unless in-person meetings were required, such as for physical fitness tests and medical examinations. Reservists' desire to continue working remotely is consistent with a Gallup 2021 survey that found that 91% of employees working remotely wanted to continue working away from the office after the pandemic (Saad & Wigert, 2022). Prior to the COVID-19 pandemic, it was the Navy Reserve bureaucracy of assignments that determined if a Reservist was able to work remotely from their assigned unit, but due to COVID-19 concerns, most Reservists were now able to make their own decisions about working remotely (Schommer, 2020).

Performance Appraisals in the Navy Reserve

Performance appraisals in the Navy Reserve involve a formal process that has both subjective and objective inputs. Reservists are assessed on subjective soft skills such as future leadership potential, how well they manage their career development, and the ability of the Reservist to demonstrate the core values of honor, courage, and commitment (Department of the Navy, 2019). For objective inputs, Reservists are assessed on requirements such as the completion of required training, physical-fitness standards, medical readiness, and security level (Department of the Navy, 2019). The performance-appraisal process has rigid instructions for the content that must be followed or encounters the risk that the performance appraisal gets rejected

by Navy Personnel Command (Department of the Navy, 2019). The main two purposes for performance appraisals in the Navy Reserve are to provide feedback on the Reservist's performance during the review time frame, and to communicate to third parties (such as Promotion Boards) an assessment of Reservists compared to their peers. The performance assessments are used as input for selection into special programs, for promotion opportunities, and selection for leadership positions.

Reservists understand the importance of the performance appraisal and care that the appraisal outcome is an accurate representation of their performance (Boswell & Boudreau, 2000) and that the process used to generate the appraisal is also fair (Taylor, Tracy, Renard, Harrison, & Carroll, 1995). The Navy Reserve requires a Reservist receive an appraisal during specific time periods (every 12-15 months) or during specific events. Specific events include when a Reservist transfers to a new organization, when changing military status from being a Reservist to a different category, or when required to inform a special circumstance, such as misconduct or when corrective actions were completed to address a previous negative appraisal.

The need for fairness in Drilling Reservists' performance appraisals. How performance appraisals impact Reservists in the Navy Reserve depends on their rank. For junior enlisted personnel, the performance appraisals are converted to a numerical score and used with a knowledge-exam score as the major inputs to determine promotion. For promotion opportunities at the senior-enlisted and officer ranks, the performance appraisal is used as input by selection-board members. The selection-board members review the written assessment provided by the supervisor and a comparison of how the supervisor rated the Reservist versus their peers. There is no rubric for this appraisal; supervisors make the assessment based on their performance expectations. The same process is used for selection to special programs and for

leadership positions. Due to the number of Reservists being considered and a limited amount of time available for individuals to participate as selection-board members, as little as 30 seconds is used to decide whether or not a Reservist gets selected (Navy Personnel Command, personal communication, October 18, 2021). To ensure the performance appraisal can be properly used to make career decisions impacting the Reservist, the performance appraisal needs to reflect an accurate assessment and be accepted as fairly generated (Jawahar, 2007; Rubel & Kee, 2015).

A Navy Reserve performance evaluation is completed through a formal process and is limited to one sheet that has specific requirements on the front and back. To ensure that the process used to generate the performance assessments is fair, the Navy Reserve published a 200-page instruction guide on how the assessment should be conducted, what information can and cannot be included, who can provide input on the performance assessment, and actions Reservists can take if they believe the performance assessment is inaccurate (Department of the Navy, 2019). Reservists receive a performance score that is used as a comparison to their peers, and supervisors are limited to 18 lines of text to describe in detail the performance over the past year.

Does being virtual influence performance appraisals for a Reservist? In the Navy Reserve, the challenge of providing fair and accurate performance evaluations is even greater than in other organizations because Reservists have such a limited opportunity for interaction. Reservists complete 16 hours of military responsibilities over one weekend each month, and supervisors have to allocate their time and attention to all members of the organization within those 16 hours. Reservists who are physically present have an opportunity to have both formal and informal interactions with their supervisor and peers. Formal interactions occur in the office and are planned around work schedules. Informal interactions can occur in the hallways, in the

office, or in common areas. Reservists who telework are challenged to have the supervisor's attention and are limited to setting up formal meeting arrangements. Based on Reservists having different types of supervisor interaction – from purely face-to-face to purely virtual – the quality of relationships and performance appraisal ratings may be influenced by how much face-to-face interaction subordinates have with the supervisor.

The COVID-19 pandemic in 2020 created a sudden increase in workers virtually performing military duties and created an even greater challenge for the Navy Reserve. Reservists were required to continue providing the same quality of work away from the workplace despite not having been properly prepared for the transition, and, in some cases, take on more work due to staffing shortages. Supervisors were still required to conduct performance appraisals to provide feedback on the Reservist's progress towards being ready for supporting military operations.

With less opportunity to physically observe Reservists, supervisors were challenged to accurately evaluate performance while still ensuring Reservists were satisfied that the process was fair. When completing a performance appraisal, the supervisor can only take into account accomplishments that were completed during the performance-appraisal timeframe. Reservists are able to provide input on their accomplishments, which the supervisor uses to compare against the accomplishments of other Reservists. Supervisors can help the Reservist receive a more favorable performance appraisal by including information that was not provided based on what they know about the Reservist. This may be more likely to happen when supervisors have more face-to-face contact with the subordinate. Supervisors generally do not include negative information on performance appraisals unless it is required by Navy Reserve policy, such as failure of a drug test or unauthorized absences. A supervisor's goal is help subordinates get

selected to a higher rank, and information that is added to the performance appraisal that is contrary to that goal would generally not be included.

This leads to the motivation for this study: to determine the effects of virtual work on performance appraisal scores and employee perceptions of the fairness of the performance-appraisal process in the Navy Reserves, which has not been previously studied (in fact, no published research related to any aspect of performance appraisals in the Navy Reserve could be found). One way that a Reservist's degree of virtualness might affect performance appraisal scores and the Reservist's perception of the fairness of the performance appraisal is through the mediating influence of the quality of the relationship between the supervisor and the Reservist. A high degree of virtualness reduces the ability of supervisors to observe and appraise performance. Without direct observation, supervisors must rely on other factors to determine the appraisal performance score. The relationship quality between the supervisor and subordinate might help explain how the degree of virtualness and the performance appraisal score results are related.

Leader-Member exchange. The relationship quality between a leader and subordinate is studied in Leader-Member Exchange Theory (LMX), which has been extensively researched for nearly 50 years and is widely used to examine predictors and consequences of relationships between leaders and subordinates (Mumtaz & Rowley, 2020). LMX Theory has not yet been examined in the context of the Navy Reserves, however. It is a good fit for this study as it has been shown that LMX quality between leaders and subordinates affects performance appraisal outcomes in other contexts (Dulebohn et al., 2012).

In this theory, relationships between leaders and "members," as subordinates are called, is characterized by the quality of the LMX, which can vary from low to high (Martin et al.,

2016). Subordinates who have high-quality LMX relationships with supervisors benefit from having more access to the supervisor, receive higher performance appraisals, receive salary increases at a faster rate, and receive better recognition in the workplace than subordinates with low-quality LMX relationships (Elsbach & Cable, 2012; Martin et al., 2016). The quality of the LMX relationship between a Reservist and supervisor might be impacted by the Reservist's degree of virtualness because supervisors might form closer, more trusting relationships with employees they see and interact with on a regular basis than those with whom they have little contact (Kahlow et al., 2020). The resulting LMX quality might then affect performance appraisal scores and Reservists' perceptions of the fairness of performance appraisals if supervisors gave the higher-LMX, in-person subordinates better performance evaluations.

If a Reservist's degree of virtualness affects the quality of LMX relationship between the Reservist and supervisor, and if this LMX quality then affects performance appraisal scores and Reservists' perceptions of the fairness in the performance appraisal, this would create a problem for Reservists who choose to work virtually or are forced to work virtually because of their geographic assignment. Since a large portion of Reservists, 42.7%, do not work in the same place as their supervisor (Chief of Naval Reserve Force Command, 2022), this would be a substantial problem for the Navy Reserve as an organization. It would, therefore, be important to find a way to reduce these negative effects on Reservists working virtually. One thing that might help is supervisors' efforts to foster an inclusive environment.

Supervisor Efforts at Inclusiveness

Inclusiveness is defined as “the degree to which an employee perceives that he or she is an esteemed member of the work group through experiencing treatment that satisfies his or her needs for belongingness and uniqueness” (Shore et al., 2011, p. 1265). It is created through “the

words and deeds by a leader or leaders that indicate an invitation and appreciation for others' contributions" (Nembhard & Edmondson, 2006, p. 947). The key aspect of inclusiveness is making everyone feel included as a full participant in the group. Leaders who make an effort to obtain input and participation by all workers create a work environment where there is a perception of equity among the workers (Hirak et al., 2012). When leaders make an effort to make remote workers feel fully included in the workplace, virtual workers are likely to have more positive feelings toward those leaders and develop higher-quality LMX relationships with those inclusive leaders.

Given that working away from the main-office location can affect remote workers' job opportunities and the coworker perceptions about remote workers (Morganson et al., 2010), it may be especially important for supervisors to deliberately include remote workers in more aspects of the work environment. Discussions that impact employees' work responsibilities would be one example. For Reservists, this would include discussions about future work requirements, deployment plans where they would need to be absent from their current job to support the military on a full-time basis, and priorities leadership expects them to complete. Teleworkers feel disconnected from coworkers and leaders when they perceive they are being purposely ignored, left out of discussions affecting their work responsibilities, and lacking awareness of what occurs in the workplace (De Vries et al., 2019). The feelings eventually manifest into professional isolation unless leaders make an effort to include the workers as part of the organization (Sewell & Taskin, 2015).

Leaders can influence workers' perceptions that they are being included by treating them as part of the team, rather than as a separate category of worker. By being proactive in soliciting input from all workers, whether they are working away from or in the office, leaders create an

inclusive working environment where openness and appreciation for contributions are valued (Nembhard & Edmondson, 2006). Teleworkers who feel included are likely to feel supported, perceive mutual respect, believe they are valued as team members, and feel comfortable raising concerns without encountering negative repercussions (Nembhard & Edmondson, 2006). Being respected and considered a valuable team member are what workers perceive when leaders practice inclusiveness in the workplace (Appelbaum et al., 2016).

Research Problem and Purpose of this Study

This study addresses the following research problem. The Navy Reserve conducts performance appraisals on enlisted personnel who vary in their degree of virtualness, with some working face-to-face and others performing some or all of their work remotely, which affects how much contact personnel have with their supervisor. These performance appraisals have major impacts on the careers of the people involved. Yet, it is not known how different degrees of virtual work affect performance appraisal scores or Reservists' perceptions of the fairness of the performance appraisals.

The purpose of this study is to examine whether Reservists' degree of virtualness affects performance evaluation scores or employees' perceptions of the fairness ("organizational justice", which encompasses distributive, procedural, interpersonal, and informational justice), of performance appraisals in the Navy Reserve. The study further examines whether these effects are mediated by the quality of the Leader-Member Exchange relationship between leaders and subordinates and whether leaders' efforts to promote inclusiveness can moderate any negative effects of degree of virtualness on the quality of the LMX relationship on the performance appraisal scores, and on employees' perceptions of organizational justice of the performance appraisals.

Contributions of the Study

This study broadens the literature on virtual work and the influence of virtualness on performance appraisal scores and organizational justice in performance appraisals (De Guinea et al., 2012). Prior qualitative research indicated that not being in the office resulted in lower performance appraisals, and teleworkers have perceptions of inequality compared to non-teleworkers (Elsbach & Cable, 2012). This quantitative field-research study examines the influence of the degree of virtualness (rather than a binary remote or non-remote categorization) on performance appraisal scores, which has not previously been done. The study also contributes to the literature on LMX in a military organization. Prior LMX research on the U.S. military utilized officers or officers-in-training as the sample population and did not focus on the dyadic relationships of enlisted personnel in the military organizations (Cobb & Lau, 2015; Holt et al., 2016; Richter, 2001; Stewart & Johnson, 2005, 2009; Vecchio & Brazil, 2007; Yammarino & Bass, 1990). Military officers are required to be impartial and avoid the appearance of bias to maintain good order and discipline, and this limits the opportunity to develop informal relationships with subordinates. This study is the first to explore the dyadic relationship among enlisted Reservists in a military organization. Understanding the effects of subordinates' perceptions of the leaders' efforts at fostering inclusion on LMX quality, performance appraisal outcomes, and perceptions of organizational justice in performance appraisals is another contribution of this study. Inclusion has not been previously studied in the performance appraisal literature.

From a practical perspective, the knowledge gained from the study will help the U.S. Navy Reserves understand how to increase the fairness of performance appraisal scores and perceptions of the fairness of performance appraisals. Findings will raise awareness in the Navy

Reserve that Reservists not located with their supervisor may experience performance-appraisal bias and possibly have actual lower performance than in-person workers as a result of the hindering effects of not having the same access to information and opportunities to contribute that in-person workers have. Perceptions of biased appraisals could also cause some virtual Reservists to lower their performance inputs as a response to the perceived inequity (Adams, 1965). Together, these situations may hinder Navy Reserve retention goals when virtual Reservists leave military service for not being promoted or feeling that their performance has not been properly recognized. For all industries, the findings may draw attention to the need for supervisors to deliberately foster inclusiveness for workers with hybrid or remote work arrangements. The results may generalize to help practitioners in other organizations that perform performance appraisals with teleworkers. Therefore, the study may benefit industries such as the information and technology, banking, finance, accounting, real estate, education, and professional, scientific, and technical services as many employees in these industries work from home all or most of the time, particularly since the COVID-19 pandemic (Parker, 2021).

Organization of the Dissertation

The rest of this dissertation is organized as follows. Chapter 2 presents the research questions and conceptual model for the study. It then reviews the literature on virtual work and performance appraisals and on the quality of the LMX relationship between the leader and the subordinate, which may affect both appraisal scores and perceptions of the fairness on performance appraisals. The effects of leader inclusiveness are also considered. The ten hypotheses examined in the study are also presented in Chapter 2.

Chapter 3 describes the methodology used to examine the hypotheses, including survey data collected from Navy Reserve Reservists that are matched with archival data from their

performance appraisal records. Chapter 4 presents the data analysis and the results of the hypothesis tests. Chapter 5 discusses the study findings, implications for future research, limitations of the study, and recommendations for future research.

CHAPTER 2 – LITERATURE REVIEW

This chapter first presents the study's research questions and the conceptual model for the study. Next, the literature is reviewed in five major sections. The first describes literature on virtual work and telework, which pertain to working from a location away from a traditional physical workplace and introduces the concept of degree of virtualness. The second section reviews the performance appraisal literature and presents a hypothesis for how the degree of virtualness impacts performance appraisal scores. The third section discusses the literature on equity theory and organizational justice and presents hypotheses for how virtual work impacts how individuals perceive the fairness of performance appraisals. The fourth section reviews Leader-Member Exchange (LMX) theory and presents hypotheses that LMX, the quality of the dyadic relationship between the leader and subordinate, will mediate the relationship between the degree of virtualness and both performance appraisal scores and subordinates' perceptions of fairness of the performance appraisals. The fifth section discusses the literature on managers' efforts to facilitate inclusiveness and presents hypotheses that subordinate perceptions of the leader's inclusiveness will moderate the relationship between the degree of virtualness and LMX, performance appraisal scores, and fairness of the performance appraisals.

Research Questions

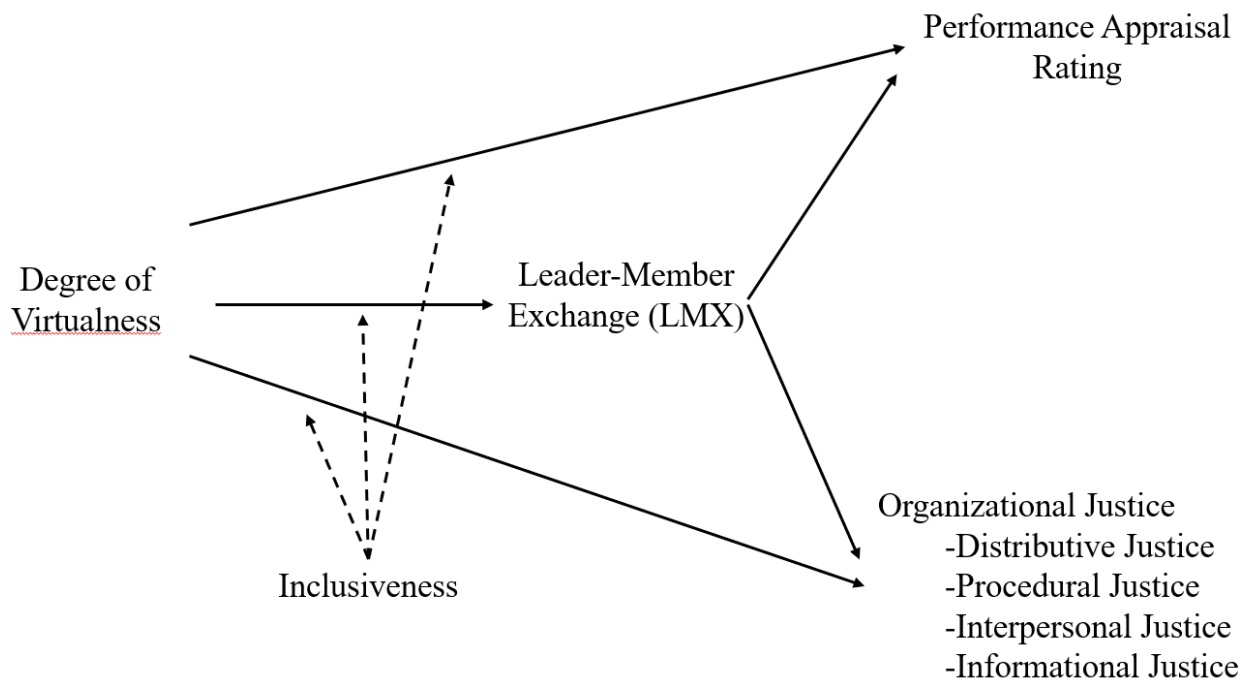
This study addresses the following research questions:

1. Does the degree of virtualness influence performance appraisal outcomes, including both performance appraisal scores and employee perceptions of fairness of the performance appraisals?
2. Is the relationship between the degree of virtualness and performance appraisal outcomes, including both performance appraisal scores and employee perceptions of the fairness of performance appraisals, partially mediated by Leader-Member Exchange?
3. Does leader inclusiveness moderate the effect of the degree of virtualness on Leader-Member Exchange quality, performance appraisal scores, and employee perceptions of fairness of the performance appraisals?

The conceptual model for this study is shown in Figure 1.

Figure 1

Conceptual Model



Telework in Organizations

Telework was defined by Jack Nilles in 1994 as working outside the conventional workplace and communicating with others in the workplace by way of telecommunications or computer-based technology (as cited in Bailey & Kurkland, 2002). While the definition is clear that telework involves the use of computer-based technology, research has merged the terminology with other forms of working outside the conventional workplace. Telework has been referred as telecommuting, teleworking, remote work, virtual work, home-work, distance work, distributed work, and flexible work (Lautsch et al., 2009; Morganson et al., 2010; Nicklin et al., 2016). The use of many terms interchangeably makes it difficult to compare findings from different sources and makes it more of a challenge to provide statistics that are comparable (Smith, 2001). This study uses the terminology *telework* and *telecommuting* interchangeably and uses Nilles' initial definition of *telework* as the basis for work that is completed away from the workplace by using computer-based technology.

Telework research has been focused on employee benefits (Caudron, 1992; Huws, 1993; Mahfood, 1992), organization benefits (Kurland & Bailey, 1999; Pérez et al., 2002), as means to improve work-life balance (Fonner & Roloff, 2010; Madsen, 2003; Sardeshmukh et al., 2012), and how telework affects the behavior and psychology of workers (Gerstner & Day, 1997; Viswesvaran et al., 1999). An area that has been identified as needing more telework research is comparing differences between teleworkers and non-teleworkers (Athanasiadou & Theriou, 2021; Greer & Payne, 2014; Mele et al., 2021). Non-teleworkers do not experience as much social and professional isolation as teleworkers and they benefit from more favorable performance appraisals (Aguinis & Burgi-Tian, 2021; Van Der Lippe & Lippényi, 2020). In today's work environment, however, many employees do not work fully on-site or fully

telework; instead, they work a blend or hybrid of on-site and teleworking. This study considers this blend, which can range from all on-site to no on-site and everything in-between, a concept known as *degree of virtualness* (De Guinea et al., 2012).

Degree of Virtualness. Since organizations started employing telework, the trend of workers and supervisors not being co-located has increased over time and advances in information technology have allowed communication to occur more frequently without face-to-face interaction (De Guinea et al., 2012). Virtual work includes work performed across time zones and geographic locations and uses information technology to overcome communication limitations (Gibson & Gibbs, 2006). The geographic separation and the communication technology usage are the two most consistent dimensions to describe virtualness in the workplace (Gilson et al., 2015). It is the physical separation between the leader and the subordinates that is the concern for this study.

When the Bureau of Labor Statistics (BLS) began reporting statistics on telework, the categories mainly identified the primary work location as either the workplace or home (Horvath, 1986), but the survey question at that time did not differentiate between workers who were getting paid to work at home and workers who worked at home for no pay. It was not until 1991 that BLS began surveying the number of individuals working from home for compensation and identified that 18.3% of the U.S. workforce was performing some or all work from home.

As telework became more commonly used by organizations, BLS further broke out the work location into three categories – the workplace, home, and at locations other than home or workplace. In 2003, the percentage of workers working at the workplace was 87.2%, working at home was 18.6%, and at another location than the workplace or home was 9.5% (US Bureau of Labor Statistics, 2009). Identifying that workers are not necessarily constrained to work from

one location, researchers suggested that teleworkers should be categorized along a continuum (Gilson et al., 2015).

Virtualness can be described as either a discrete variable, being either in the office or always away from the office, or a continuous variable along a continuum between always being in the office or being away from the office (Ferretti, 2016; Gibbs et al., 2017). Early research used virtualness as a discrete variable, but the more recent trend is to study teleworkers along a continuum (Kahlow et al., 2020; Robert & You, 2018). The continuum is described as the extent of virtualness or the degree of virtualness and is a range from having no face-to-face contact for being purely virtual, having a mixture of face-to-face contact and computer-mediated communications, and having mainly face-to-face contact by primarily working in the office (Hakonen & Lipponen, 2008; Hertel et al., 2005).

Teleworkers can be placed into subgroups based on the degree of virtualness (Schmidtke & Cummings, 2017; Tijunaitis et al., 2019). Employees who are always in the office are categorized as non-teleworkers, employees who work in the office and at a different location are categorized as being a hybrid, and employees that are mainly working remotely are categorized as teleworkers (Chamakiotis et al., 2021; Webster & Wong, 2008).

Laboratory versus field studies of virtual work. Early studies on virtualness relied on students in a laboratory setting to understand the construct (Martins et al., 2004). The knowledge gained contributed to understanding virtualness as a recruiting and retention tool and as a cost-effective method for experts to work as a team (Martins et al., 2004). The early studies used virtualness as a discrete variable and were designed with stronger manipulations than current studies that viewed virtualness along a continuum in a field setting (De Guinea et al., 2012).

Meta analytical research on virtualness found that studies in non-organizational settings

do not generalize well to organizational settings (Purvanova, 2014). Experimental research on student populations found virtual teams had more communication issues, a higher frequency of misunderstandings, and less work coordination than populations in field studies (Purvanova, 2014). By not conducting virtual studies within organizations, the impact of limited supervisor attention span, influence of distractions, and time pressures are ignored (De Guinea et al., 2012). In this study, the degree of virtualness will be examined in a field setting and along a continuum ranging from having only face-to-face interaction to being virtual all the time.

Benefits and drawbacks to working outside the traditional office. Employees who work away from the office benefit financially, experience health improvements, and have more time flexibility. A 2020 Global Workplace Analytics survey indicated that a typical employee can save between \$2,500 and \$4,000 a year in transportation costs and expenses related to being in the office, such as meals and dry cleaning (Kamouri & Lister, 2020). Teleworkers also take fewer sick days than non-teleworkers. This can be attributed to not being exposed to potentially sick coworkers in the office and also being healthier as teleworkers are able to spend 25 more minutes per week on physical exercise than non-teleworkers (Airtasker, 2020). With the elimination or reduction of commuting to and from the workplace, teleworkers are able to gain an average of 105 hours of free time per year that can be used on things that make them happy, such as spending time with family and friends or addressing self needs (Centre of Economics and Business Research, 2019).

Despite the benefits, there are obstacles that workers identified with working away from the office. Collaboration with other coworkers and communication concerns were the top struggles listed by workers (Buffer & AngelList, 2020), and 59% of workers believe working remotely will cause work relationships to suffer (Society of Human Resource Management,

2021). Even though computer-mediated communication can be used, 60% of remote workers feel they are being intentionally left out of discussions, and 37% feel like second-class citizens compared to their in-office counterparts (Owl Labs, 2021). The negative perceptions are consistent with supervisor perceptions, as they list cohesion among team members and employee engagement as the top negative impacts of having workers work outside the office (Global Workplace Analytics, 2020).

The lack of being able to have informal discussions that occur in the office lessens the opportunity to build rapport and deepen trust with coworkers. Using sociometric badges to track the amount of face-to-face interaction, conversational time, physical proximity to other people, and physical activity levels, researchers determined that office workers rely on face-to-face interaction more than having formal meetings to collaborate (Waber et al., 2014). Small talk or unimportant informal discussions on random topics enable office workers to feel emotionally connected (Methot et al., 2021). Small talk in the office occurs while walking through the hallways, in the elevator, waiting outside a meeting room, or in the breakroom. These chance encounters provide an opportunity for workers to have unplanned interactions that improve performance by sharing knowledge, sparking creativity, and increasing trust (Waber et al., 2014). The discussions about weekend activities, the weather, family, or sports reduce stress, put workers at ease, and help transitioning to more formal topics like performance appraisals.

Performance Appraisals

The use of performance appraisals in U.S. organizations can be traced to 1813 when they were employed by the U.S. Army to report officer performances to the U.S. War Department (Bellows & Estep, 1954). An evaluation of each officer under General Lewis Cass' leadership was conducted and individual comments were submitted to the War Department to differentiate

individual performance. By the 1940s, 60% of U.S. organizations utilized some type of performance appraisal to document worker performance and to allocate rewards for contributing to the attainment of organizational objectives (Cappelli & Tavis, 2016). By the 1960s, the percentage had increased to approximately 90%, indicating that performance appraisals are valued by organizations (Cappelli & Tavis, 2016). Prowse and Prowse (2009) found that between 80%-90% of U.S. and U.K. organizations use performance appraisals. A 2018 survey by Robert Half (2019) found that 78% of U.S. companies perform performance appraisals at least once per year.

Performance appraisals can look at employee behaviors, or outcomes, or both. Phin (2015) defined performance appraisal as “a method of evaluating the behavior of employees in the workplace” (p. 97). DeNisi and Murphy (2017) defined performance appraisal as:

a formal process, which occurs infrequently, by which employees are evaluated by some judge (typically a supervisor) who assesses the employee’s performance along a given set of dimensions, assigns a score to that assessment, and then usually informs the employee of his or her formal rating. (p. 421)

Murphy et al. (2018) expanded the performance appraisal concept to include the organization’s use of the performance appraisal to make decisions related to the worker, whether it is for compensation, retention, or future job assignments. All of these definitions highlight that performance appraisals focus on the worker.

Organizations utilize performance appraisals for multiple reasons (Murphy & Cleveland, 1995). They can be used as an organizational tool to set and measure goals, measure individual performance, provide feedback on performance, and generate performance improvement (Grubb, 2007). Appraisals can be used to develop the employee being appraised by providing motivation

to excel, to identify areas that need improvement, and to develop a training plan to increase critical skillsets needed by the organization (Campbell & Lee, 1988; Cleveland et al., 1989; Boswell & Boudreau, 2002). They can be used as an administrative tool by management to make decisions on salaries, promotion, termination, and assignment to projects (Boswell & Boudreau, 2000). Lastly, appraisals can be used as a control mechanism to ensure employee compliance with rules, policies, and regulations as well as following management direction (Grubb, 2007).

Research on performance appraisals. Research on performance appraisals can be grouped into different areas that have shifted from identifying errors in the appraisal process to understanding behaviors related to performance appraisals. When correlations were observed on different categories of performance for teachers, Army officers, and industrial workers, even though instructions were provided to evaluate each item on the appraisal independently, it led to the identification of “halo” errors and began the start of researching errors in performance appraisals (Thorndike, 1920). From 1920 to the 1970s, research in performance appraisals expanded to the rating-scale formats (Knauff, 1948; Flanagan, 1954), rater training (Levine & Butler, 1952), employee reactions to the appraisal (Cawley et al., 1998), and understanding how the source of information influenced the appraisal outcome (Springer, 1953). Emphasis in appraisal research shifted in the 1980s to the cognitive processes used by raters to acquire, organize, recall, and analyze information to be used in the performance appraisal (Landy & Farr, 1980; Murphy & Cleveland, 1995; DeNisi & Peters, 1996).

Despite a long history, it was not until the 1970s that research on performance appraisals began to include the perception of fairness. For performance appraisals to be considered fair and accurate, supervisors needed to evaluate performance frequently, have an understanding of the

subordinate's performance levels, and coordinate with the subordinate on the work responsibilities and on a training plan to improve subordinate weaknesses (Landy et al., 1978). When employees accept the appraisal process as fair, this increases the perception of fairness of the appraisal outcome (Landy et al., 1980).

Despite over 100 years of performance-appraisal and performance-management research, practitioners have not been satisfied with the research (Denisi & Murphy, 2017). Practitioners have been exposed to research emphasizing rating errors, rating scale formats, demographic influence, rater cognitive processes on performance appraisals, ratee reactions, and the benefit of supervisor appraisal training (Iqbal et al., 2019). However, practitioners prefer to understand how performance appraisals lead to improving firm-level performance, but researchers have not been able to establish a clear link (Bourne, 2008; Denisi & Murphy, 2017). To address practitioners' concerns, performance appraisal research should focus less on laboratory settings and more on organizational settings where the dynamics of the relationship between workers can be accounted for in studies (Denisi & Murphy, 2017).

Visibility influences perceptions of performance. The amount of face-to-face interaction influences the perceptions non-teleworkers have about teleworkers. Coworkers perceive employees who are in the office as more dependable, more loyal, and more committed than teleworkers (Elsbach et al., 2010). Workers in the office do not have to be observed proactively working to receive positive assessments; just the mere presence of being seen in the hallways or in the break room was sufficient to generate favorable bias and perceptions of positive traits (Elsbach & Cable, 2012). Remote workers do not have the same opportunity for informal face-to-face interaction throughout the workday. Instead of making assessments based on work quality or individual contributions, workers in the office often assess teleworkers based

on prototypical in-office behaviors, such as being able to join unplanned meetings, being available to quickly respond to requests for information, and working long hours to complete a project (Bartel et al., 2012). Coworkers form impressions based on incomplete or poor information as they are not able to observe how hard teleworkers work, how they go about their tasks, or the level of effort being put into completing tasks.

Supervisors contribute to the misconceptions by treating teleworkers differently than non-teleworkers. With the benefit of being visible to supervisors, non-teleworkers are often assigned high-quality projects since it is easier for managers to select from the group of workers visibly in front of them (Ryan & Kossek, 2008). This is supported by a survey that found 42% of supervisors forgot about teleworkers when assigning tasks (Society of Human Resource Management, 2021). Another study found that non-teleworkers who increased their physical presence in the workplace benefited from a shorter time to promotion, as they received additional work assignments that increased their experience that was desirable for higher job positions (Munck, 2001). A recent study found that 64% of supervisors perceive on-site workers as higher performers, while 75% of supervisors indicate that non-teleworkers are more likely to be promoted before teleworkers (Gartner, 2021).

In an organization that allows employees to telework in varying degrees from all the time to none of the time, supervisors typically evaluate teleworker performance against the typical worker in the office (Thomas, 1999). At the early career stage, employees observe successful professionals putting in a lot of time and effort to move up in the organization, and this makes an impression of the ideal worker stereotype (Carpenter, 2019). As the employee advances within the organization and eventually is assigned responsibilities to manage and supervise workers, their perceptions and expected performance are influenced by their own experience

(Podsiadlowski & Ward, 2010). This practice occurs as a social comparison evaluation and is described as comparing the work performance of one worker against the work performance of other workers (Chun et al., 2018a).

Effects of degree of virtualness on performance appraisals. Teleworkers' lack of presence and visibility in the workplace affect performance appraisals (Elsbach & Cable, 2012). During performance evaluations, supervisors compare teleworker performance against workers who are in the office, which results in teleworkers receiving lower evaluations (Bartel et al., 2012). Although the intent of the comparison is to instill a competitive mindset to want to improve and do better, the results are counterproductive as research indicates workers perceive the social comparison evaluation method as unfair and untrustworthy (Chun et al., 2018b).

Teleworkers perceive that the performance appraisals they receive are not generated on an equal basis as those of their coworkers who work in the office (Van Der Lippe & Lippényi, 2020), and there is evidence that this is often true. When reviewing employee performance, it is common for the performance of teleworkers to be compared against the performance of non-teleworkers (Harker Martin & MacDonnell, 2012). Although this practice, known as social comparison, was identified in the early 2000s as a disadvantage for teleworkers, organizations do not have separate performance appraisal systems for teleworkers and non-teleworkers (Thomas, 1999). A meta-analysis of employees working away from the office found that communication occurred less frequently, which made it more difficult for teleworkers to obtain consensus on issues requiring decisions, and there was no difference in the quality of work output between employees who worked away from the office versus in the office (Purvanova, 2014).

Teleworkers are not visible to those working in the office and experience professional isolation when they are not included for meetings, not assigned to projects, and feel being out of

touch with those who are in the office (Golden et al., 2008). Being forgotten is not an anomaly for teleworkers as 42% of supervisors overlook teleworkers as a resource when assigning tasks (Janin, 2022). The missed opportunity to be included on projects results in lower performance evaluations for teleworkers when supervisors compare the work accomplishments between teleworkers and non-teleworkers. When teleworkers are overlooked for new work assignments, they have fewer accomplishments to include on performance appraisals, and this results in them receiving lower performance appraisals than non-teleworkers (Kurland & Cooper, 2002; Golden et al., 2008; Elsbach & Cable, 2012; Elsbach et al., 2010). Thus, others perceive teleworkers as being lower performers and the evidence shows that they often are lower performers because they are assigned less high-priority and visible work, and thus they receive lower performance appraisals. There is some evidence that remote workers have objectively lower performance than in-person workers (Baltes et al., 2002; De Guinea et al., 2012).

Having a close proximity among teams has beneficial effects on interpersonal relations and group functioning (Wilson et al., 2008). When workers are not co-located, then direct observation and face-to-face conversation is difficult or impossible. A lack of observation and conversation poses problems for many teams trying to make decisions or collaborate on projects (Sewell & Taskin, 2015). When workers are moved as little as 30 yards from team members, they reduce daily contact and have less frequent informal communications (Allen, 1977; Kraut & Streeter, 1995). Physical separation from other workers in daily life and work drastically reduces the likelihood of volunteering for work collaboration (Kraut et al., 2002). By not volunteering to be included on projects, teleworkers are further isolating themselves and hindering the organization from fully employing all of its human resources (Kurland & Cooper, 2002; Sewell & Taskin, 2015).

Supervisors have limited face-to-face interaction with teleworkers and rely on other factors such as work output, feedback from team members, feedback from clients, and participation in project meetings to complete performance reviews (DeNisi & Murphy, 2017). Supervisors have to piece together bits of information on performance from numerous sources and determine which input is more significant, which results in an incomplete picture on performance and contributes to inaccurate feedback for performance reviews (Prasad & Akhilesh, 2002).

Supervisors utilize both direct and indirect observations of workers when completing a performance appraisal (Murphy & Cleveland, 1995). However, direct observation is more trustworthy to supervisors as the information is not being filtered or manipulated, and supervisors use their own experience, values, and beliefs to process the information (Thompson & Kelley, 1981; Adler et al., 2016). This results in indirect observations provided by coworkers, customers, and other individuals not having the same level of impact on supervisors (Murphy & Cleveland, 1995). Face-to-face observation contains more information cues and is the richest form of interaction (Lengel & Daft, 1984; Morrison-Smith & Ruiz, 2020; Oviedo & Tree, 2021). When receiving communication in the form of direct face-to-face interactions, e-mails, text messages, voicemails, videoconferences, or telephone calls, supervisors place more weight and trust on face-to-face interactions because they provide more complete information (Golden et al., 2009; Purvanova, 2014).

Therefore, it is hypothesized that employees who have less face-to-face interaction with their supervisor will have lower performance appraisal rating scores than those who have more face-to-face interaction:

H1: The degree of virtualness will be negatively related to performance appraisal ratings.

Perceptions of Fairness of Performance Appraisals

It is not only the performance appraisal ratings or scores that matter to employees. Employees also care about the fairness of all aspects of the performance appraisal. This section reviews the literature on equity theory and organizational justice and develops hypotheses for how degree of virtualness relates to employee perceptions of the four dimensions of the organizational justice (distributive, procedural, interpersonal, and informational justice) of the performance appraisals.

Equity Theory. Subordinates may perceive that supervisors treat in-person and teleworkers differently in ways that are unfair. The perceived inequity generates unpleasant sensations of distress and tension that motivate workers to eliminate the unpleasantness, which is the basis for Equity Theory (Adams, 1965). According to equity theory, workers review their inputs such as skills, training, education, experience, and seniority, and their outcomes such as appraisals, rewards, salary, bonuses, promotions, and compare these to their coworkers' inputs and outcomes. If they perceive a disadvantageous inequity, such as believing that they are receiving worse outcomes than their coworkers for similar inputs, then they have negative perceptions of fairness (Adams, 1965). If they perceive an advantageous inequity, such as feeling better rewarded for similar inputs, workers can have both positive and negative perceptions of fairness (Adams, 1965; Bashir et al., 2022). Workers who receive compensation beyond what they were expecting can justify the increased compensation as fair based on internal beliefs that the quality of performance resulted in a reward (Liu & Brockner, 2015). A negative perception of fairness can occur not only when receiving overcompensation, but also being aware that coworkers did not receive a similar overcompensation (Kim et al., 2015).

In response to the situation of inequity, workers strive to achieve equity by eliminating

conflict and internal tension and have different options (Walster et al., 1978; Thierry, 2002; Shoaib & Baruch, 2019). Workers can eliminate inequity by changing the input or the outcome for themselves or their coworkers (Carrell & Dittrich, 1978). Workers can eliminate inequity by cognitively changing the perception of either the inputs, such as perceiving the level of difficulty on a task is lower than the level of difficulty for other coworkers, or the outcomes, such as believing higher pay was the result of having a degree from a well-known university, to eliminate the disparity (Carrell & Dittrich, 1978). Workers can also eliminate inequity by changing the comparison used, whether it is an individual or a group (Adams, 1965). And lastly, workers can eliminate inequity by removing themselves from the situation, such as leaving the organization (Torre et al., 2015).

For workers who believe an inequity exists in how they are treated compared to their coworkers, the decision to align performance with the inequity can perpetuate a downward spiral of negative outcomes (Aidla, 2012). Workers who perceive they are paid less than coworkers even though they are putting in the same amount or more work than the referent coworker may lower their performance. The lower performance is appraised by the supervisor as a downgrade in performance or indicative of a poor performer, and the worker becomes less incentivized to increase performance. The perception of inequity can also lower a worker's satisfaction that results in fewer organizational citizenship behaviors (Torre et al., 2015). Workers can react by increasing absenteeism or intentions to leave (Dash & Pradhan, 2014).

Of the courses of action that eliminate the inequity, much of the time Reservists are limited to changing the inputs/outcomes and cognitively changing perceptions of the inputs/outcomes. Reservists are only able to leave the organization when Navy Reserve policies allow them to transfer to a new organization or leave the Reserve (Department of the Navy,

2018b). Changing the comparison peer is not a likely option for Reservists, as Navy Reserve policies identify the individuals for whom supervisors must conduct performance appraisals and who are compared as a group (Department of the Navy, 2019). The Navy Reserve has a formal rank structure, and all equally ranked Reservists have their performance compared against each other. Identifying the Reservists in the peer group for performance appraisals provides transparency and keeps Reservists with similar experiences together, as high performers eventually get promoted and move to a different peer group for performance appraisals.

Cognitively changing the perception of contribution inputs and reward outcomes to eliminate inequity involves adjusting internal beliefs and attitudes (Festinger, 1962; Fortin-Bergeron et al., 2018). Contribution inputs, such as the training and education, are compared with reward outcomes such as performance appraisal scores, promotions, and compensation. When a worker perceives their ratio of inputs to outcomes is less than a coworker's ratio, the worker can justify the inequity by agreeing the coworker deserved a higher reward outcome or lower expectations of their reward outcomes (Foy et al., 2019; Weiß, 2020).

Organizational Justice in the Workplace

Employees are not only concerned about their actual performance appraisal ratings and the fairness of those ratings, but also about how fairness is applied in all aspects of the performance appraisals. Workers value fairness in performance appraisals as it allows them to predict how they will be evaluated and provides a sense of control on the outcome (Cropanzano et al., 2007).

The perception of fairness is rooted in equity theory, which suggests that employees assess fairness by comparing the ratio of their own perceived work outputs to their own perceived work inputs against the ratio attained by a corresponding counterpart (Adams, 1963).

If the ratios are unequal, the employee may perceive injustice, have significant internal tension, and will make efforts to alleviate the feelings of stress (Adams, 1965). The fairness of outcomes is the construct known as distributive justice (Adams, 1965; Leventhal, 1976). Rawls (1971) introduced the concept of justice as fairness while proposing principles for people to live free and equal in society. While the perception of fairness was mainly focused on outcomes, such as pay or rewards, researchers determined that fairness could be distinguished between the outcome and the procedures used to arrive at the outcome, with the former known as distributive justice and the latter called procedural justice (Greenberg, 1986; Leventhal, 1976; Thibaut & Walker, 1975). Participating in the process and having a voice to challenge the outcome increased the perception of procedural justice (Greenberg, 1988; Thibaut & Walker, 1975). Having a voice to challenge the outcome increases the perception of procedural justice and timely communication further strengthens the perception (Cropanzano et al., 2018).

The effort to explain the impact of justice, or fairness, within an organization is organizational justice (Greenberg, 1987, 1990). Organizational justice encompasses an employee's perception of their organization's behaviors, decisions, and actions and how these influence the employee's own attitudes and behaviors at work (Greenberg, 1987). While research on organizational justice up to the 1990s was dominated between distributive and procedural justice, Bies and Moag (1986) proposed the construct of interactional justice, which focuses on the manner in which an individual is treated when decisions are made. Employees perceive they are being treated fairly when supervisors provide explanations for decisions and treat employees with dignity, respect, and sensitivity (Moorman, 1991). While some researchers viewed procedural and interactional justice as similar constructs, Greenberg (1993a, 1993b) determined that being treated with dignity and respect had a unique effect on employee behavior

that was different than being provided accurate information on the procedures. The perception of being treated with dignity, respect, and sensitivity is known as interpersonal justice, and the perception of received candid information is informational justice (Colquitt, 2001). These four types of justice (distributive, procedural, interpersonal, and informational) are the dimensions of organizational justice that are being examined in this study (Colquitt, 2001).

When fairness in the workplace is perceived to exist, it improves the workplace (Seifert et al., 2016). Workers who perceive that the organization and their supervisor treat them fairly perform at a level that is 26% higher and are 27% less likely to quit than workers who do not believe they are fairly treated (Gartner, 2021). In a longitudinal study, fairness in the workplace reduced the use of sick days and absenteeism by improving health (Leineweber et al., 2016).

Fairness in the workplace is studied in the organizational justice literature and can be conceptualized as four distinct dimensions, distributive, procedural, interpersonal, and informational (Colquitt, 2001). In the context of performance appraisals, the subordinate's perception of fairness can be the result of either the performance rating outcome (distributive justice), the process used to generate the performance appraisal (procedural justice), the perceived fairness of being treated with respect and dignity during the process of implementing organization procedures (interpersonal justice), and the perceived fairness of the communications and proper justification for decisions (informational justice) (Kim et al., 2019).

Distributive justice. The perceived fairness of outcomes allocated to a worker is based on the perception of equity or equality among the workers (Kim et al., 2019). Distributive justice was the first justice dimension widely studied and it is focused on the moral righteousness of an outcome (Pattnaik & Tripathy, 2019). Workers perceive the fairness of an outcome in contrast to what other workers have received (Pattnaik & Tripathy, 2019).

Procedural justice. Perceptions of the fairness of the process used to make decisions is procedural justice (Colquitt et al., 2013). Procedural justice is important because employees who believe that the process used to make decisions, such as performance appraisal ratings, is transparent and includes their input feel that there is more procedural justice and so are more likely to accept the outcomes (Colquitt et al., 2013). Workers who receive performance appraisal outcomes that exceed, meet, or are below expectations will still consider the outcome acceptable if the process used to make the appraisal was perceived to be fair (Landy et al., 1980, Thurston & McNall, 2010).

Interpersonal justice. Workers' perceptions that supervisors treat them with dignity, propriety, and respect is interpersonal justice (Pattnaik & Tripathy, 2019). When supervisors communicate honestly, it increases workers' trust in their supervisor (Colquitt, 2001). When workers perceive they are treated with the proper interpersonal justice, they are more than likely to reciprocate and engage in behaviors that benefit the organization (Holtz & Harold, 2013).

Informational justice. Informational justice is the dimension of organizational justice that focuses on truthfulness and justifications for decisions (Colquitt, 2001). The fairness of information provided during organizational actions, and the accuracy and timeliness of it affect perceptions of informational justice (Karriker & Williams, 2009). When workers perceive the supervisor as being open and candid by providing accurate information in a timely manner about how performance was evaluated, they are more than likely to trust in the supervisor and develop a high-quality relationship (Sparr & Sonnentag, 2008). If workers do not receive accurate information or encounter delays in receiving it on the performance appraisal, they are less likely to trust the supervisor and will have a low-quality relationship (Sparr & Sonnentag, 2008).

The degree of virtualness and organizational justice in performance appraisals.

Teleworkers often perceive the process used to generate performance appraisals as unfair because they believe they are not managed on an equal basis with non-teleworkers (Van Der Lippe & Lippényi, 2020). A phenomenon identified as a concern with the use of telework is proximity bias (Boyarsky, 2021; Johanson, 2021). Proximity bias in the workplace occurs when workers closest to supervisors are seen as better workers. This results in non-teleworkers being promoted, receiving higher salary increases and higher performance appraisals than teleworkers (Elsbach & Cable, 2012). The disparity between the treatment of teleworkers and non-teleworkers is supported in a study at a Chinese call center that indicated when workers shifted to working from home performance by those workers improved by 13% over a nine-month period, but promotion rates reduced by 50% (Bloom et al., 2015). Despite an improvement in performance, absence from the workplace negatively affected the perception of the quality of work outputs.

For performance appraisals, social comparison between teleworkers and non-teleworkers results in less trust between supervisors and subordinates. Social comparison in performance appraisals involves supervisors using other workers as reference points against which teleworkers' performance results are compared (Goffin et al., 2009; Suls & Wheeler, 2013). The use of non-teleworker performance as a comparison result lowers trust perceptions by teleworkers (Dunn et al., 2012). Employees prefer to have their performance measured against their past performance to indicate improvement over time (Chun et al., 2018a). When supervisors utilize social comparison, employees believe supervisors are intentionally creating competition among the workers, and distrust in the supervisors begins to develop (Chun et al.,

2018a). Trust between supervisors and employees must exist for perceived fairness to occur (Colquitt & Rodell, 2011).

Employees who are co-located with supervisors have more opportunities to provide input to supervisors and may have greater ability to influence how they are treated than employees who are geographically separated. Supervisors view workers that they see more often in the workplace as more committed to the organization and reward that commitment with higher performance appraisals, selection for projects, and faster promotions (Elsbach & Cable, 2012). The ability to have informal interactions with supervisors increases the likelihood that co-located employees will have more of a voice in their performance appraisal process. The degree of virtualness may influence the perception of fairness in the appraisal process with employees who have more facetime perceiving they can use their voice to challenge or influence supervisor's perception of their performance. Workers in the office may perceive that those who show up in the office can be relied upon to provide assistance, as they can directly ask for help or interrupt discussions for priority issues. Teleworkers would have to overcome asynchronous communication differences and may respond after the need for assistance has passed. When supervisors have more interaction with workers in the office, they are more comfortable relaying negative information or providing the details behind a decision (Khazanchi & Masterson, 2011). From the foregoing, we may assume employees who spend more time in-person with supervisors would perceive more fairness on performance appraisals than those who teleworked.

Because workers in the office are rewarded with higher performance appraisals and faster promotions, perceptions of distributive justice should be lower for workers with higher degrees of virtualness. Because workers in the office are able to have more of a voice in performance appraisals, perceptions of procedural justice should be lower for workers with higher degrees of

virtualness. Because remote workers perceive that they are treated with less respect and dignity, perceptions of interpersonal justice should be lower for workers with higher degree of virtualness. Because workers in the office are able to receive information and the reasons behind decisions from supervisors, the perception of informational justice should be lower for workers with higher degrees of virtualness. Therefore, it is hypothesized that:

H2: The degree of virtualness will be negatively related to employee perceptions of organizational justice.

H2a: The degree of virtualness will be negatively related to employee perceptions of distributive justice.

H2b: The degree of virtualness will be negatively related to employee perceptions of procedural justice.

H2c: The degree of virtualness will be negatively related to employee perceptions of interpersonal justice.

H2d: The degree of virtualness will be negatively related to employee perceptions of informational justice.

Leader-Member Exchange Theory

Supervisors are constrained by the amount of time and attention they can allot to their subordinates, so they tend to develop close, informal relationships with a few subordinates and have formal relationships with the rest (Chen, He & Weng, 2018; Dulebohn et al., 2012). Dansereau et al. (1975) introduced the concept that leaders differentiate the way they treat their followers, which results in a different quality of relationship between the leader and each follower, which the authors called vertical dyad linkages theory (VDL). VDL later morphed into Leader-Member Exchange Theory. The concept of different-quality dyadic relationships is

based on social exchanges that leaders have with each follower and is the basis for the LMX theory (Martin et al., 2010; Martin et al., 2016).

Subordinates with a close relationship have high-quality LMXs and are considered to be in the in-group, while those who do not have a close relationship are in the out-group (Bakar et al., 2009; Graen, 1976). Subordinates in the in-group tend to experience better job outcomes such as recognition, more frequent promotions, and higher pay (Dulebohn et al., 2012). Leaders treat members of the out-group more formally and consider them to be not as strong as members of the in-group (Bakar et al. 2009; Graen, 1976). The roots of LMX theory suggest that the subordinates who have high-quality relationships with their supervisors reciprocate, in such ways as increased loyalty, professional respect, or being more committed to the organization (Blau, 1964). The recurring role episodes of high quality LMX relationships consist of “personal obligation, gratitude and trust” ending in exchanges that enhance the relationship between the supervisor and the subordinate and reinforces a cyclical response in exchanging valued resources, such as respect and job satisfaction (Golden & Veiga, 2008). Haddad and Samarneh (1999) identified that high quality LMX increases subordinate’s positive perceptions, feelings, and job satisfaction.

This dissertation uses LMX theory as a conceptual foundation because it focuses on the one-to-one relationships between particular leaders and subordinates that are unique, in contrast to many leadership theories that ignore the different dyadic relationships leaders form with different subordinates. Traditional leadership theories, such as Great Man theory, trait theory, and behavior theory, were useful up to the 1990s but are not always useful in a more complex and rapidly changing work environment (Benmira & Agboola, 2021). The traditional theories of leadership were unidirectional, top-down, and distinctly separated

leaders from followers. LMX theory is different than traditional leadership theories since it is based on the dynamic processes that occur between leaders and followers (Graen, 1976). By considering the collective social process that occurs between leaders and followers, LMX theory improves on traditional leadership theories by engaging followers (Benmira & Agboola, 2021).

Subordinates who are better performers tend to have higher-quality LMX relationships with their leaders (Martin et al., 2016). Quality that meets or exceeds the expectations of the supervisor generates trust and confidence in the subordinate's capabilities (Anand et al., 2016). Supervisors build closer relationships with trustworthy followers who become part of the in-group, and, as repeated experiences occur, a social exchange forms that reinforces the close relationships and keep the subordinates in the in-group (Erdogan & Bauer, 2010; Gerstner & Day, 1997; Vecchio, 1998). Subordinates in the in-group experience mutual trust, respect, affection, and reciprocity with the supervisor (Dansereau et al., 1975; Haddad & Samarneh, 1999; Liden et al., 1997; Martin et al., 2016; Rosen et al., 2011; Sparrowe & Liden, 1997). They receive additional rewards, responsibility, and trust in exchange for their loyalty and performance compared to those in the out-group (Han et al., 2021; Nandedkar & Brown, 2018; Vecchio, 1998).

Subordinates in the out-group have lower-quality LMX relationships with their leaders that are often characterized by more formal relationships (Martin et al., 2016). Leaders often use a more directive leadership style with out-group members (Dulebohn et al., 2012). These out-group subordinates receive less trust and respect from the supervisor and are often motivated by the supervisor's economic control and position power (Duchon et al., 1986; Erdogan & Bauer,

2014; Graen & Uhl-Bien, 1995). The exchanges that members of the out-group experience are often one-way, top-down, and based on task relationships (Martin et al., 2016).

The commitment of the out-group to the supervisor is based on a more formal, contractual relationships where subordinates often complete assignments without making an effort to excel (Liden & Graen, 1980; Thompson et al., 2018; Thompson et al., 2020). The supervisor often then utilizes a high level of control that reduces the ability of the out-group to have autonomous decision-making capabilities (Harris et al., 2009). As a result, members of the out-group typically experience lower job satisfaction, higher employee turnover, and receive lower quality task assignments (Chen et al., 2018).

The different LMX qualities create an atmosphere of differentiation among employees within the organization where people experience different working conditions and offer different levels of commitment to the leader (Graen, 2003; Lee, 2001; Leow, & Khong, 2015; Liden & Graen, 1980). Members of the in-group develop a sense of obligation to supervisors because they receive better assignments and more rewards (Jha & Jha, 2013). Members of the in-group often feel a sense of obligation to repay the supervisor for positive benefits received by putting in extra efforts, while the out-group mostly focus on fulfilling the contractual relationship and put in closer to the minimum effort necessary to complete the work to the standards, but not more (Chiniara & Bentein, 2016).

When completing performance evaluations, supervisors often overlook negative performance outcomes for subordinates with high-quality LMX, while subordinates with low-quality LMX receive performance appraisals based on objective performances (Duarte et al., 1994; Gabel-Shemueli & Zaferson, 2021). Subordinates with high-quality LMX can benefit from both more positive performance and less negative performance being reported on the

appraisal and the additional access to the supervisor that comes with higher-quality LMX can improve communication and thus increase the ability to meet the supervisor's expectations. This study will examine how the quality of LMX relationships mediates the relationships between the subordinates' degrees of virtualness and both performance appraisal scores and the subordinates' perceptions of organizational justice in the performance appraisals.

Leader-Member Exchange and Performance Appraisals.

The quality of relationships between supervisors and subordinates can influence performance appraisal outcomes. Supervisors are not able to have the same level of relationship with each subordinate and this results in subordinates having different influences on performance appraisals (Martin et al., 2016). High-quality LMX relationships enable subordinates to have more input in the development of performance appraisals than low-quality LMX relationships (Dulebohn et al., 2012).

The quality of the LMX relationship has an impact on performance appraisal rating received (Martin et al., 2016). A meta-analysis shows that subordinates with high-quality LMX with their leaders have more resources allocated to them and increased worker performance compared to those with low-quality LMX relationships (Dulebohn et al., 2012). The resources a supervisor can provide to high-quality LMX subordinates are support, funding, guidance, and attention (Hooper & Martin, 2008). The additional focus by the supervisor on employees with high-quality LMX relationships may allow workers to meet or exceed the supervisor's expectations (Dulebohn et al., 2012). A meta-analysis shows that high-quality LMX enables negative employee performance to be overlooked and not be reflected in performance appraisals (Martin et al., 2016). For example, in one study, low-performing subordinates with high-quality LMX relationships with their leaders received performance appraisal ratings that exceeded

objective measures of performance, while low-performing, low-quality LMX subordinates received performance appraisals that were consistent with objective measures of their performance (Duarte et al., 1993). This demonstrates bias may exist on performance appraisals between high-quality and low-quality LMX subordinates (Erdogan, 2002; Martin et al., 2010).

High-quality LMX relationships with supervisors create a sense of obligation by the employees to return or reciprocate the positive benefits (Bashir et al., 2022; Blau, 1964; Dulebohn et al., 2012). If subordinates perceive they are receiving more than they are giving to supervisors, employees will reciprocate by working harder to restore the equity (Wayne et al., 2002). This can lead to subordinates putting in more effort at work, volunteering for additional projects, or working longer hours to justify the favorable situation. Due to the efforts to reciprocate to a supervisor for the benefits received, the subordinate's performance increases compared to subordinates with low-quality LMX and results in higher performance-appraisal outcomes (Gerstner & Day, 1997; Wayne et al., 2002).

Employees who have high-quality LMX receive benefits that are more beneficial than those who have low-quality LMX. High-quality LMX enables workers to have poor performances overlooked, provides more access to supervisors, garners more organizational resources, and enables higher influence within the organization (Dulebohn et al., 2012; Chen et al., 2018). Low-quality LMX results in employees perceiving supervisors as being inconsistent on appraisals because they may not have as much influence on developing the performance appraisal objectives or have the ability to challenge the assessment (Dulebohn et al., 2012). Based on the evidence that performance appraisals between high- and low-quality LMX subordinates are completed with different assessment standards that are more lenient for the high-quality LMX subordinates, it is hypothesized that:

H3: Higher-quality Leader-Member Exchange will be positively related to performance appraisal ratings.

Leader-Member Exchange and Organizational Justice

The quality of LMX relationships affects subordinate perceptions in the workplace, including their perceptions of the fairness of performance appraisals (Selvarajan et al., 2018). Subordinates with high-quality LMX perceive the performance appraisal outcome and the performance appraisal process as fair and appropriate (Rehman et al., 2021). Subordinates with low-quality LMX have less involvement in developing the performance appraisal since the supervisor has less time to devote to the worker (Park, 2017), which would tend to reduce subordinates' perceptions of fairness of the outcome and the process used to develop the performance appraisal.

Subordinates with high-quality LMX relationships perceive benefits received as fair because they expected to be rewarded for the effort put into their work (Rehman et al., 2021). Because of the informal relationships with supervisors, negative performance gets overlooked and performance appraisals contain more positive performances (Gabel-Shemueli & Zaferson, 2021). The ratio of more positive than negative performances skews performance appraisals to be higher than subordinates with low-quality LMX relationships, who do not benefit from having negative performances overlooked (Jha & Jha, 2013). Because the ratings are higher, subordinates should perceive more distributive justice. Therefore, higher-quality LMX relationships should result in subordinates perceiving more distributive justice in the performance appraisals than subordinates with lower-quality LMX relationships with supervisors.

Subordinates with high-quality LMX relationships are able to express their opinions more

freely and openly disagree with supervisors (Elicker et al., 2006). In contrast, subordinates with low-quality LMX have a contractual relationship with supervisors and do not have informal relationships where they can freely voice their opinions (Wayne et al., 2002). The ability to challenge the supervisor's assessment results in the perception of greater fairness in developing the performance appraisal, which is an attribute of procedural justice (Jha & Jha, 2013).

Subordinates are concerned with the fairness of how they are treated within the organization, and this influences the level of trust they have in supervisors (Williams et al., 2002). Subordinates with high-quality LMX have a high degree of trust in supervisors during performance appraisals (Gabel-Shemuely & Zaferson, 2021; Lee, 2001). The trust develops from having more control by providing input during the performance assessment or by having input in the development of the performance appraisal (Elicker et al., 2006). The more trust subordinates have in their supervisors, the more likely they are to expect that the procedures used to plan and implement decisions will be fair (Seifert et al., 2016). This is consistent with early procedural justice research that identified having control in the process resulted in perceptions of procedural justice (Thibault & Walker, 1975).

In many organizations, employees are provided the opportunity to develop performance objectives in coordination with supervisors. Employees with high-quality LMX relationships with supervisors are able to utilize their voice during the performance appraisal development process (Thurston & McNall, 2010). Due to mutual respect, the supervisor will listen to the subordinate and consider the input. Low-quality LMX subordinates are not offered this same opportunity since it is a more top-down, authoritative relationship (Jha & Jha, 2013). Low-quality LMX subordinates do not provide input in developing the performance appraisal. Since high-quality LMX subordinates believe they were involved in the performance appraisal

development, their perception of procedural justice of the performance appraisal process is higher than low-quality LMX subordinates (Kuruzovich et al., 2021). It is therefore predicted that higher-quality LMX relationships will be positively associated with subordinates' perceptions of procedural justice in the performance-appraisal process.

Interpersonal justice refers to subordinates' feelings that they are treated with dignity and respect, and it has been shown to influence the extent to which employees engage in positive and negative behaviors (Colquitt, 2001). Examples of positive behaviors include helping coworkers and performing their responsibilities at an expected level, and these benefit the organization (Colquitt et al., 2001). Conversely, when employees feel slighted or disrespected, negative behaviors, such as theft or retaliation, can occur that lower organization performance (Colquitt et al., 2001). Employees with high-quality LMX perceive having more respect from the supervisor than employees with low-quality LMX (Rehman et al., 2021). Previous research shows a positive relationship between LMX and interpersonal justice (Sparr & Sonnentag, 2008). It is predicted that this research will confirm that higher-quality LMX will be positively related to subordinates' perception of interpersonal justice.

Informational justice relates to perceptions that the supervisor provided honest information and explanations and fair reasoning that is specific and true (Colquitt, 2011). During the performance appraisal discussion, the perception of fairness in the communication about the performance ratings and process influences how trustworthy employees view supervisors (Khazanchi & Masterson, 2011). When employees perceive supervisors being candid about the performance appraisal and willing to share the justifications that were used to develop the performance appraisal, they view the supervisor as being honest and forthcoming on issues related to the employee (Pattnaik & Tripathy, 2019). Employees who have high-quality LMX

relationships have more trust in supervisors than employees with low-quality LMX relationships (Colquitt, 2001). Therefore, it is predicted that the quality of LMX between the employee and the supervisor will be related to informational justice.

Because workers who receive higher performance appraisal scores perceive they were fairly assigned, perceptions of distributive justice should be higher for workers with high-quality LMX. Because workers who are able to voice their concerns or challenge the outcome of a performance appraisal perceive it was fairly developed, perceptions of procedural justice should be higher for workers with high-quality LMX. Because workers who receive dignity and respect from the supervisor perceive being fairly treated, perceptions of interpersonal justice should be higher for workers with high-quality LMX. Because workers who are able to obtain reasons behind decisions perceive fairness, perceptions of informational justice should be higher for workers with high-quality LMX. Therefore, it is hypothesized that:

H4: Higher-quality Leader-Member Exchange (LMX) will be positively related to subordinates' perceptions of organizational justice.

H4a: Higher-quality LMX will be positively related to subordinates' perceptions of distributive justice.

H4b: Higher-quality LMX will be positively related to subordinates' perceptions of procedural justice.

H4c: Higher-quality LMX will be positively related to subordinates' perceptions of interpersonal justice.

H4d: Higher-quality LMX will be positively related to subordinates' perceptions of informational justice.

The Degree of Virtualness and LMX

The amount of face-to-face interaction a subordinate has with their supervisor influences the quality of relationship between them (Golden & Veiga, 2008). Therefore, employees who are co-located with their supervisors are likely to develop higher-quality LMX relationships with their supervisors than employees who work virtually do.

One reason why supervisors develop different LMX relationships with each subordinate is that supervisors are not able to allocate equal resources, such as time or attention, to each subordinate (Gerstner & Day, 1997). Subordinates with a high degree of virtualness, who spend a significant amount of time working away from the office, are challenged to build rapport with the supervisor since there is limited in-person interaction (Bell & Kozlowski, 2002; Cohen & Gibson, 2003). As a result, a low-quality LMX relationship develops that is more formal and based on a directive leadership style where subordinates complete work responsibilities out of an obligation to earn a salary (Jha & Jha, 2013). Conversely, subordinates who work primarily in the office are able to have more face-to-face interaction with the supervisor. More face-to-face interaction contributes to developing high-quality LMX between the subordinate and the supervisor that results in receiving benefits that are not provided to subordinates with low-quality LMX (Abu Bakar & McCann, 2016).

Rich communication channels build relationships. Between supervisors and workers, communication channels that are rich in terms of the amount of information that is conveyed have the most impact in creating mutual beneficial relationships (Lee, 2022). Employees who frequently work in-person with their supervisors should therefore develop higher-quality relationships with their supervisors because they would have more opportunities to have rich-

channel communications with the supervisors.

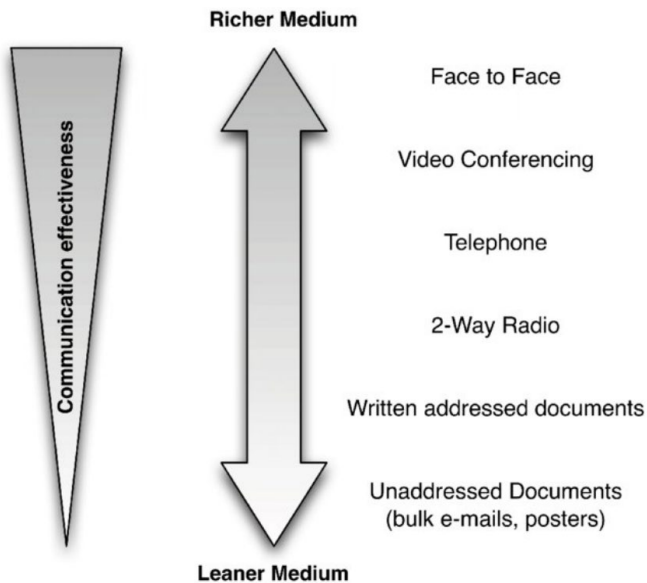
Richness refers to the amount of information and the immediacy of information transfer (Ruilin, 2021). Communication channels that allow the sender to assess the recipient's attention and interest and allow the recipient to assess the credibility of the message result in more favorable perceptions, more information disclosure, and a stronger desire to build a relationship (Kotlyar & Ariely, 2013). Since message recipients receive only 7% of the content from verbal cues and 93% from non-verbal cues, the higher the richness of the communication media, the more valuable it is for interactions (Mehrabian, 1971).

Face-to-face interaction is valued by workers more than other forms of communication in the workplace because of the richness it contains (Braun et al., 2019). Figure 2 shows the ranking of communication methods in terms of richness. Face-to-face is the richest form as it can convey both verbal and non-verbal cues (Morrison-Smith & Ruiz, 2020; Ruilin, 2021). The more face-to-face communication employees had with their supervisors, the more satisfied with their job and the more effective they perceived their supervisor to be (Braun et al., 2019). Supervisors are limited in the amount of interaction and attention they can provide, and the amount of face-to-face interaction is generally less than what employees prefer (Braun et al., 2019).

Video communication is the next richest as the sender and receiver are able to communicate with no delay in responding and also receive visual cues. However, a drawback of video conferencing is that the receiver receives a limited view of the sender (Ehsan et al., 2008). While the speaker is looking directly at the video of the recipient, the recipient sees that the speaker is not making eye contact due to the location of the camera, and eye contact has been shown to signal engagement and attention (Wohltjen & Wheatley, 2021). Audio forms, text

Figure 2.

Ranking of Communication Richness



forms, and unaddressed forms of communication are limited from receiving visual cues and are low in richness (Oviedo & Tree, 2021). While these forms are widely used in the workplace, employees have a more positive reaction to high face-to-face interactions compared to the other forms of communication as they perceive them as more personal and the high use of face-to-face communication signals the supervisor has an interest in the well-being of the employee (Braun et al., 2019).

With several forms of communication to choose from, each method is best for relaying particular messages. The text form is best for non-urgent messages, messages that involve multiple recipients, and messages that do not require an immediate response (Brearley, 2021). The voice form is best for urgent or time sensitive messages, when back-and-forth dialogue is needed, and when the recipient is not expecting the information (Brearley, 2021). Face-to-face interactions increase interpersonal bonding and social connections that results in collaboration,

trust, and a shared understanding between speaker and recipient (Hooijberg & Watkins, 2021).

Receiving feedback on performance through face-to-face interaction is more informative than text forms of communication. E-mails and text messages can be impersonal or misunderstood (Morgan, 2014). When compared to computer-mediated communication, face-to-face interactions during performance feedback allow rates the ability to observe verbal/non-verbal cues and receive immediate feedback during dialogue that helps reduce ambiguity. Face-to-face interaction reveals body language, voice inflection, facial cues, and other visual references that can support the discussion or raise concerns about mixed messages (Goman, 2018).

Workers located away from the office do not have the same opportunity for face-to-face interaction with their supervisor as workers in the office. Workers with a high degree of virtualness are not able to participate on in-person team meetings, have informal meetings walking through the hallway, or relay to coworkers the level of work effort expended due to lack of visibility (Elsbach & Cable, 2012). The supervisor develops a low-quality LMX relationship with workers who have high degrees of virtualness since familiarity and access is limited. Conversely, workers with low degrees of virtualness can interact more frequently with supervisors due to their proximity. The increased access helps foster a high-quality relationship between the supervisor and the subordinate. Therefore, it is posited that:

H5: A higher degree of virtualness will be negatively related to Leader-Member Exchange quality.

Leader-Member Exchange as a Mediator

LMX may mediate the relationship between the degree of virtualness, and both performance appraisal scores and the perception of fairness in the process used to generate the

performance appraisal score. Hypotheses 1 and 2 suggest that the degree of virtualness influences performance appraisal ratings and perceptions of organizational justice in the performance appraisals. Hypotheses 3, 4, 4a, 4b, 4c, and 4d propose that the quality of the LMX relationship between the supervisor and subordinate influences both performance appraisal scores and subordinate perception of organizational justice. Hypothesis 5 suggests that higher degrees of virtualness negatively affect the quality of LMX relationships between leaders and subordinates. If these hypotheses are supported, there is an effect that may be mediated. Thus, LMX may mediate the relationship between the degree of virtualness and performance appraisal scores and between the degree of virtualness and the perception of organizational justice in the performance appraisal (Baron & Kenny, 1986; Hayes, 2017; Zhao et al., 2010). This would be consistent with meta-analyses that have established that LMX is a mediator in various important outcomes (Dulebohn et al., 2012; Gerstner & Day, 1997; Ilies et al., 2007).

Subordinates with high-quality LMX receive benefits that improve their organizational standing in the workplace. The benefits range from having more access to the supervisor, receiving clarification to ensure deliverables meet supervisor expectations, having negative performance overlooked during performance appraisals, and receiving praise (Duarte et al., 1994; Dulebohn et al., 2012; Martin et al., 2016). High-quality LMX subordinates reciprocate for receiving benefits by putting in an effort that goes beyond the employment contract in terms of longer work hours and making extra efforts to complete assignments (Rosen et al., 2011). Going above and beyond employment requirements results in higher salary increases, faster selection for promotions, and higher performance appraisals than low-quality LMX subordinates (Martin et al., 2010).

The amount of face-to-face interaction a subordinate has with their supervisor influences

the relationship between behavioral and attitudinal antecedents and consequences in organizations (Dulebohn et al., 2012). Antecedents consist of subordinate characteristics (affect, locus of control, competence, agreeableness), supervisor characteristics (expectations, contingent reward behavior, transformational leadership), and interpersonal leadership (perceived similarity, ingratiation, trust, assertiveness) (Dulebohn et al., 2012). Consequences consist of turnover intentions, job performance, commitment, satisfaction, distributive justice, procedural justice, empowerment, conflict, perception of politics, and organizational citizenship behavior (Dulebohn et al., 2012). Meta-analytic research determined that the LMX quality between subordinates and supervisors is influenced more by the supervisor's behavior than the subordinate's (Dulebohn et al., 2012). This is supported by research that LMX had a strong relationship on performance appraisal ratings, which is an outcome determined by the supervisor (Kacmar et al., 2003). The ability to challenge and disagree with supervisors enables high-quality LMX subordinates to have more acceptance of performance appraisal outcomes (Kacmar et al., 2003). Therefore, it is hypothesized that:

H6: The relationship between the degree of virtualness and performance appraisal scores is partially mediated by the quality of Leader-Member Exchange.

LMX should also partially mediate the relationship between degree of virtualness and organizational justice. As previously hypothesized, virtual workers are likely to develop lower-quality LMX relationships with their supervisors than in-person workers do (H5) and teleworkers are also likely to perceive that performance appraisals are not equitably applied to them and non-teleworkers (H2). As stated in Hypotheses 4, 4a, 4b, 4c, and 4d, the quality of LMX is posited to influence the perception of organizational justice. Higher-quality LMX relationships would tend to reduce bias against workers who perform more of their work virtually and provide more

consistent treatment between teleworkers and non-teleworkers (Cropanzano et al., 2018). When subordinates perceive that performance appraisals were fairly developed and the supervisor was candid about the process used to develop the performance appraisal, then discrepancies between performance appraisal expectations and outcomes are less likely to influence the subordinates' attitudes and behaviors toward the supervisor (Pichler et al., 2016; Thurston & McNall, 2010). LMX has been found to have a significant influence as a mediator in determining outcomes, including those related to organizational justice (Dulebohn et al., 2012; Gerstner & Day, 1997; Ilies et al., 2007). For these reasons, it is hypothesized that:

H7: The relationship between the degree of virtualness and perceptions of organizational justice is partially mediated by the quality of Leader-Member Exchange (LMX).

H7a: The relationship between the degree of virtualness and perceptions of distributive justice is partially mediated by the quality of LMX.

H7b: The relationship between the degree of virtualness and perceptions of procedural justice is partially mediated by the quality of LMX.

H7c: The relationship between the degree of virtualness and perceptions of interpersonal justice is partially mediated by the quality of LMX.

H7d: The relationship between the degree of virtualness and perceptions of informational justice is partially mediated by the quality of LMX.

Inclusiveness as Moderator

Supervisors who make the effort to include all employees as valued parts of the organization may be able to mitigate some of the negative outcomes for teleworkers that have been previously discussed and thus weaken the negative effects in earlier hypotheses. Fostering inclusiveness, defined as “the degree to which an employee perceives that he or she is an

esteemed member of the work group through experiencing treatment that satisfies his or her needs for belongingness and uniqueness” (Shore et al., 2011, p. 1265), requires the supervisor to invite input and demonstrate appreciation for the contributions of the inputs of all workers (Nembhard & Edmondson, 2006). Implementing inclusiveness in the workplace involves treating employees the same while recognizing that there are differences among them (Janssens & Zanoni, 2007). Supervisors can help subordinates feel a sense of belonging through their efforts to make them feel fully included in the workplace. To fulfill a fundamental human need for belongingness, defined as the need to form and maintain strong, stable interpersonal relationships, people choose social identities with particular groups and seek acceptance into those groups (Baumeister & Leary, 1995; Shore et al., 2011). Supervisors who practice inclusiveness by seeking input from subordinates and being available to meet their needs can foster a sense of belonging among their subordinates.

Supervisors who have both teleworkers and non-teleworkers are challenged to treat both groups the same. The more employees work away from the office, the weaker the connections they have with coworkers and supervisors (Orhan et al., 2016). Having fewer social connections can lead to isolation, loneliness, and poor-quality relationships (Holt-Lunstad, 2018). Teleworkers who feel isolated from their peers perceive their performance as being lower quality than non-teleworkers (Mulki et al., 2008). Supervisors can minimize workers’ perception of professional isolation by seeking input and participation from teleworkers (Golden et al., 2008). Rather than ignore teleworkers during discussion because they are not physically present, supervisors can make an effort to directly ask teleworkers for their feedback, can request teleworkers to lead discussions, or to provide critique of the course of action so that teleworkers perceive being heard and valued by the organization and feel less isolated (Holmes et al., 2021).

Inclusiveness as moderator to the degree of virtualness and performance appraisal rating. Hypothesis 1 argues that employees with a higher degree of virtualness will have lower performance appraisal ratings than employees who are more physically present in the workplace. However, when subordinates feel their supervisors are inclusive, this effect may be weakened.

Teleworkers are often appraised differently than non-teleworkers because their lack of proximity results in less access to the supervisor (Elsbach & Cable, 2012). For their work to be noticed, teleworkers would need to report their efforts to the supervisors and have the supervisors evaluate their submitted work products rather than the supervisors personally observing them working. Yet teleworking employees may not fully communicate all of their performance efforts and inputs unless they are invited to do so. Supervisors' efforts to invite teleworking subordinates to share their talents and contributions more thoroughly would make supervisors more aware of teleworkers' accomplishments. Thus, employees who perceive their supervisors as more inclusive would likely share more accomplishments, which would make supervisors better able to rate their performance during performance evaluations.

In-person workers also benefit from the supervisor's availability to observe and provide informal feedback. This results in an increased likelihood that the work performance would meet the supervisor's expectations and would support a higher performance appraisal than teleworkers would receive. Supervisors who seek input from and provide feedback to teleworkers on a similar frequency as non-teleworkers would reduce teleworkers' disadvantage in being able to provide inputs and receive feedback on a regular basis.

Leader inclusiveness would also send a message to teleworkers that they are just as valued by the supervisor as non-teleworkers. In reciprocity for feeling valued by the supervisor, and due to feeling less professionally isolated, teleworkers would likely work just as hard and be

as dedicated to the supervisor as in-person employees, resulting in teleworkers receiving higher performance ratings (McKay et al., 2011; Nishii & Mayer, 2009). Therefore, leader inclusiveness would tend to reduce the impact of degree of virtualness on performance evaluations.

Another reason why perceptions that the supervisor is inclusive would weaken the negative effect of virtualness on performance appraisals comes from equity theory, which states that employees work to keep a balance between their inputs and efforts that is similar to comparison others' inputs and efforts (Adams, 1965). If leaders are not inclusive and teleworkers feel under-rewarded and receive lower performance appraisals than they think they deserve, they may respond by lowering their efforts to a level that matches the rewards they are receiving. This could eliminate unpleasant sensations of distress by balancing the equation but would cause teleworkers to have lower performance appraisals. Employees who perceive that their supervisors foster inclusiveness may positively influence teleworker performance so that they earn higher performance ratings. This suggests that when employees perceive that the leader is more inclusive, the negative relationship virtual work and performance appraisal ratings will weaken. Therefore:

H8: Employees' perception of leaders' inclusiveness will moderate the relationship between the degree of virtualness and performance appraisal ratings, such that when the subordinate perceives the leader is more inclusive, the negative relationship between the degree of virtualness and performance appraisal ratings will be weaker than when the employee perceives the leader to be less inclusive.

Inclusiveness as moderator of the relationship between degree of virtualness and subordinate perceptions of organizational justice of the performance. Hypothesis 2 argues

that employees with a higher degree of virtualness will have lower perceptions of fairness in performance appraisals than employees who are more physically present in the workplace in terms of all four types of organizational justice. Leader inclusiveness may weaken this negative relationship by making teleworkers feel they have access to the supervisor to provide and receive input when needed and that the supervisor can fairly evaluate their performance.

Teleworkers have fewer opportunities for informal interactions with the supervisor than in-person workers who have chance meetings in the office hallways or in common areas. When performance appraisal objectives are being developed, the supervisor can communicate with both teleworkers and non-teleworkers to ensure participation, but non-teleworkers are likely to have more opportunities to access the supervisor due to proximity. Having frequent interactions on a daily basis may also make in-person workers more comfortable with using their voice to challenge the supervisor's performance appraisal without creating conflict (Gibson & Gibbs, 2006). Non-teleworkers are better able to assess the honesty and truthfulness of the interactions and communications with supervisors than teleworkers as they can incorporate additional inputs, such as observing the supervisor's non-verbal cues during discussions or observe the supervisor's reaction before and after a stressful discussion (Van Zant & Kray, 2014). Thus, unless the supervisor makes specific efforts to include teleworkers, they would likely have less access to the supervisor and fewer opportunities to provide input to and receive input from the supervisor than in-person workers.

In the context of performance appraisals if supervisors practice inclusive behaviors and invite teleworker participation in the performance appraisal process, teleworkers would have an increased sense of control on the outcome of the performance appraisal. This is likely to increase teleworkers' perceptions of fairness and weaken the negative effects of degree of

virtualness on organizational justice. Supervisors who include teleworkers in meetings and in decisions generate inputs for performance appraisals that would otherwise not get noticed or be ignored, increasing teleworkers' perceptions of distributive justice. Supervisors who incorporate inclusive behavior would make teleworkers feel like they were involved in the process to develop the performance appraisal, increasing procedural justice. Supervisors who signal respect for employees, regardless of whether they work in the office or remotely should increase interactional justice for teleworkers. Finally, supervisors that make an effort to encourage subordinate participation would tend to share more information with teleworkers as well as those in the office, enabling employees to perceive the communications as being more open and candid and that information is not being withheld (Nishii, 2013). This would increase perceptions of informational justice for teleworkers.

Together, these suggest that supervisors who foster inclusiveness will reduce the disparity in perceptions of justice in performance appraisals between teleworkers and non-teleworkers. Therefore, it is proposed that when teleworkers perceive that the leader is inclusive, the negative relationship between working virtually and the perception of fairness on the performance appraisal will weaken. Specifically:

H9: Employees' perception of leaders' inclusiveness will moderate the relationship between the degree of virtualness and organizational justice, such that when the employee perceives the leader is more inclusive, the negative relationship between the degree of virtualness and organizational justice will be weaker than when the employee perceives the leader to be less inclusive.

H9a: Employees' perception of leaders' inclusiveness will moderate the relationship between the degree of virtualness and distributive justice, such that when the employee

perceives the leader is more inclusive, the negative relationship between the degree of virtualness and distributive justice will be weaker than when the employee perceives the leader to be less inclusive.

H9b: Employees' perception of leaders' inclusiveness will moderate the relationship between the degree of virtualness and procedural justice, such that when the employee perceives the leader is more inclusive, the negative relationship between the degree of virtualness and procedural justice will be weaker than when the employee perceives the leader to be less inclusive.

H9c: Employees' perception of leaders' inclusiveness will moderate the relationship between the degree of virtualness and interpersonal justice, such that when the employee perceives the leader is more inclusive, the negative relationship between the degree of virtualness and interpersonal justice will be weaker than when the employee perceives the leader to be less inclusive.

H9d: Employees' perception of leaders' inclusiveness will moderate the relationship between the degree of virtualness and informational justice, such that when the employee perceives the leader is more inclusive, the negative relationship between the degree of virtualness and informational justice will be weaker than when the employee perceives the leader to be less inclusive.

Inclusiveness as moderator on the relationship between degree of virtualness and

LMX. Hypothesis 5 argued that employees with a higher degree of virtualness will have lower-quality LMX relationships with their supervisors than employees who are more physically present in the workplace. However, supervisors who create an inclusive environment that invites all workers, including teleworkers, to be full participants in the workplace may weaken the

expected negative relationship between subordinates' degree of virtualness and LMX quality with the supervisor.

The quality of LMX relationships between supervisors and employees should improve when teleworkers believe they have a more equal status to workers who are always in the office (Brimhall et al., 2017). Perceptions that supervisors are inclusive should also reduce the feelings of professional and social isolation that teleworkers experience more frequently than non-teleworkers (Golden et al., 2008). The lack of face-to-face interaction between coworkers and supervisors generates feelings of isolation (Bartel et al., 2012), but making workers feel included should reduce these feelings, as well as the feelings of missing out and not knowing what is happening to coworkers, that are common among teleworkers (Elsbach & Cable, 2012). Teleworkers often feel left out of the informal, unplanned conversations whereby in-person workers share knowledge (Allen et al., 2015). Teleworkers can also feel isolated because they do not see how their work complements the work of their coworkers and they may face jealousy from non-teleworking counterparts (Gajendran and Harrison, 2007). Teleworkers often feel insecure, excluded, and less respected than non-teleworkers (Bartel et al., 2007; Kurland & Cooper, 2002).

Teleworkers, like in-person workers, enjoy being included in meetings and conversations as this indicates acceptance as a team member (Holmes et al., 2021). This does not mean workers try to replicate the same behaviors and beliefs as everyone within the organization, but they value being considered a part of the team while still maintaining their unique identities (Shore et al., 2011).

A supervisor's efforts at being inclusive can influence the quality of the relationship that develops with teleworkers (Golden et al., 2008). A supervisor can generate a sense of member

inclusiveness by inviting comment and expressing an appreciation for member contributions (Nembhard and Edmondson, 2006). These supervisor efforts will help teleworkers feel valued and create an environment where teleworkers are able to contribute and voice their opinion (Gibson and Gibbs, 2006). Recognizing the value of conflicting perspectives, supervisors can utilize inclusiveness to reduce organizational behaviors that create dysfunctional teams and increase the acceptance of team diversity (Mitchell et al., 2015). If a supervisor takes an authoritarian, unsupportive, or defensive stance that is associated with low-quality LMX, teleworkers are more likely to perceive that speaking up, raising concerns, or asking questions is an unsafe behavior (Nembhard & Edmondson, 2006). In contrast, if a supervisor is democratic, supportive, welcomes questions, and is open to challenges like the attributes of high-quality LMX, teleworkers are likely to perceive psychological safety on the team and be satisfied in the basic need to belong (Bono & Yoon, 2012; Nembhard & Edmondson, 2006). Frequent face-to-face interaction is posited to facilitate the development of high-quality LMX relationships, while professional isolation contributes to low-quality LMX (Barry & Crant, 2000; De Vries et al., 2019).

Supervisors who foster inclusiveness may positively influence the quality of relationship subordinates perceive with the supervisor; therefore, when teleworkers perceive that the leader is inclusive, the negative relationship between working virtually and having lower-quality LMX relationships with the supervisor should weaken. Specifically:

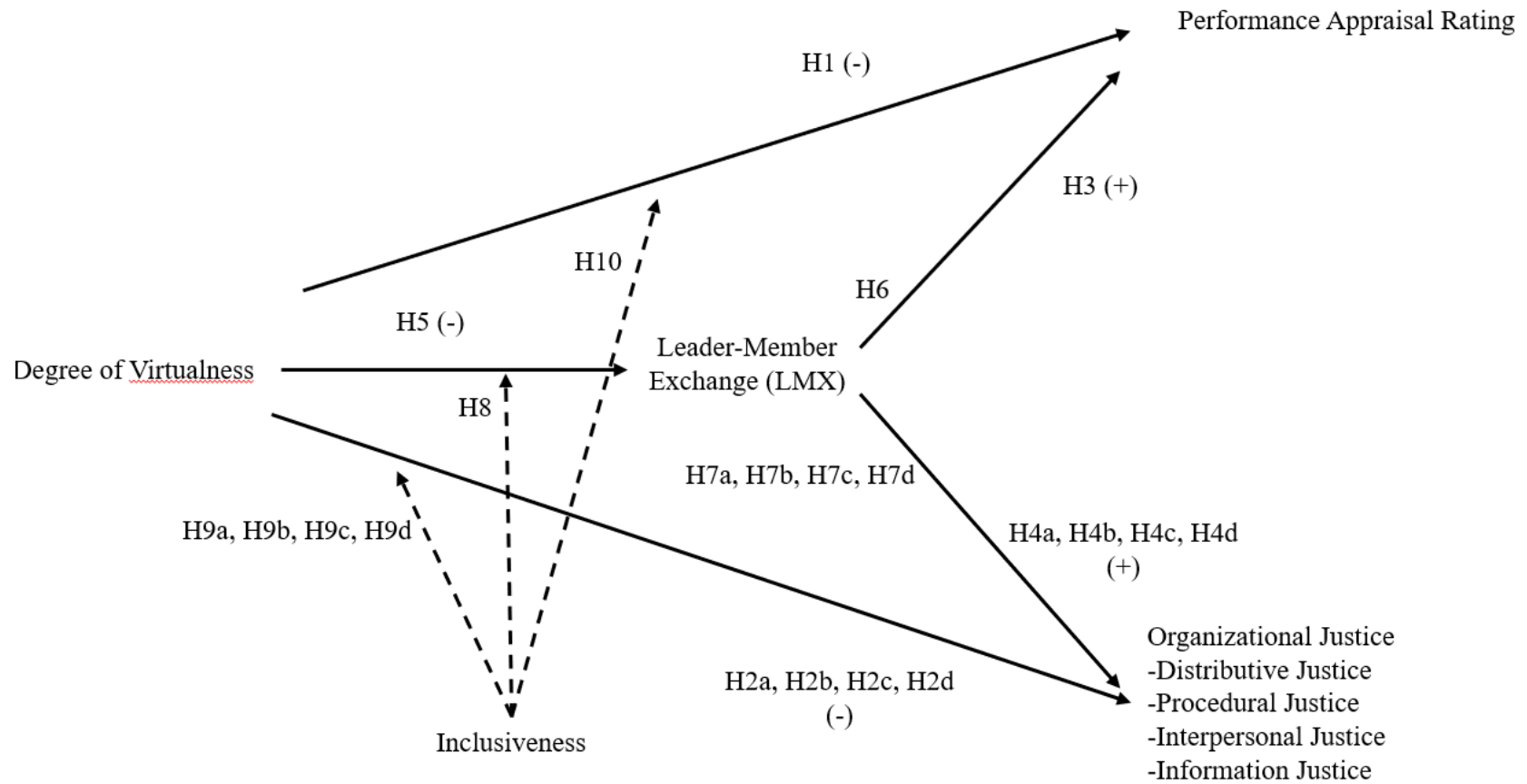
H10: Employees' perception of leaders' inclusiveness will moderate the relationship between the degree of virtualness and LMX quality, such that when the employee perceives the leader is more inclusive, the negative relationship between the degree of virtualness and LMX quality will be weaker than when the employee perceives the leader to be less inclusive.

Research Model with Hypotheses

Figure 3 presents the Research Model with the ten hypotheses shown. The next chapter describes how these hypotheses are tested.

Figure 3

Research Model and Hypotheses.



CHAPTER 3 — METHODOLOGY

This chapter details the design and methodology utilized for this research study. The chapter has six sections. The first provides an overview of the research design. The next section addresses the study population, sample composition, and data collection method. The sample size determination is discussed in the third section. The fourth section details the scales being used to measure each construct in the study. The fifth section addresses the analytical methods used for the data analysis. Lastly, issues concerning common methods bias are addressed.

Research Design

This study will utilize a quantitative, cross-sectional research design (Olsen & St. George, 2004). This is a widely used method in organizational research (Spector & Pindek, 2016). The selection of a cross-sectional design for this study is based on the ability to make inferences about relationships among constructs in the Navy Reserves at a point in time, the ability to compare many different variables simultaneously, and no need for following up on the data collected (Spector, 2019). The study will involve a survey of subordinates and their supervisors, administered through Qualtrics. Secondary/archival data in the form of completed performance appraisals will also be used in the data analysis. The data are nested as more than one subordinate reports to the same supervisor.

Study Participants

The participants in the study are enlisted Drilling Reservists in the U.S. Navy Reserve. Data were collected from thirteen Reserve Commands located in 44 states. The Reserve Commands consist of 24 Reserve units that train and prepare Reservists in the logistics, medical, shipboard support, aviation, and security fields. The Reservists assigned to the units are junior enlisted (E1–E6 rank), senior enlisted (E7–E9 rank), and officers (O1–O5 rank). The participants in this study were enlisted Reservists, with those in the ranks of E1 to E6 being subordinates and those in the ranks of E7–E8 being supervisors. Access to the Reserve units in the study was made by gaining approval from the Commanding Officers, who were also interested in understanding if bias exists for Reservists who are not co-located with their assigned unit.

Reservists in the ranks of E1–E6 are the work force in the Navy Reserve. Junior enlisted Reservists in the E1–E6 ranks operate vehicles and equipment, perform repairs, construct buildings, and are the labor force used to accomplish organizational objectives (Military One Source, 2021). Senior enlisted Reservists in the E7–E9 ranks manage the junior enlisted as they were once in their positions but have advanced to higher ranks. The E7–E9 ranks are also known as the Chief Petty Officers. The majority are at the E7 rank, have the most interaction with the junior enlisted, and are referred to as “Chief.” The senior enlisted can relate to the junior enlisted more easily than the officers as they attended boot camp like the junior enlisted, developed their technical skillsets under similar processes, and advanced along the same career path undertaken by the junior enlisted. Informal relationships are expected to be formed among the enlisted ranks because when a junior enlisted needs guidance or advice, the response from all Navy personnel is “ask the Chief” (U. S. Navy Chief Petty Officer Creed, 2019).

The officers are the leaders who plan missions, provide guidance and direction, and are accountable for the operational readiness of the organization. Due to the level of responsibilities and the concern for perceptions of impartiality, officers are expected to maintain formal relationships with the Reservists in the unit. Officers will not be part of this study.

The 13 Reserve Commands used in the study employ 2,205 Reservists, including 1,437 junior-enlisted Reservists, 159 senior-enlisted Reservists, and 609 officers. After excluding Reservists that are assigned to different Reserve units, the number of junior enlisted was reduced to 1,130 and the number of senior enlisted was reduced to 128. Officers are not included in this study because interactions occur mostly between junior and senior enlisted Reservists.

The Commands are broken into smaller units and are allocated the appropriate number of Reservists to complete their assigned tasks. A typical allocation of Reservists to the smaller units would be 1–2 officers, 2–3 senior enlisted, and 25–40 junior enlisted. The structure results in the senior enlisted acting as a buffer between the officers and the junior enlisted to resolve conflicting information, address junior-enlisted Reservists' personal and professional problems, and to act as an intermediary. To maintain coordination and effectively communicate, each senior enlisted is assigned several junior enlisted to oversee and to act as their representative. The concept of the chain of command ensures that officers do not provide direction directly to junior enlisted without informing the senior enlisted, and junior enlisted do not seek input or feedback from officers without involving the senior enlisted (Military.com, 2021).

Procedure

Data collection included secondary/archival data and surveys. The study began with the secondary data collection, which consisted of obtaining the Reserve Unit Assignment Document (RUAD) for each Reserve unit in the study and copies of completed performance evaluations for the past 12–15 months since this represents the time period for a Navy performance appraisal.

Completion of performance evaluations are established for junior enlisted at specific times throughout the year to reduce the administrative burden due to the number of appraisals that have to be completed. In between the appraisals, Reservists also receive a mid-term counseling on the progress of meeting performance objectives. Because the 16 hours per month that Reservists work is not enough time to complete administrative requirements such as appraisals, required training, performing physical fitness tests, and resolving medical discrepancies, the workload is spread out throughout the year.

The RUAD is the official manpower and assignment document that is used by the Navy Reserves to list who is assigned to Reserve units. Included on the document is the name of the Reservist, rank, planned transfer date, the Reserve unit responsible for administrative purposes, the Reserve unit responsible for operational purposes, gender, and contact information for the Reservist. The information will be transferred to an Excel file to be used in data analysis. Identification of the Reserve unit responsible for administration and operational purposes is important because if the document lists the same Reserve unit in both places, this indicates the Reservist will perform military responsibilities in-person instead of teleworking. Contact information consists of the home address, personal e-mail, and phone number for the Reservist in case official mail, phone call, or text messages need to be sent to the Reservist.

The RUAD was used to reduce the list of 1,437 junior enlisted Reservists that are available for the study. Reservists who were unavailable due to mission assignments, who have not received a performance evaluation while assigned to the Reserve unit, or who are assigned to a different Reserve unit were eliminated since their supervisor is not within the Reserve unit where military responsibilities are being performed. The reduced list of 1,130 junior-enlisted personnel contained Reservists who perform military responsibilities with the Reserve unit in-

person, by computer-mediated communication, and by a combination of in-person and electronic means.

Copies of the completed performance evaluations are maintained for two years in case the original signed version of the performance evaluation fails to get entered into the Reservist's official personnel record in Millington, TN. The performance evaluation contains the name of the Reservist, rank, beginning and ending dates of the performance evaluation, the name of the supervisor that submitted the performance evaluation, performance score average from 0.0 to 5.0, a promotion recommendation that places the Reservist from the top-performing category to the lowest-performing category, and signatures acknowledging completion of the performance evaluation. The signatures do not indicate agreement on the contents of the performance evaluation but simply that the performance evaluation was completed.

The process used to reduce the number of junior enlisted from 1,437 to 1,130 identified the Reservists on whom copies of performance evaluations needed to be captured. A request was submitted to each Reserve unit, with support from the Commanding Officer authorizing dissemination, to provide copies of the performance evaluations. Once copies of the performance evaluations were received, the list of 1,130 junior-enlisted Reservists was reconciled to determine if there were any missing performance evaluations. Reservists who did not have performance evaluations will be excluded from the study. The information on the performance evaluation (consisting of the Reservist's name, rank, beginning date of the appraisal, ending date of the appraisal, appraisal trait average score, the name of the senior enlisted completing the appraisal, and the promotion recommendation) was transferred to an Excel file.

For the Reservists who were not eliminated from the study, each was sent a Qualtrics survey (Appendix A) to their personal e-mail address and follow-up reminders were sent by text messages. Personal e-mails are often utilized instead of Reserve e-mail addresses because, unless a Reservist is performing military duties, there is no requirement for the Reservist to review their Reserve e-mail, which requires both the necessary software and hardware to access. Data collected through Qualtrics has been established as effective in generating sufficient responses in a timely manner (Frippiat et al., 2010). The responses to the subordinate survey are from the subordinate's perspective about the degree of virtualness, a fatigue questionnaire as a marker variable, the quality of the relationship with their supervisor, their perception of organizational justice in performance appraisals, their perception of the supervisor's inclusiveness, their perception of their own performance, age, tenure within the Reserve unit, and race and ethnicity. Some Reservists were unable to access the Qualtrics survey due to limited access to a computer or the internet at the Navy Reserve reporting locations, paper surveys were delivered to the Navy Reserve reporting locations for the Reservists who requested to participate in the study in this way.

For each junior-enlisted Reservist who submitted a survey response, the supervisor who completed the performance appraisal was sent two survey links. The first survey link was specifically about the Reservist who submitted a survey response to capture the supervisor's perception of the subordinate's performance and the supervisor's perception of the quality of the LMX relationship with the subordinate (Appendix B). The quality of the LMX relationship from the supervisor's perspective will not be used in the study but is being captured for use in future research on LMX disagreement. The second survey link captured the supervisor's perception of being inclusive, the supervisor's age, their tenure within the Reserve unit as a supervisor, and

demographic information about the supervisor. Sending this survey separately will prevent supervisors from having to answer these same questions repeatedly if they have to complete surveys about multiple subordinates (Appendix C).

Measures

All of the items for all of the measures are shown in Appendix A for the subordinate survey and Appendices B and C for the supervisor survey. All the surveys begin with the Department of Defense Privacy Act Statement and an Informed Consent, shown in the appendices.

Subordinate performance rating. Subordinates' performances, a dependent variable, were measured in three ways, from the subordinate's self-rating for this study, from the supervisor's rating for this study, and from the archival data. Subordinates were asked to provide a self-perception of performance over the past 12 months on a six-item, five-point scale developed by Wayne et al. (1997). The items were adjusted to reflect the subordinate's perspective on their performance. The scale is a refinement of the seven-item, seven-point scale developed by Wayne and Liden (1995). The use of the six-item scale is appropriate in this study as the measure was used in prior research supporting that LMX is positively related to performance ratings (Wayne et al., 1997).

The supervisor who completed the performance appraisal was also be asked to provide an assessment of the subordinate's performance over the past 12 months. The same six-item, five-point scale developed by Wayne et al. (1997) was used.

Finally, the performance ratings from the archival data in the form of completed performance appraisals were used. Reservists are rated in terms of a recommendation for promotion. The ratings are Early Promote, Must Promote, Promotable, Progressing, and Significant Problems. Reservists whose performance is in the top 20% are assigned the Early

Promote rating to indicate promotion should occur before their peers. Reservists whose performance is above average but not in the top 20% are rated as Must Promote. Reservists whose performance is average without concerns are rated as Promotable. For Reservists performing below average, the Progressing rating is assigned, and Reservists who have significant performance issues are assigned the Significant Problem rating.

The three measures of subordinate performance were compared and the correlations among them is reported in Chapter 4. The data analysis was run using the survey data from the subordinate, the survey data from the supervisors, and the archival data as dependent variables.

Organizational justice. Subordinates' perceptions of organizational justice, an independent variable, were measured using the multi-dimensional scale developed by Colquitt (2001), which meta-analyses indicate is the most widely used measure (Pattnaik & Tripathy, 2019; Rupp et al., 2017). The scale includes four sub-scales that measure distributive, procedural, interpersonal, and informational justice. Greenberg (2001) recommended that organizational justice measures be tailored to study conditions. In this study, the items are tailored to reflect the outcome of their most recent performance appraisal. The responses are provided on a Likert-type scale from 1 (to a small extent) to 5 (to a large extent).

Distributive Justice. The distributive justice subscale has four items, which had a Cronbach alpha of 0.92 (Colquitt, 2001). A sample item is "Does your performance appraisal reflect the effort you have put into your work?"

Procedural Justice. The procedural justice subscale has seven items, which had a Cronbach alpha of 0.78 (Colquitt, 2001). A sample item is "Were you able to question the performance appraisal arrived at by the process?"

Interpersonal Justice. The interpersonal justice subscale has four items, which had a Cronbach alpha of 0.79 (Colquitt, 2001). A sample item is “To what extent has the supervisor treated you in a polite manner?”

Informational Justice. The informational justice subscale has five items, which had a Cronbach alpha of 0.79 (Colquitt, 2001). A sample item is “To what extent has the supervisor been candid in his/her communication with you?”

Degree of virtualness. To measure the subordinates’ degree of virtualness along a continuum from only face-to-face interaction to being fully virtual, an independent variable, a scale developed by Stark and Bierly (2009) is used. Stark and Bierly’s three-item scale ($\alpha = 0.78$) measures the extent of face-to-face interaction and computer-mediated communication. Responses are provided on a 5-point Likert scale between Strongly Agree and Strongly Disagree. Since Reservists are required to perform a minimum of 32 days of military support each year consisting of 20 days of monthly support and 12 days of annual support, survey respondents were also asked to indicate the number of days over the past 12 months that they were able to have face-to-face interaction with their supervisor. A drop-down list will range from a minimum of 0 days for Reservists who always work remotely to a maximum of 53 days for Reservists who perform their military support with the Reserve organization each month and are also assigned the maximum allowable additional operational support of 29 days. An additional drop-down list will request how many days out of the days that a Reservist performs military support was the Reservist able to have face-to-face interaction with the supervisor.

LMX Quality. Subordinates provided their perceptions of LMX quality, the mediating variable, using the seven-item, 5-point Likert scale developed by Graen and Uhl-Bien (1995), which is the most widely used measure of LMX (Gerstner & Day, 1997; Martin et al., 2016).

There are several LMX quality measures that range from a two-item scale to a forty-item scale (Bernerth et al., 2007), but a meta-analysis identified that LMX-7, with seven-items, can produce the same effect as other LMX measures (Hanasono, 2017). For this study, “member” in the items is being replaced with “subordinate,” and “leader” was replaced with “supervisor” to align with the descriptions used in the Reserve units. A sample item is “Do you know how satisfied your supervisor is with what you do?” Survey responses from the supervisor’s perspective are being captured for a future study on LMX disagreement.

Leader inclusiveness. Subordinate provided their perceptions of leader inclusiveness, the moderating variable, on a nine-item scale ($\alpha = 0.94$) developed by Carmeli et al. (2010). It is the most-often-used measure of the construct and captures a subordinate’s perception of their supervisor’s behavior to invite and to appreciate workplace contributions from all subordinates (Appelbaum et al., 2016). The scale consists of three-dimensions: openness, availability, and accessibility. For the purposes of this study, the nine-item scale was modified by replacing “The manager” with “My supervisor.” A sample item is “My supervisor is open to hearing new ideas.”

Supervisor’s perception of inclusiveness. To measure the supervisor’s perception of his/her inclusiveness, another perspective on the moderating variable, the nine-item scale ($\alpha = 0.94$) developed by Carmeli et al. (2010) was used. For the purposes of this study, the nine-item scale was modified by replacing “The manager” with “I am.” A sample item is “I am open to hearing new ideas.”

Fatigue. Subordinates rated their level of fatigue as a marker variable (Podsakoff et al., 2003). A marker variable was needed because subordinates provided multiple sources of data including the degree of virtualness, the independent variable; their self-ratings of performance, a dependent variable; their perceptions of organizational justice another dependent variable; LMX,

a mediator; and inclusiveness, a moderator. Marker variables are useful when respondents provide different data points and there is a potential for common method variance to influence the results (Podsakoff et al., 2003). Common method variance (CMV) is the systematic error variance that is shared among variables that are measured with the same source or method (Richardson et al., 2009). If CMV is not controlled, it can create systemic bias by inflating or deflating correlations between variables (Reio, 2010) and can make the generalizability of conclusions doubtful (Tehseen et al., 2017).

For this study, fatigue was selected as a marker variable as it is not likely to be related to the independent or dependent variables. Fatigue is a concern in Reserve organizations due to safety issues in operating heavy equipment, vehicles, and weapons as part of training requirements (Department of the Navy, 2018a; Frone & Blais, 2019). The Shortened Fatigue Questionnaire developed by Penson et al. (2020) will be used ($\alpha = 0.92$). A sample item is “I feel tired.” The items in the published measure were rated on a 7-item scale ranging from “Yes, that is true” to “No, that is not true.” For this study the responses will be provided on a 5-point Likert scale from “Strongly disagree” to “Strongly agree” to be consistent with the other 5-point scales in the survey.

Gender. Gender was included as a control variable. Females make up 26% of the Reserves as of 2020 (Office of the Deputy Assistant Secretary of Defense for Military Community and Family Policy, 2020). The Reserve units in the study operate heavy equipment and vehicles, support medical facilities, and provide warehousing support which are male dominated. The medical Reserve units represented 43% of the Reservists available for the study, and 41% of the Reservists in these units were females. Prior research on dyads shows that LMX

quality is influenced by same-sex dyads (Douglas, 2012). Gender was taken from the RUAD (archival data). All Reservists are identified as either male or female.

Tenure within the Reserve unit. The amount of time the subordinate Reservist has been assigned to their current Reserve unit was included as a control variable. Reservists are assigned to a Reserve unit from three years to five years and can request to remain longer after that. It is measured by the item “How long have you been assigned to your current operational unit?” The survey respondent selected from a drop down list the length of tenure with the Reserve unit by the number of years from 0 to 20 and months from 0 to 11.

Tenure with the supervisor. The amount of time the subordinate Reservist has been assigned the supervisor was included as a control variable. The amount of time the subordinate has been assigned to the Reserve unit may influence the quality of relationship with the supervisor. It is measured by comparing the overlap of tenure within the Reserve unit for the subordinate and the supervisor. Both the subordinate and the supervisor will select from a drop down list the length of tenure with the Reserve unit by the number of years from 0 to 20 and months from 0 to 11. The lowest amount of time represents tenure with the supervisor.

Communication method of receiving the performance appraisal. The communication method of receiving performance appraisals was included as a control variable as multiple communication methods are available to discuss the performance appraisal with the subordinate. The degree of virtualness may influence the supervisor’s choice of communication method. It was measured by one item on the subordinate’s survey “For your most recent performance appraisal review, how were the results of your performance appraisal communicated to you?” Seven response choices were provided: in-person, video conferencing, phone call, e-mail, text messaging, other, and did not have a discussion.

Race. The subordinates' and supervisors' races were collected to describe the population. It is measured by the item "What is your race?" Seven response choices are provided: American Indian/Alaskan Native, Asian, Black/African American, Native Hawaiian/Other Pacific Islander, White, Two or more races, and Other/I prefer not to say.

Ethnic Background. The subordinates' and supervisors' ethnic backgrounds were collected to describe the population. It is measured by the item "What is your ethnic background?" Three response choices are provided: Of Hispanic or Latino origin, Not of Hispanic or Latino origin, and I prefer not to say.

Age. The subordinates' and supervisors' ages were measured to describe the populations using the item, "What is your age in years?" and the survey respondent selected the age from a drop-down menu. The minimum age for subordinates is 18 years to reflect affiliating with the Navy Reserves directly after completing high school or earning a GED. The minimum age for supervisors is 25 years to reflect a minimum of 7 years as a junior enlisted who affiliated with the Navy Reserve directly after completing high school or earning a GED. The maximum age for both is 60 years, which is the mandatory retirement age.

Education level attained. The subordinates' and supervisors' education levels were included to describe the population. It was measured by the item "What is your highest level of education?" Seven response choices are provided: High school or equivalent, Completed some college, Associate degree, Bachelor's degree, Completed some post-graduate, Master's degree, and Doctorate, Law, Medical or Professional degree.

Required Sample Size

Determination of the minimum sample size for this study was made using the inverse square root method (Hair et al., 2021). The inverse square root method uses the

inverse square root of a sample's size for standard error estimation. For PLS-SEM users who are not methodological researchers, the inverse square root method is recommended for determining the minimum sample size estimation as the estimate will be fairly precise and be slightly higher than the true sample size (Kock & Hadaya, 2018). For a significance level of 5%, the inverse square root method utilizes the following calculation:

$$\text{Significance level} = 5\%: n_{\min} > \left(\frac{2.486}{|\rho_{\min}|} \right)^2 \quad (1)$$

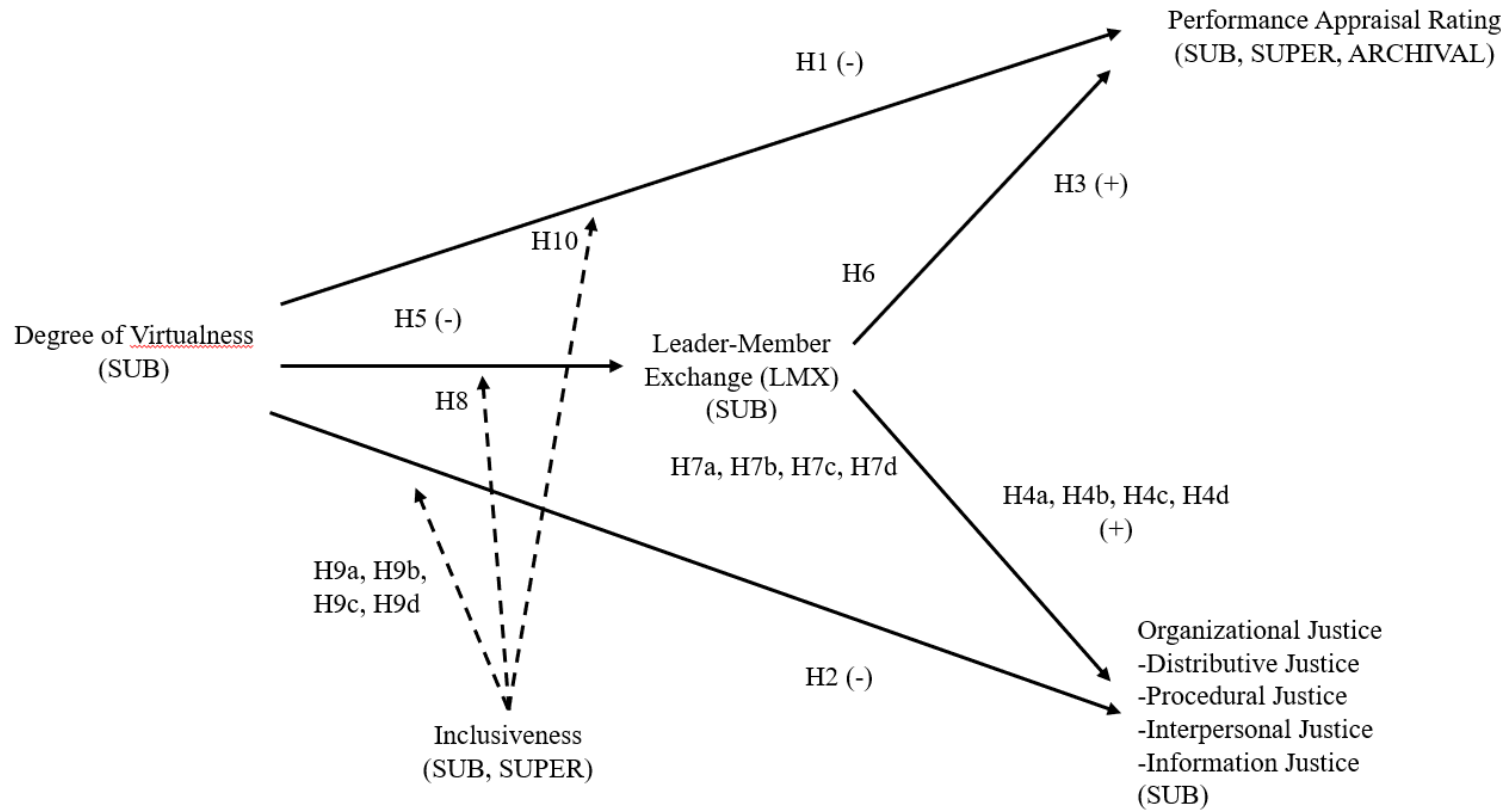
where n_{\min} is the minimum sample size estimate and ρ_{\min} is the value of the path coefficient with minimum magnitude in the PLS path model, which is expected to be statistically significant.

With limited information regarding effect size, ranges of effect size can be used, and the upper boundary of the effect size is the conservative selection (Hair et al., 2021). With a ρ_{\min} range between 0.11 and 0.20 (Hair et al., 2021, p. 27), the minimum sample size at the 5% significance level is 155 which equated to a minimum response rate of 14%.

The sources of the planned data collection are indicated in Figure 4. SUB indicates subordinate perceptions collected from the survey of subordinates. SUPER indicates supervisor perceptions collected from the survey of supervisors. ARCHIVAL indicates performance appraisal data collected from U.S. Navy Reserve performance appraisals.

Figure 4

Research Model and Hypotheses with Data Source



Data Analysis

Partial Least Squares-Structured Equation Modeling (PLS-SEM) and SPSS were used to test the hypotheses in this study. PLS-SEM has increasingly been used in several disciplines such as management, marketing, Human Resource Management, and psychology (Hair, Sarstedt, Pieper, & Ringle, 2012; Hair, Sarstedt, Ringle, & Mena, 2012; Ringle et al., 2020; Willaby et al., 2015). For leadership and organization research, PLS-SEM is often used for testing prediction-oriented models, such as one used in this study (Sosik et al., 2009; Li et al., 2018). This study utilized survey responses, secondary data, had a minimum sample size of 155, and had a complex structural model with eight constructs. PLS-SEM is able to perform statistical analysis on survey data and secondary data, accept a small sample size, and when the structural model is complex with many constructs (Hair et al., 2021). Recent telework research has validated the appropriateness of utilizing PLS-SEM for testing significance, mediating variables, and moderating variables (Coun et al., 2021; Chatterjee et al., 2022; Elyousfi et al., 2021; Pokojski et al., 2022).

PLS-SEM is a two-step process of analysis. The first step examines the measurement model (outer model) and tests for the validity and reliability of the instrument. If the measurement model is satisfactory and meets the thumb rules for data analysis, the process can proceed to the second step. The second step assesses the structural model (inner model) by testing the path coefficients for significance.

ANOVA in SPSS was used to test whether any differences in means of the study variables are explained by the supervisor, which would indicate an effect of the nested data. SPSS was also used to determine the presence of common method variance. To address common method variance, fatigue, as a marker variable, was utilized to indicate the existence and, if so, to provide an estimate of the effect (Lindell & Whitney, 2001). A marker variable

should not share substantially meaningful variance with the variables suspected of common method variance bias (Simmering et al., 2015).

Measurement model evaluation. Tests for indicator reliability, internal consistency reliability, convergent validity, and discriminant validity are conducted before testing the hypothesized relationships in PLS (Hair et al., 2020). Indicator reliability represents the variation in an item explained by the construct. Internal consistency reliability provides an estimate of the reliability based on the intercorrelations of the observed indicator variables. Convergent validity is the extent to which a latent construct explains the variance of its indicators. Discriminant validity refers to the extent to which one latent construct differs from the other construct.

Structural model evaluation. After establishing the validity and reliability of the model, structural model evaluation occurs. Tests for collinearity, significance, relevance of the structural model relationship, the model's explanatory and predictive powers are completed (Hair et al., 2020). The test for collinearity is to determine if two variables are highly correlated. The test for significance determines if the relationship between the variables is significant at error probabilities. The relevance of the significant relationship will be reviewed to support interpreting the results and drawing conclusions. The tests for the model's explanatory power indicate the amount of variance in the endogenous constructs explained by all the exogenous constructs linked to it. The tests for the model's predictive power determines if generalizable findings can be made for managerial decision-making.

Test for Mediating Effect

LMX is hypothesized to partially mediate the relationship between the degree of virtualness and performance appraisal scores and between the degree of virtualness and

distributive justice, procedural justice, interpersonal justice, and informational justice. By bootstrapping the sampling distribution of the indirect effect in PLS-SEM, inferential statistics for the direct and indirect effects can be derived (Hair et al., 2020; Hair et al., 2021).

Test for Moderating Effect

Leader inclusiveness is hypothesized to moderate the strength and direction of the relationship between the degree of virtualness and LMX, the degree of virtualness and performance appraisals, and the degree of virtualness and distributive justice, procedural justice, interpersonal justice, and informational justice. The two-stage approach to develop the interaction term was used to perform moderation analysis (Hair, et al., 2021). The two-stage approach is recommended over the product indicator approach and the orthogonalizing approach for moderation testing when determining whether or not the moderator exerts a significant effect on the relationship (Ramayah et al., 2018). The first stage is used to obtain the estimated scores of the latent variables. The second stage uses the estimated score of the latent variable from the first stage and the moderator variable to create a single-item measure used to measure the interaction item. If the effect of the interaction item is determined to be significant, then a significant moderating effect and the strength of the moderating effect needs to be determined (Hair et al., 2020).

The next chapter describes additional procedures used in this study and the data collected. It describes the analysis procedure in detail and shares the results of the hypothesis tests.

CHAPTER 4 – RESULTS

This chapter presents the results of the research conducted for this dissertation. This research study employs IBM Statistical Software SPSS (SPSS) and SmartPLS3 software to study the impact of the degree of virtualness on performance appraisal scores and organizational justice; the moderation effect of the degree of virtualness on LMX quality, performance appraisal scores, and perceptions of fairness; and if LMX quality partially mediates the relationship between the degree of virtualness and performance appraisal scores and perceptions of fairness.

The chapter begins with a description of the sample collected for this study, followed by a discussion of the reliability of the scales, data methods, and statistical procedures. The chapter concludes with a summary of the results of the hypotheses tests.

Response Rates and Final Sample

A Qualtrics survey was distributed via an e-mail request to Reservists, in accordance with the outlined methodology in Chapter 3. Reservists have military e-mail addresses, but to ensure maximum participation, survey invitations were sent to non-military e-mail addresses since the military system is not the primary method of communication within Reserve units.

Feedback from a Reserve unit participating in the study indicated high interest, but a lack of participation was due to phishing concerns. Phishing is a form of e-mail fraud that appears legitimate and requests the recipient to provide updated personal information or to visit a

website. Reservists who are victims of phishing, which can take years to correct, risk losing their security clearance, and a security clearance is necessary for supporting military operations. Despite the Reserve unit leadership providing the study notification, Reservists were hesitant to open e-mails sent from an unfamiliar e-mail address. Therefore, Reservists who wanted to participate in the study were given the option to use paper surveys, which were distributed in-person at the Navy Reserve Center Atlanta and Navy Reserve Center Birmingham. This resulted in a much better response rate. Over a three-week period, Reserve units were offered an opportunity to submit responses on paper surveys in addition to the online Qualtrics survey. The total number of survey responses collected from subordinate Reservists was 202. After scrubbing of the data, 23 surveys were eliminated due to incomplete surveys or because the supervisor chose to not participate in the study. A final usable sample size of 179 subordinate Reservists was attained, 24 more than the minimum sample size of 155. Supervisors in the Reserve units were also requested to participate in the study, and 23 supervisors provided survey responses.

Subordinate Respondent Demographics

Details of subordinate respondents' demographics can be found in Table 1. A majority of the subordinate respondents were male (69.8%) compared to female (30.2%). Their self-identified race was as follows: Asian (2.2%), Black/African American (43.6%); White (28.5%); two or more races (1.1%); other/prefer not to answer (24.0%); and missing data (0.6%). Respondents self-identified their ethnicity as of Hispanic background (7.8%); not of Hispanic background (74.3%); I prefer to not to answer (17.3%); and missing data (0.6%). Their self-reported age was: 20-29 (34.1%); 30-39 (45.3%); 40-49 (15.6%); 50-59 (2.8%); and missing data (2.2%). Subordinate respondents' levels of education were: high school or equivalent (49.7%);

completed some college (16.2%); associate degree (4.5%); bachelor's degree (24.6%); master's degree (4.5%); and missing data (0.5%).

Table 1

Subordinate Demographics

| Characteristic | Category | n | % |
|-----------------------|--|----------|----------|
| Gender | Male | 125 | 69.8% |
| | Female | 54 | 30.2% |
| Race | Asian | 4 | 2.2% |
| | Black / African American | 78 | 43.6% |
| | Other / I prefer not to say | 43 | 24.0% |
| | Two or more races | 2 | 1.1% |
| | White | 51 | 28.5% |
| | Did not answer | 1 | 0.6% |
| Ethnic Background | Of Hispanic background | 14 | 7.8% |
| | Not of Hispanic background | 133 | 74.3% |
| | Prefer to not answer | 31 | 17.3% |
| | Did not answer | 1 | 0.6% |
| Age | 20-29 | 61 | 34.1% |
| | 30-39 | 81 | 45.3% |
| | 40-49 | 28 | 15.6% |
| | 50-59 | 5 | 2.8% |
| | Did not answer | 4 | 2.2% |
| Level of Education | High school or equivalent | 89 | 49.7% |
| | Completed some college | 29 | 16.2% |
| | Associate degree | 8 | 4.5% |
| | Bachelor's degree | 44 | 24.6% |
| | Completed some post-graduate | 0 | 0.0% |
| | Master's degree | 8 | 4.5% |
| | Doctorate, PhD Law, Medicine, or Professional degree | 0 | 0.0% |
| Did not answer | 1 | 0.5% | |

Supervisor Respondent Demographics

The research instrument contained several demographic and descriptive questions to provide a profile of the supervisor respondents. Details can be found in Table 2. A majority of the supervisor respondents were male (82.6%) compared to female (17.4%). Supervisors self-identified their race as follows: Black/African American (21.7%); White (47.8%); and other/prefer not to answer (30.4%). They self-identified their ethnicity as of Hispanic background (8.7%); not of Hispanic background (69.6%); and I prefer to not answer (21.7%). Their self-identified age was: 30-39 (21.7%); 40-49 (56.5%); and 50-59 (21.7%). The supervisors' levels of education were quantified as follows: high school or equivalent (4.3%); completed some college (17.4%); associate degree (8.7%); bachelor's degree (56.5%); and master's degree (13.0%).

Table 2

Supervisor Demographics

| Characteristic | Category | n | % |
|-----------------------|-----------------------------|----------|----------|
| Gender | Male | 19 | 82.6% |
| | Female | 4 | 17.4% |
| Race | Black / African American | 5 | 21.7% |
| | Other / I prefer not to say | 7 | 30.4% |
| | White | 11 | 47.8% |
| Ethnic Background | Of Hispanic background | 2 | 8.7% |
| | Not of Hispanic background | 16 | 69.6% |
| | Prefer to not answer | 5 | 21.7% |
| Age | 30-39 | 5 | 21.7% |
| | 40-49 | 13 | 56.5% |
| | 50-59 | 5 | 21.7% |
| Level of Education | High school or equivalent | 1 | 4.3% |
| | Completed some college | 4 | 17.4% |
| | Associate degree | 2 | 8.7% |
| | Bachelor's degree | 13 | 56.5% |
| | Master's degree | 3 | 13.0% |

Descriptive Statistics

SPSS was used to conduct a preliminary data analysis and descriptive statistics of the data. The descriptive statistics provided important information, specifically the skewness and kurtosis of the data. Burns and Burns (2008) report that values for both skewness and kurtosis should be zero if the distribution is perfectly normal (p.156). First, the descriptive statistics for each survey question were calculated. The results are shown in Table 3.

Table 3

Descriptive Statistics from Subordinates and Supervisors

| | Minimum | Maximum | Mean | Skewness | Kurtosis |
|--|----------------|----------------|-------------|-----------------|-----------------|
| Most of my day-to-day communication with the Reserve Unit was face-to-face. (DV1) ^a | 1 | 5 | 3.24 | -0.401 | -1.503 |
| Most of my day-to-day communication with the Reserve Unit was through computer or telephone interaction. (DV2) | 1 | 5 | 2.42 | 1.018 | 0.113 |
| My Reserve Unit was considered a virtual Reserve Unit, i.e, I primarily interacted through computer and telecommunications technologies. (DV3) | 1 | 5 | 3.37 | -0.506 | -1.365 |
| Do you know where you stand with your supervisor...do you usually know how satisfied your supervisor is with what you do? (LMXSUB1) | 1 | 5 | 2.67 | 0.121 | -0.996 |
| How well does your supervisor understand your job problems and needs? (LMXSUB2) | 1 | 5 | 2.60 | 0.286 | -0.858 |
| How well does your supervisor recognize your potential? (LMXSUB3) | 1 | 5 | 2.62 | 0.295 | -0.911 |

Table 3*Descriptive Statistics from Subordinates and Supervisors*

| | Minimum | Maximum | Mean | Skewness | Kurtosis |
|--|----------------|----------------|-------------|-----------------|-----------------|
| Regardless of how much formal authority he/she has built into his/her position, what are the chances that your supervisor would use his/her power to help you solve problems in your work? (LMXSUB4) | 1 | 5 | 3.01 | 0.231 | -0.537 |
| Again, regardless of the amount of formal authority your supervisor has, what are the chances that he/she would "bail you out" at his/her expense? (LMXSUB5) | 1 | 5 | 2.42 | 0.331 | -0.674 |
| I have enough confidence in my supervisor that I would defend and justify his/her decision if he/she were not present to do so. (LMXSUB6) | 1 | 5 | 3.08 | -0.075 | -0.941 |
| How would you characterize your working relationship with your supervisor? (LMXSUB7) | 1 | 5 | 3.02 | -0.061 | -0.115 |
| To what extent does your performance appraisal reflect the effort you have put into your work? (DJ1) | 1 | 5 | 2.78 | 0.198 | -0.869 |
| To what extent is your performance appraisal appropriate for the work you have completed? (DJ2) | 1 | 5 | 2.71 | 0.180 | -0.915 |
| To what extent does your performance appraisal reflect what you have contributed to the organization? (DJ3) | 1 | 5 | 2.79 | 0.017 | -0.650 |
| To what extent is your performance appraisal justified, given your performance? (DJ4) | 1 | 5 | 2.71 | 0.212 | -0.922 |
| To what extent have you been able to express your views and feelings during those procedures? (PJ1) | 1 | 5 | 2.69 | 0.026 | -0.734 |

Table 3*Descriptive Statistics from Subordinates and Supervisors*

| | Minimum | Maximum | Mean | Skewness | Kurtosis |
|---|----------------|----------------|-------------|-----------------|-----------------|
| To what extent have you had influence over the performance appraisal arrived at by those procedures? (PJ2) | 1 | 5 | 2.25 | 0.426 | -0.677 |
| To what extent have those procedures been applied consistently? (PJ3) | 1 | 5 | 2.79 | -0.199 | -0.456 |
| To what extent have those procedures been free of bias? (PJ4) | 1 | 5 | 3.11 | -0.006 | -0.222 |
| To what extent have those procedures been based on accurate information? (PJ5) | 1 | 5 | 2.81 | 0.141 | -0.902 |
| To what extent have you been able to appeal the performance appraisal arrived at by those procedures? (PJ6) | 1 | 5 | 2.24 | 0.375 | -0.821 |
| To what extent have those procedures upheld ethical and moral standards? (PJ7) | 1 | 5 | 3.17 | 0.091 | 0.292 |
| To what extent has he/she treated you in a polite manner? (IPJ1) | 1 | 5 | 3.61 | -0.065 | -0.370 |
| To what extent has he/she treated you with dignity? (IPJ2) | 1 | 5 | 3.53 | 0.125 | -0.296 |
| To what extent has he/she treated you with respect? (IPJ3) | 1 | 5 | 3.75 | -0.211 | -0.334 |
| To what extent has he/she refrained from improper remarks or comments? (IPJ4) | 1 | 5 | 3.93 | -0.707 | 1.381 |
| To what extent has he/she been candid in his/her communications with you? (IFJ1) | 1 | 5 | 2.97 | 0.199 | -0.337 |
| To what extent has he/she explained the procedures thoroughly? (IFJ2) | 1 | 5 | 2.96 | -0.058 | -0.574 |
| To what extent were his/her explanations regarding the procedures reasonable? (IFJ3) | 1 | 5 | 2.56 | 0.138 | -0.683 |

Table 3*Descriptive Statistics from Subordinates and Supervisors*

| | Minimum | Maximum | Mean | Skewness | Kurtosis |
|---|----------------|----------------|-------------|-----------------|-----------------|
| To what extent has he/she communicated details in a timely manner? (IFJ4) | 1 | 5 | 3.23 | -0.268 | -0.672 |
| To what extent has he/she seemed to tailor his/her communications to individuals' specific needs? (IFJ5) | 1 | 5 | 3.18 | -0.142 | -0.596 |
| My supervisor is open to hearing new ideas. (INCSUB1) | 1 | 5 | 3.11 | -0.040 | -0.571 |
| My supervisor is attentive to new opportunities to improve work processes. (INCSUB2) | 1 | 5 | 2.90 | -0.014 | -0.149 |
| My supervisor is open to discuss the desired goals and new ways to achieve them. (INCSUB3) | 1 | 5 | 2.97 | 0.001 | 0.136 |
| My supervisor is available for consultation on problems. (INCSUB4) | 1 | 5 | 3.09 | -0.149 | -1.351 |
| My supervisor is an ongoing 'presence' in this Reserve Unit - someone who is readily available. (INCSUB5) | 1 | 5 | 2.98 | -0.064 | -1.391 |
| My supervisor is available for professional questions - I would like to consult with him/her. (INCSUB6) | 1 | 5 | 2.54 | 0.383 | -1.322 |
| My supervisor is ready to listen to my requests. (INCSUB7) | 1 | 5 | 3.31 | -0.168 | -0.894 |
| My supervisor encourages me to access him/her on emerging issues. (INCSUB8) | 1 | 5 | 3.74 | -0.478 | -0.659 |
| My supervisor is accessible for discussing emerging problems. (INCSUB9) | 1 | 5 | 2.96 | -0.039 | -1.374 |
| Overall, to what extent have you been performing your job the way your supervisor would like it to be performed? (PMSUB1) | 2 | 5 | 3.50 | 0.061 | -0.515 |

Table 3*Descriptive Statistics from Subordinates and Supervisors*

| | Minimum | Maximum | Mean | Skewness | Kurtosis |
|--|----------------|----------------|-------------|-----------------|-----------------|
| If you entirely had your way, to what extent would you change the manner in which you are performing your job? (PMSUB2) ^a | 1 | 5 | 3.54 | -0.529 | -0.658 |
| All in all, you are very competent. (PMSUB3) | 3 | 5 | 4.43 | -0.465 | -0.670 |
| In your estimation, you get your work done very effectively. (PMSUB4) | 3 | 5 | 4.39 | -0.439 | -0.651 |
| Overall, to what extent have you been effectively fulfilling your roles and responsibilities? (PMSUB5) | 3 | 5 | 4.33 | -0.302 | -0.637 |
| Rate your overall level of performance. (PMSUB6) ^a | 3 | 5 | 4.56 | -0.888 | -0.205 |
| How were the results of your most recent performance appraisal review communicated to you? (COM) | 1 | 7 | 2.37 | 1.355 | 0.577 |
| Tenure_with_Sup (TENUREWSUP) | 1 | 187 | 26.06 | 3.046 | 13.759 |
| Tenure_with_unit (TENUREWUNIT) | 1 | 187 | 37.72 | 1.660 | 3.300 |
| Eval_Score | 3 | 5 | 3.55 | 0.929 | -0.527 |
| Gender (SUPGENDER) | 1 | 2 | 1.70 | -0.892 | -1.218 |
| I am open to hearing new ideas. (INCSUP1) | 4 | 5 | 4.41 | 0.369 | -1.885 |
| I am attentive to new opportunities to improve work processes. (INCSUP2) | 3 | 5 | 4.16 | -0.214 | -0.874 |
| I am open to discuss the desired goals and new ways to achieve them. (INCSUP3) | 3 | 5 | 4.10 | -0.148 | -1.085 |
| I am available for consultation on problems. (INCSUP4) | 3 | 5 | 4.28 | -0.154 | -0.531 |
| I am an ongoing 'presence' in this Reserve Unit – I am readily available. (INCSUP5) | 2 | 5 | 3.83 | -0.544 | -0.845 |
| I am available for professional questions – they would like to consult with me. (INCSUP6) | 3 | 5 | 3.97 | 0.063 | -1.520 |

Table 3*Descriptive Statistics from Subordinates and Supervisors*

| | Minimum | Maximum | Mean | Skewness | Kurtosis |
|--|----------------|----------------|-------------|-----------------|-----------------|
| I am ready to listen to their requests. (INCSUP7) | 4 | 5 | 4.53 | -0.136 | -2.004 |
| I encourage them to access me on emerging issues. (INCSUP8) | 4 | 5 | 4.77 | -1.292 | -0.335 |
| I am accessible for discussing emerging problems. (INCSUP9) | 2 | 5 | 3.94 | -0.637 | -0.726 |
| Overall, to what extent has this employee been performing his/her job the way you would like it to be performed? (PMSUP1) | 1 | 5 | 3.01 | -0.053 | -0.606 |
| If you entirely had your way, to what extent would you change the manner in which this employee is performing his/her job? (PMSUP2) ^a | 1 | 5 | 2.74 | 0.354 | -0.835 |
| All in all, this employee is very competent. (PMSUP3) | 1 | 5 | 3.20 | 0.069 | -0.446 |
| In my estimation, this employee gets his/her work done very effectively. (PMSUP4) | 1 | 5 | 3.17 | 0.260 | -0.597 |
| Overall, to what extent has this employee been effectively fulfilling his/her roles and responsibilities? (PMSUP5) | 1 | 5 | 3.11 | 0.120 | -0.573 |
| Rate this employee's overall level of performance. (PMSUP6) | 1 | 5 | 3.34 | 0.286 | -0.642 |

Note. ^a reverse coded; Gender – 1 = females and 2 = males

The mean on the measure for the quality of performance (PMSUB6) from the subordinate's perception was very high (4.56). Subordinates perceived that the quality of their performance met or exceeded the supervisor's expectations. In addition, the mean of the measure for the supervisor's encouragement for subordinates to contact them on emerging issues (INCSUP8) was very high (4.77). Supervisors responded that they strongly encourage to be

contacted for concerns or issues. The high scores for these measures may indicate bias, which will be discussed in Chapter 5.

Since the values for both skewness and kurtosis of our data were not zero, further tests were necessary to assess normality of data distribution (discussed below). In order to conduct the test of normality, new indexed variables consisting of the mean score for the following latent variables utilized in the model were constructed (Burns & Burns, 2008) (Table 4).

Table 4

List of Indexed Variables

| Construct | Variable | Average Mean Score |
|---------------------------------------|-----------------|---|
| Degree of Virtualness | DV_INDEX | $(DV1+DV2+DV3)/3$ |
| Fatigue | F_INDEX | $(MVF1+MVF2+MVF3+MVF4)/4$ |
| Leader-Member Exchange | LMXSUB_INDEX | $(LMXSUB1+LMXSUB2+LMXSUB3+LMXSUB4+LMXSUB5+LMXSUB6+LMXSUB7)/7$ |
| Distributive Justice | DJ_INDEX | $(DJ1+DJ2+DJ3+DJ4)/4$ |
| Procedural Justice | PJ_INDEX | $(PJ1+PJ2+PJ3+PJ4+PJ5+PJ6+PJ7)/7$ |
| Interpersonal Justice | IPJ_INDEX | $(IPJ1+IPJ2+IPJ3+IPJ4)/4$ |
| Informational Justice | IFJ_INDEX | $(INF1+INF2+INF3+INF4)/4$ |
| Performance Measurement – Subordinate | PMSUB_INDEX | $(PMSUB1+PMSUB2+PMSUB3+PMSUB4+PMSUB5+PMSUB6)/6$ |
| Leader Inclusiveness – Subordinate | INCSUB_INDEX | $(INCSUB1+INCSUB2+INCSUB3+INCSUB4+INCSUB5+INCSUB6+INCSUB7+INCSUB8+INCSUB9)/9$ |
| Performance Measurement – Supervisor | PMSUP_INDEX | $(PMSUP1+PMSUP2+PMSUP3+PMSUP4+PMSUP5+PMSUP6)/6$ |

Table 4*List of Indexed Variables*

| Construct | Variable | Average Mean Score |
|--------------------------------------|-----------------|---|
| Leader Inclusiveness - Supervisor | INCSUP_INDEX | (INCSUP1+INCSUP2+INCSUP3+INCSUP4+INCSUP5+INCSUP6+INCSUP7+INCSUP8+INCSUP9)/9 |

SPSS Reliability Analysis

All scales used for this research study have been previously validated as specified in Chapter 3. Nonetheless, a reliability analysis was conducted using SPSS to assess reliability of the scales within the context of this study. Table 5 summarizes the results for each of the scales measuring the latent variables in the research model (see Figure 4). According to Burns and Burns (2008), “an alpha of 0.8 or above is regarded as highly acceptable for assuming homogeneity of scale items, while 0.7 is the lower limit of acceptability.” As shown in Table 5, all of the variables in the study had acceptable or highly acceptable Cronbach’s alpha scores except the degree of virtualness, which had an alpha of 0.595, and the performance measurement rated by subordinates, which had an alpha of 0.628.

Table 5*Reliability Analysis of Scale Measurements*

| Construct | Scale | Number of Items | Cronbach’s Alpha |
|-----------------------|--------------|------------------------|-------------------------|
| Degree of Virtualness | DV_INDEX | 3 | 0.595 |
| LMX | LMXSUB_INDEX | 7 | 0.951 |
| Distributive Justice | DJ_INDEX | 4 | 0.953 |
| Procedural Justice | PJ_INDEX | 7 | 0.916 |
| Interpersonal Justice | IPJ_INDEX | 4 | 0.916 |
| Informational Justice | IFJ_INDEX | 4 | 0.888 |

Table 5*Reliability Analysis of Scale Measurements*

| Construct | Scale | Number of Items | Cronbach's Alpha |
|---------------------------------------|--------------|------------------------|-------------------------|
| Performance Measurement - Subordinate | PMSUB_INDEX | 6 | 0.628 |
| Leader Inclusiveness - Subordinate | INCSUB_INDEX | 9 | 0.954 |
| Performance Measurement - Supervisor | PMSUP_INDEX | 6 | 0.942 |
| Leader Inclusiveness - Supervisor | INCSUP_INDEX | 9 | 0.800 |

By removing specific items from the construct, Cronbach's alpha can improve above the 0.7 lower limit of acceptability (Taber, 2018). For the Degree of Virtualness Index, "Most of my day-to-day communication with the Reserve unit was through computer or telephone interaction." (DV2) was removed, and the Cronbach's alpha for the new Degree of Virtualness Index increased to 0.940. Reservists mainly perform military support two days per month where they are physically present with the supervisor or are not physically present with the supervisor. When Reservists are not performing military duty and regardless of whether the Reservist is a teleworker or non-teleworker, Reservists continue to interact with the supervisor by computer-mediated communication. The response would apply to both teleworkers and non-teleworkers, and this is supported with 66.9% of the survey responses for DV2 being "Agree."

For the Performance Measurement from the subordinate, "If you entirely had your way, to what extent would you change the manner in which you are performing your job?" (PMSUB2) was removed, and the Cronbach's alpha for the new Performance Measurement Subordinate Index increased to 0.796. The subordinates who participated in the study are learning their job and developing their technical expertise. Changing the manner in performing the job may not be a performance benefit and may actually hinder performance appraisals if they deviate from

established procedures developed by the Navy Reserve. Regardless of the outcome of their performance appraisal score, 79% of the Reservists responded that they would not change how they were performing their job or were neutral on the issue.

Table 6

List of Indexed Variables After Adjustments

| Variable | Average Mean Score |
|-----------------|---|
| DV_INDEX2 | $(DV1+DV3)/2$ |
| F_INDEX | $(MVF1+MVF2+MVF3+MVF4)/4$ |
| LMX_INDEX | $(LMX1+LMX2+LMX3+LMX4+LMX5+LMX6+LMX7)/7$ |
| DJ_INDEX | $(DJ1+DJ2+DJ3+DJ4)/4$ |
| PJ_INDEX | $(PJ1+PJ2+PJ3+PJ4+PJ5+PJ6+PJ7)/7$ |
| IPJ_INDEX | $(IPJ1+IPJ2+IPJ3+IPJ4)/4$ |
| IFJ_INDEX | $(INF1+INF2+INF3+INF4)/4$ |
| PMSUB_INDEX2 | $(PMSUB1+PMSUB3+PMSUB4+PMSUB5+PMSUB6)/5$ |
| INCSUB_INDEX | $(INCSUB1+INCSUB2+INCSUB3+INCSUB4+INCSUB5+INCSUB6+INCSUB7+INCSUB8+INCSUB9)/9$ |
| PMSUP_INDEX | $(PMSUP3+PMSUP4+PMSUP5+PMSUP6)/4$ |
| INCSUP_INDEX | $(INCSUP1+INCSUP2+INCSUP3+INCSUP4+INCSUP5+INCSUP6+INCSUP7+INCSUP8+INCSUP9)/9$ |

Table 7

Reliability Analysis of Adjusted Scale Measurements

| Construct | Scale | Number of Items | Cronbach Alpha |
|-----------------------|---------------|------------------------|-----------------------|
| Degree of Virtualness | DV_INDEX2 | 2 | 0.940 |
| LMX | LMX_SUB_INDEX | 7 | 0.951 |
| Distributive Justice | DJ_INDEX | 4 | 0.953 |

Table 7*Reliability Analysis of Adjusted Scale Measurements*

| Construct | Scale | Number of Items | Cronbach Alpha |
|---------------------------------------|--------------|------------------------|-----------------------|
| Procedural Justice | PJ_INDEX | 7 | 0.916 |
| Interpersonal Justice | IPJ_INDEX | 4 | 0.916 |
| Informational Justice | IFJ_INDEX | 4 | 0.888 |
| Performance Measurement - Subordinate | PMSUB_INDEX2 | 5 | 0.796 |
| Leader Inclusiveness - Subordinate | INCSUB_INDEX | 9 | 0.954 |
| Performance Measurement - Supervisor | PMSUP_INDEX | 6 | 0.942 |
| Leader Inclusiveness - Supervisor | INCSUP_INDEX | 9 | 0.800 |

As can be seen in the descriptive statistics for the new index variables (Table 8), the estimates for skewness and kurtosis tended to be different from zero, supporting the notion that the data are not normally distributed (Burns & Burns, 2008). When normality distributions are violated, interpretation of the results and inferences about the sample may not be reliable (Razali & Wah, 2011). To assess whether or not the sample of independent observations represents a population with a normal distribution, the Shapiro-Wilk test was conducted. The Shapiro-Wilk test is the most powerful normality test and is appropriate for sample sizes less than 2000 (Razali & Wah, 2011; Orcan, 2020).

Table 8*Descriptive Statistics on Adjusted Indexed Variables*

| Variable | Minimum | Maximum | Mean | Skewness | Kurtosis |
|-----------------|----------------|----------------|-------------|-----------------|-----------------|
| DV_INDEX2 | 1.50 | 5.00 | 3.03 | -0.504 | -1.382 |
| LMXSUB_INDEX | 1.00 | 5.00 | 2.78 | 0.252 | -0.884 |
| DJ_INDEX | 1.00 | 5.00 | 2.74 | 0.265 | -0.912 |
| PJ_INDEX | 1.14 | 5.00 | 2.72 | 0.337 | -0.790 |

Table 8*Descriptive Statistics on Adjusted Indexed Variables*

| Variable | Minimum | Maximum | Mean | Skewness | Kurtosis |
|-----------------|----------------|----------------|-------------|-----------------|-----------------|
| IPJ_INDEX | 1.00 | 5.00 | 3.71 | -0.162 | 0.091 |
| IFJ_INDEX | 1.20 | 5.00 | 2.98 | 0.218 | -0.432 |
| PMSUB_INDEX2 | 3.00 | 5.00 | 4.24 | -0.368 | -0.328 |
| INCSUB_INDEX | 1.11 | 5.00 | 3.07 | 0.109 | -0.994 |
| PMSUP_INDEX | 1.17 | 5.00 | 3.10 | 0.157 | -0.892 |
| INCSUP_INDEX | 3.22 | 5.00 | 4.22 | -0.124 | -0.865 |

The Shapiro-Wilk tests confirm that all ten latent variables deviated significantly from a normal distribution. Table 9 summarizes this Test of Normality conducted using SPSS. All ten of the latent variables that deviated significantly from a normal distribution had a significance less than 0.05, reaffirming the previous assertion. Hair et al. (2017) report that PLS-SEM is a nonparametric statistical method; as a result, it does not require data to be normally distributed for analysis (p. 61), supporting its use in this study.

Table 9*Test of Normality*

| | Kolmogorov-Smirnov^a | | | Shapiro-Wilk | | |
|---------------|---------------------------------------|-----------|-------------|---------------------|-----------|-------------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| DV_INDEX2 | 0.280 | 168 | <0.001 | 0.811 | 168 | <0.001 |
| LMX_SUB_INDEX | 0.093 | 168 | 0.001 | 0.967 | 168 | <0.001 |
| DJ_INDEX | 0.139 | 168 | <0.001 | 0.956 | 168 | <0.001 |
| PJ_INDEX | 0.124 | 168 | <0.001 | 0.962 | 168 | <0.001 |
| IPJ_INDEX | 0.130 | 168 | <0.001 | 0.960 | 168 | <0.001 |
| IFJ_INDEX | 0.072 | 168 | 0.034 | 0.979 | 168 | 0.013 |
| PMSUB_INDEX2 | 0.113 | 168 | <0.001 | 0.953 | 168 | <0.001 |
| INCSUB_INDEX | 0.089 | 168 | 0.002 | 0.966 | 168 | <0.001 |

Table 9*Test of Normality*

| | Kolmogorov-Smirnov ^a | | | Shapiro-Wilk | | |
|--------------|---------------------------------|-----|--------|--------------|-----|--------|
| | Statistic | df | Sig. | Statistic | df | Sig. |
| PMSUP_INDEX | 0.167 | 168 | <0.001 | 0.963 | 168 | <0.001 |
| INCSUP_INDEX | 0.134 | 168 | <0.001 | 0.952 | 168 | <0.001 |

a. Lilliefors Significance Correction

Note. Indexed construct: Degree of Virtualness = DV_INDEX2; Indexed construct: Leader Member Exchange = LMX_SUB_INDEX; Indexed construct: Distributive Justice = DJ_INDEX; Indexed construct: Procedural Justice = PJ_INDEX; Indexed construct: Interpersonal Justice = IPF_INDEX; Indexed construct: Informational Justice = IFJ_INDEX; Indexed construct: Performance Measurement = PMSUB

Assessment of Clustered Data in SPSS

When data is collected from multiple individuals in a group, the data is considered nested within that group and may not be considered independent (Aarts et al., 2014). Ordinary least squares regression analysis assumes that each survey respondent in the sample provides a unique piece of statistical information that is unrelated to the information provided by others in the sample (O'Dwyer & Parker, 2014). When the sample contains nested data, the observations may be clustered, leading to correlated observations and the possibility of downward biased estimates of the standard errors associated with the regression coefficients (O'Dwyer & Parker, 2014). If the statistical dependency caused by nested data is not accounted for, substantive errors in interpreting the statistical significance of relationships may occur (Raudenbush & Bryk, 2001). Multi-level modeling, also known as hierarchical linear modeling (HLM) or linear mixed modeling, can be used to account for the increased similarity of observations taken from the same research object by retaining cluster-membership information of each individual observation (Aarts et al., 2014). Table 10 shows the linear mixed model results.

Table 10*Estimates of Fixed Effects^a Results*

| Parameter | Estimate | Std. Error | df | <i>t</i> | Sig. | 95% Confidence Interval | |
|--------------------------------|----------|---------------|---------|----------|-------|-------------------------------|----------------|
| | | | | | | Lower Bound | Upper Bound |
| Intercept | 0.033 | 2.562 | 151.146 | 0.013 | 0.990 | -5.029 | 5.095 |
| DV_INDEX2 | -0.650 | 0.392 | 87.508 | -1.659 | 0.101 | -1.429 | 0.129 |
| DJ_INDEX | -0.151 | 0.896 | 152.665 | -0.169 | 0.866 | -1.921 | 1.618 |
| PJ_INDEX | 2.510 | 1.696 | 147.027 | 1.480 | 0.141 | -0.842 | 5.862 |
| IPJ_INDEX | -2.521 | 1.189 | 136.334 | -2.120 | 0.036 | -4.872 | -0.170 |
| IFJ_INDEX | 1.633 | 1.287 | 142.557 | 1.269 | 0.207 | -0.911 | 4.178 |
| LMXSUB_INDEX | 1.004 | 0.938 | 153.897 | 1.070 | 0.286 | -0.848 | 2.856 |
| INCSUP_INDEX | 0.181 | 0.622 | 151.596 | 0.291 | 0.772 | -1.047 | 1.409 |
| DV_INDEX2 * INCSUP_INDEX | 0.163 | 0.090 | 75.989 | 1.812 | 0.074 | -0.016 | 0.343 |
| DJ_INDEX * INCSUP_INDEX | 0.123 | 0.210 | 152.368 | 0.583 | 0.561 | -0.293 | 0.538 |
| PJ_INDEX * INCSUP_INDEX | -0.609 | 0.386 | 147.780 | -1.576 | 0.117 | -1.373 | 0.155 |
| IPJ_INDEX * INCSUP_INDEX | 0.650 | 0.284 | 137.852 | 2.285 | 0.024 | 0.087 | 1.212 |
| IFJ_INDEX * INCSUP_INDEX | -0.420 | 0.300 | 143.499 | -1.397 | 0.165 | -1.013 | 0.174 |
| LMXSUB_INDEX * INCSUP_INDEX | -0.161 | 0.220 | 153.625 | -0.729 | 0.467 | -0.596 | 0.275 |

a. Dependent Variable: PMSUP_INDEX.

To determine the Intraclass Correlation Coefficient (ICC), the estimate of covariance is obtained from the output of the linear mixed model in Table 11. ICC is a widely used reliability index in test-retest, intrarater, and interrater reliability analyses (Koo & Li, 2016). The calculation of ICC as 0.0135 indicate values from the same group are not similar. However, simulation studies have indicated that five observations per cluster and 10 clusters per group is recommended to obtain an unbiased estimate of the standard error for the experimental effect, while thirty clusters are needed to obtain an unbiased estimate of the intraclass correlation (Maas

& Hox, 2004). Because the number of clusters did not the minimum threshold, the low ICC result is not a definitive validation of intra-rater reliability. To perform data analysis in SmartPLS, a full set of data for the model estimation is required so the leader inclusiveness responses from the supervisors are entered for each of their respective subordinates. This method may generate common method variance, which will be assessed in SmartPLS in the next section.

Table 11

Estimates of Covariance Parameters^a

| Parameter | Estimate | Std. Error |
|--|-----------------|-------------------|
| Residual | 0.798 | 0.089 |
| Intercept [subject = SupExternalReference] Variance | 0.011 | 0.035 |

a. Dependent Variable: PMSUP_INDEX.

Common Method Variance

A concern about the data used in the study is from possible common method variance (CMV). Common method variance is systematic error variance shared among variables measured with and introduced as a function of the same method or source (Richardson et al., 2009). Supervisors in the study provided performance-measure perceptions on subordinates. The ratio of supervisor responses for subordinates ranged from a low of one supervisor to one subordinate, to a high of one supervisor to 27 subordinates. Mixed-model linear analysis was performed in SPSS to determine if group clustering of the data occurred, but, due to less than 30 supervisors providing responses and due to the inconsistent number of subordinates per supervisor, the low intraclass correlation coefficient was not an effective result to determine the impact of clustered responses.

To test for potential common method variance a “common marker variable” was included in the survey instrument. The Short Fatigue Questionnaire (Penson et al., 2020) was used as a common marker variable for this study. Use of a common marker variable can yield stronger analyses and is likely to be feasible in most circumstances (Williams et al., 2010). The advantages of using the common marker variable are that it allows measurement error in the method factor to be estimated, the effects of biases are measured directly rather than being inferred from the model’s measures, and the impacts of each measure in the method factor are not constrained to be equal (Eichhorn, 2014).

Table 12 shows the results of the PLS algorithm that compares the path coefficient and the coefficient of determination of the model with and without the marker variable. The comparison of the path coefficients and R^2 indicate small differences that do not support the data being influenced from a common source. Thus, this analysis indicates that common method variance is not a significant problem for this data.

Table 12

Marker Variable Analysis

| Relationships | Without Marker | R^2 | With Marker | R^2 |
|--|---------------------------|-------------------------|------------------------|-------------------------|
| Degree of Virtualness -> Performance Measurement (Sub) | -0.035 | 0.305 | 0.027 | 0.340 |
| Degree of Virtualness -> Performance Measurement (Sup) | 0.017 | 0.512 | 0.047 | 0.513 |
| Degree of Virtualness -> Evaluation | -0.199 | 0.508 | -0.189 | 0.514 |
| Degree of Virtualness -> LMX | -0.138 | 0.742 | -0.141 | 0.747 |
| Degree of Virtualness -> Distributive Justice | 0.003 | 0.663 | 0.003 | 0.663 |
| Degree of Virtualness -> Procedural Justice | -0.056 | 0.753 | -0.054 | 0.751 |
| Degree of Virtualness -> Interpersonal Justice | -0.138 | 0.683 | -0.141 | 0.680 |
| Degree of Virtualness -> Informational Justice | -0.020 | 0.775 | -0.022 | 0.773 |
| LMX -> Performance Measurement (Sub) | 0.315 | | 0.405 | |
| LMX -> Performance Measurement (Sup) | 0.514 | | 0.536 | |
| LMX -> Evaluation | 0.625 | | 0.654 | |
| LMX -> Distributive Justice | 0.631 | | 0.643 | |

Table 12

Marker Variable Analysis

| Relationships | Without Marker | <i>R</i>² | With Marker | <i>R</i>² |
|------------------------------|---------------------------|-----------------------------|------------------------|-----------------------------|
| LMX -> Procedural Justice | 0.593 | | 0.599 | |
| LMX -> Interpersonal Justice | 0.193 | | 0.194 | |
| LMX -> Informational Justice | 0.302 | | 0.308 | |

Assessment of the Measurement Model in PLS Analysis

SmartPLS 3 was used to conduct the PLS-SEM analysis as indicated in the methodology section of this dissertation. Given the importance of understanding the latent-variables being investigated (variables that are not directly observed but inferred), PLS-SEM is an appropriate methodology to use for further analysis of the data (Hair et al., 2017). Analysis of the models in SmartPLS begins with a review of the factor loadings to determine the appropriateness of indicators in the constructs, followed by analysis of an unmediated model, analysis of a mediated model, analysis of a moderated model, and analysis of the full model.

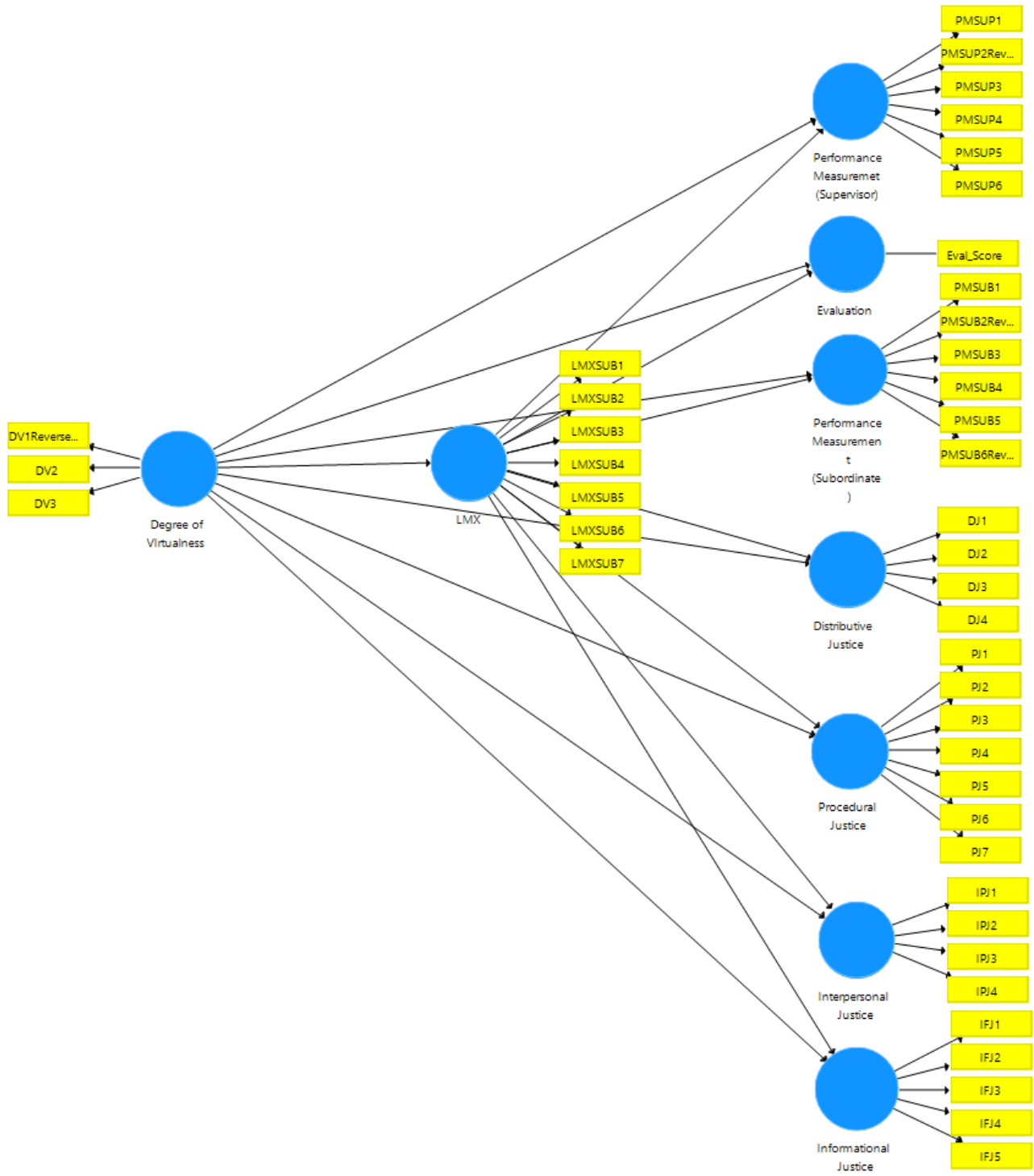
Figure 5 shows this study's reflective mediation model (direction of arrows are from the construct to indicator variables, denoting assumption that the construct causes the measurement on the indicator variable) as a SmartPLS diagram and the hypothesized relationships between the latent variables. The full model is not displayed as it is not clear due to the complexity of the model. The mediated-moderated model has three versions of a dependent variable (Performance Measurement – Subordinate, Performance Measurement – Supervisor, Evaluation [secondary data]) and two versions of the moderating variable (Leader Inclusiveness – Subordinate, Leader Inclusiveness – Supervisor).

Eleven latent variables comprise the inner or structural model (i.e., degree of virtualness, LMX, Performance Measurement – Subordinate, Performance Measurement – Supervisor,

Evaluation [secondary data], distributive justice, procedural justice, interpersonal justice, informational justice, leader inclusiveness [subordinate], and leader inclusiveness [supervisor]). The outer measurement model consists of a total of 61 reflective measures, representing the item variables for the survey questions.

Figure 5

Research Mediation Model in SmartPLS



SmartPLS Factor Analysis

A factor analysis was conducted on all reflective measures in the outer model, which showed how each item loaded onto the expected latent variable. The results in Table 13 report that eight of the eleven constructs (LMX, distributive justice, procedural justice, interpersonal justice, informational justice, leader inclusiveness [subordinate], and performance measurement [supervisor]) have indicators with loading values greater than 0.7. Hair et al. (2017) advise that higher outer loadings on a construct indicate the associated indicators have much in common and standardized outer loadings are acceptable if greater than 0.7 (p. 113). For the remaining three constructs (degree of virtualness, performance measurement [subordinate], and leader inclusiveness [supervisor]), factor loadings of the indicators were reviewed to determine whether to retain their inclusion on the construct. Indicators DV2, PMSUB2, PMSUB4, PMSUB5, INCSUP1, INCSUP3, INCSUP7, and INCSUP8 had values less than 0.5, which is the minimum acceptable threshold (Hair et al., 2020). Indicators DV2, INCSUP1, INCSUP3, INCSUP7, and INCSUP8 had an outer loading less than 0.4 and were, therefore, removed without further analysis (Hair et al., 2021, p. 117). Due to the study's sample size, the three remaining indicators with significant factor loadings above 0.4 but below 0.7 were excluded from the construct one at a time (Hair et al., 2021). Then the factor loadings were recalculated, and the results of the Cronbach's alpha, Reliability, and Average Variance Extracted (AVE) were compared against the threshold of 0.7 for Cronbach's alpha, 0.7 for Reliability, and 0.5 for AVE (Hair et al. 2021). Cronbach's alpha is an estimate of the reliability based on the intercorrelations of the observed indicator variables and values between 0.7 and 0.9 are considered satisfactory for research while values below 0.60 indicates a lack of discriminant validity (Hair et al., 2021). Reliability refers to the fraction of total variance, which is not

attributable to measurement error, and 0.7 is the recommended lowest acceptable standard of reliability for scales used in basic research (Nunnally, 1978; Matheson, 2019). AVE is the communality of the construct, and values greater than 0.5 indicate that, on average, the construct explains more than half of the variance of the indicators (Hair et al., 2021).

Table 13*Initial Factor Loadings*

| | DV | LMX | DJ | PJ | IPJ | IFJ | PMSUB | INCSUB | PMSUP | INCSUP | Eval |
|-----------------|-----------|------------|-----------|-----------|------------|------------|--------------|---------------|--------------|---------------|-------------|
| DV1ReverseCoded | 0.961 | | | | | | | | | | |
| DV2 | -0.236 | | | | | | | | | | |
| DV3 | 0.972 | | | | | | | | | | |
| LMXSUB1 | | 0.877 | | | | | | | | | |
| LMXSUB2 | | 0.876 | | | | | | | | | |
| LMXSUB3 | | 0.888 | | | | | | | | | |
| LMXSUB4 | | 0.856 | | | | | | | | | |
| LMXSUB5 | | 0.885 | | | | | | | | | |
| LMXSUB6 | | 0.873 | | | | | | | | | |
| LMXSUB7 | | 0.872 | | | | | | | | | |
| DJ1 | | | 0.946 | | | | | | | | |
| DJ2 | | | 0.930 | | | | | | | | |
| DJ3 | | | 0.941 | | | | | | | | |
| DJ4 | | | 0.924 | | | | | | | | |
| PJ1 | | | | 0.822 | | | | | | | |
| PJ2 | | | | 0.868 | | | | | | | |
| PJ3 | | | | 0.803 | | | | | | | |
| PJ4 | | | | 0.766 | | | | | | | |
| PJ5 | | | | 0.899 | | | | | | | |
| PJ6 | | | | 0.861 | | | | | | | |
| PJ7 | | | | 0.670 | | | | | | | |
| IPJ1 | | | | | 0.932 | | | | | | |
| IPJ2 | | | | | 0.911 | | | | | | |
| IPJ3 | | | | | 0.945 | | | | | | |
| IPJ4 | | | | | 0.775 | | | | | | |

Table 13*Initial Factor Loadings*

| | DV | LMX | DJ | PJ | IPJ | IFJ | PMSUB | INCSUB | PMSUP | INCSUP | Eval |
|--------------------|----|-----|----|----|-----|-------|-------|--------|-------|--------|------|
| IFJ1 | | | | | | 0.805 | | | | | |
| IFJ2 | | | | | | 0.828 | | | | | |
| IFJ3 | | | | | | 0.815 | | | | | |
| IFJ4 | | | | | | 0.880 | | | | | |
| IFJ5 | | | | | | 0.820 | | | | | |
| PMSUB1 | | | | | | | 0.802 | | | | |
| PMSUB2ReverseCoded | | | | | | | 0.488 | | | | |
| PMSUB3 | | | | | | | 0.518 | | | | |
| PMSUB4 | | | | | | | 0.401 | | | | |
| PMSUB5 | | | | | | | 0.430 | | | | |
| PMSUB6ReverseCoded | | | | | | | 0.616 | | | | |
| INCSUB1 | | | | | | | | 0.849 | | | |
| INCSUB2 | | | | | | | | 0.784 | | | |
| INCSUB3 | | | | | | | | 0.766 | | | |
| INCSUB4 | | | | | | | | 0.911 | | | |
| INCSUB5 | | | | | | | | 0.912 | | | |
| INCSUB6 | | | | | | | | 0.895 | | | |
| INCSUB7 | | | | | | | | 0.849 | | | |
| INCSUB8 | | | | | | | | 0.811 | | | |
| INCSUB9 | | | | | | | | 0.924 | | | |
| PMSUP1 | | | | | | | | | 0.920 | | |
| PMSUP2ReverseCoded | | | | | | | | | 0.724 | | |
| PMSUP3 | | | | | | | | | 0.923 | | |
| PMSUP4 | | | | | | | | | 0.911 | | |
| PMSUP5 | | | | | | | | | 0.909 | | |
| PMSUP6 | | | | | | | | | 0.946 | | |

Table 13*Initial Factor Loadings*

| | DV | LMX | DJ | PJ | IPJ | IFJ | PMSUB | INCSUB | PMSUP | INCSUP | Eval |
|------------|-----------|------------|-----------|-----------|------------|------------|--------------|---------------|--------------|---------------|-------------|
| INCSUP1 | | | | | | | | | | 0.185 | |
| INCSUP2 | | | | | | | | | | 0.523 | |
| INCSUP3 | | | | | | | | | | 0.185 | |
| INCSUP4 | | | | | | | | | | 0.861 | |
| INCSUP5 | | | | | | | | | | 0.788 | |
| INCSUP6 | | | | | | | | | | 0.902 | |
| INCSUP7 | | | | | | | | | | 0.209 | |
| INCSUP8 | | | | | | | | | | 0.222 | |
| INCSUP9 | | | | | | | | | | 0.931 | |
| Eval_Score | | | | | | | | | | | 1 |

Note. DV = Degree of Virtualness construct; LMX = Leader-Member Exchange construct; DJ = distributive justice construct; PJ = procedural justice construct; IPJ = interpersonal justice construct; IFJ = informational justice construct; PMSUB = performance measurement (subordinate) construct; INCSUB = leader inclusiveness (subordinate); PMSUP = performance measurement (supervisor); INCSUP = leader inclusiveness (supervisor); Eval = evaluation (secondary data).

Table 14 lists the initial results for Cronbach's alpha, composite reliability, and AVE. As each indicator was removed from a construct, the factor loadings, Cronbach's alpha, composite reliability, and AVE were reviewed to determine the indicators that were effective in supporting the constructs in the study. The indicators DV2, INCSUP1, INCSUP3, INCSUB7, and INCSUB8 (with factor loadings below 0.4, as mentioned earlier) as well as PMSUB2 and PMSUB4, were removed through this process. The remaining indicators supported the PLS-SEM model for data analysis. PMSUB5 was not removed even though the factor loading was less than the minimum threshold of 0.5 as its exclusion decreased the internal consistency reliability. An explanation of each of these problematic indicators follows.

Table 14

Initial Cronbach's Alpha, Composite Reliability, and Average Extracted Variance (AVE)

| | Cronbach's Alpha | Composite Reliability | Average Variance Extracted (AVE) |
|---------------------------------------|-------------------------|------------------------------|---|
| Degree of Virtualness | 0.439 | 0.971 | 0.944 |
| Distributive Justice | 0.953 | 0.966 | 0.875 |
| Evaluation | 1.000 | 1.000 | 1.000 |
| Informational Justice | 0.889 | 0.917 | 0.689 |
| Interpersonal Justice | 0.914 | 0.940 | 0.798 |
| LMX | 0.949 | 0.958 | 0.766 |
| Leader Inclusiveness_(Subordinate) | 0.955 | 0.961 | 0.735 |
| Leader Inclusiveness_(Supervisor) | 0.775 | 0.809 | 0.387 |
| Performance Measurement_(Subordinate) | 0.746 | 0.679 | 0.313 |
| Performance Measurement_(Supervisor) | 0.947 | 0.959 | 0.796 |
| Procedural Justice | 0.915 | 0.933 | 0.666 |

As mentioned earlier, one of the items measuring degree of virtualness did not work well in this sample. DV2 (“Most of my day-to-day communication with the Reserve unit was through computer or telephone interaction.”) can be applied to both Reserve teleworkers and non-teleworkers as they continue to interact with the supervisor by computer-mediated communication when not performing military support. Since the indicator applied to both categories of Reservists at a high frequency, the indicator was not an effective item for the degree of virtualness construct.

Similarly, as also discussed earlier, one item on the performance measurement from the subordinate’s perspective was problematic. PMSUB2 (“If you entirely had your way, to what extent would you change the manner in which you are performing your job?”) was not an effective indicator of subordinates’ performance. Perhaps this was because all the subordinate Reservists considered their performance as meeting or exceeding the supervisor’s expectations in PMSUB6. With this outlook, very few Reservists would be expected to respond that they would change the manner in which they were performing their job. Alternatively, the item might not have worked well as a measure of performance because Reservists might have interpreted this question as asking if the instructions or logic for the way they were supposed to perform the job were poor.

For the inclusiveness construct measured from the supervisor’s perspective, several indicators were not effective. INCSUP1 (“I am open to hearing new ideas.”), INCSUP7 (“I am ready to listen to their requests.”), and INCSUP8 (“I encourage them to access me on emerging issues.”) were not effective indicators as all supervisors responded with either “Agree” or “Strongly Agree”. INCSUP3 (“I am open to discuss the desired goals and new ways to achieve them.”) had more diverse responses as some chose the “Neutral” response for this item. The role

of the Reserve supervisor is to train and develop junior Reservists. Being selected to the supervisor rank of E-7 is a career achievement for an enlisted Reservist, and, before the Reservist can become a supervisor, they receive three months of additional training during a transition period. The training covers Navy heritage of the rank and the expectations of both junior enlisted and officer Reservists for people in this rank. The phrase “ask the Chief” is well known in the Navy (Naval History and Heritage Command, 2019) and represents that, if a Navy military member has a question or needs advice, the enlisted supervisor should be sought out to help with the issue. As a result, supervisors providing perceptions of their own leader inclusiveness may overstate their inclusiveness on these items to conform with the expectations of the rank they hold.

Being a Reserve supervisor also carries high expectations of performance. Reserve supervisors are expected to act, and lead subordinates, in a manner that reflects well on the other Reservists of the same rank and those who have gone before them in the Navy Reserve. Navy Reserve supervisors are expected to be available and to be concerned for their subordinates, behaviors that are consistent with being an inclusive supervisor. For supervisors to report that they were not inclusive with some or all of their subordinates, they might have felt this indicated they failed to meet their responsibilities, which they learned in the training they received prior to their promotion to supervisor. Therefore, supervisors may have rated themselves as highly inclusive leaders with most or all subordinates as a form of impression management.

Table 15 lists the revised factor loadings for the indicators after DV2, PMSUB2, PMSUB4, INCSUP1, INCSUP3, INCSUP7, and INCSUP8 was removed. All indicators in Table 15 with the exception of PMSUB3 and PMSUB5 had factor loadings above 0.5. PMSUB3 and PMSUB5 remained as indicators for performance measurement (subordinate) because their

exclusion resulted in a less reliable construct as Cronbach's alpha decreased while reliability and AVE increased.

Table 15*Revised Factor Loadings*

| | DV | LMX | DJ | PJ | IPJ | IFJ | PMSUB | INCSUB | PMSUP | INCSUP | EVAL |
|-----------------|-------|-------|-------|-------|-------|-----|-------|--------|-------|--------|------|
| DV1ReverseCoded | 0.97 | | | | | | | | | | |
| DV3 | 0.972 | | | | | | | | | | |
| LMXSUB1 | | 0.878 | | | | | | | | | |
| LMXSUB2 | | 0.876 | | | | | | | | | |
| LMXSUB3 | | 0.888 | | | | | | | | | |
| LMXSUB4 | | 0.857 | | | | | | | | | |
| LMXSUB5 | | 0.885 | | | | | | | | | |
| LMXSUB6 | | 0.873 | | | | | | | | | |
| LMXSUB7 | | 0.872 | | | | | | | | | |
| DJ1 | | | 0.947 | | | | | | | | |
| DJ2 | | | 0.930 | | | | | | | | |
| DJ3 | | | 0.941 | | | | | | | | |
| DJ4 | | | 0.924 | | | | | | | | |
| PJ1 | | | | 0.824 | | | | | | | |
| PJ2 | | | | 0.870 | | | | | | | |
| PJ3 | | | | 0.804 | | | | | | | |
| PJ4 | | | | 0.766 | | | | | | | |
| PJ5 | | | | 0.899 | | | | | | | |
| PJ6 | | | | 0.860 | | | | | | | |
| PJ7 | | | | 0.667 | | | | | | | |
| IPJ1 | | | | | 0.934 | | | | | | |
| IPJ2 | | | | | 0.912 | | | | | | |
| IPJ3 | | | | | 0.946 | | | | | | |

Table 15*Revised Factor Loadings*

| | DV | LMX | DJ | PJ | IPJ | IFJ | PMSUB | INCSUB | PMSUP | INCSUP | EVAL |
|--------------------|----|-----|----|----|-------|-------|-------|--------|-------|--------|------|
| IPJ4 | | | | | 0.770 | | | | | | |
| IFJ1 | | | | | | 0.805 | | | | | |
| IFJ2 | | | | | | 0.830 | | | | | |
| IFJ3 | | | | | | 0.814 | | | | | |
| IFJ4 | | | | | | 0.880 | | | | | |
| IFJ5 | | | | | | 0.820 | | | | | |
| PMSUB1 | | | | | | | 0.923 | | | | |
| PMSUB3 | | | | | | | 0.569 | | | | |
| PMSUB5 | | | | | | | 0.491 | | | | |
| PMSUB6ReverseCoded | | | | | | | 0.622 | | | | |
| INCSUB1 | | | | | | | | 0.848 | | | |
| INCSUB2 | | | | | | | | 0.783 | | | |
| INCSUB3 | | | | | | | | 0.764 | | | |
| INCSUB4 | | | | | | | | 0.911 | | | |
| INCSUB5 | | | | | | | | 0.912 | | | |
| INCSUB6 | | | | | | | | 0.895 | | | |
| INCSUB7 | | | | | | | | 0.850 | | | |
| INCSUB8 | | | | | | | | 0.812 | | | |
| INCSUB9 | | | | | | | | 0.925 | | | |
| PMSUP1 | | | | | | | | | 0.920 | | |
| PMSUP2ReverseCoded | | | | | | | | | 0.723 | | |
| PMSUP3 | | | | | | | | | 0.923 | | |
| PMSUP4 | | | | | | | | | 0.912 | | |

Table 15*Revised Factor Loadings*

| | DV | LMX | DJ | PJ | IPJ | IFJ | PMSUB | INCSUB | PMSUP | INCSUP | EVAL |
|------------|-----------|------------|-----------|-----------|------------|------------|--------------|---------------|--------------|---------------|-------------|
| PMSUP5 | | | | | | | | | 0.909 | | |
| PMSUP6 | | | | | | | | | 0.946 | | |
| INCSUP2 | | | | | | | | | | 0.483 | |
| INCSUP4 | | | | | | | | | | 0.887 | |
| INCSUP5 | | | | | | | | | | 0.770 | |
| INCSUP6 | | | | | | | | | | 0.911 | |
| INCSUP9 | | | | | | | | | | 0.926 | |
| Eval_Score | | | | | | | | | | | 1.000 |

Note. DV = Degree of Virtualness construct; LMX = Leader-Member Exchange construct; DJ = distributive justice construct; PJ = procedural justice construct; IPJ = interpersonal justice construct; IFJ = informational justice construct; PMSUB = performance measurement (subordinate) construct; INCSUB = leader inclusiveness (subordinate); PMSUP = performance measurement (supervisor); INCSUP = leader inclusiveness (supervisor); Eval = evaluation (secondary data).

Continuation of Reflective Model Validation After Factor Analysis

The validation of the reflective model was done through the assessment and review of internal consistency, convergent validity, and discriminant validity. The following sections review the results.

Internal consistency, convergent validity, and discriminant validity. Construct reliability and validity were assessed for all measures in the model. Table 16 reports the results from the PLS Algorithm. All measurements achieved both a Cronbach's alpha and composite reliability greater than 0.7. However, values above 0.90 are considered undesirable because they indicate that all the indicator variables are measuring the same phenomenon (Hair et al., 2021, p. 119). Performance measurement (subordinate) is the only construct to have a reliability above 0.7 but below 0.9, indicating that the other constructs may have validity issues to address.

Average Variance Extracted (AVE) is greater than 0.5 for all measures except for performance measurement (subordinate). While AVE is less than the 0.5 threshold (Hair et al., 2021), the convergent validity of the construct can still be adequate if the composite reliability is greater than 0.6. (Fornell & Larcker, 1981; Huang et al., 2013).

Table 16

Revised Cronbach's Alpha, Reliability, and AVE

| | Cronbach's Alpha | Composite Reliability | Average Variance Extracted (AVE) |
|-----------------------|-----------------------------|----------------------------------|---|
| Degree of Virtualness | 0.940 | 0.971 | 0.944 |
| LMX | 0.949 | 0.958 | 0.766 |
| Distributive Justice | 0.953 | 0.966 | 0.875 |
| Procedural Justice | 0.915 | 0.933 | 0.666 |
| Interpersonal Justice | 0.914 | 0.940 | 0.798 |

Table 16*Revised Cronbach's Alpha, Reliability, and AVE*

| | Cronbach's Alpha | Composite Reliability | Average Variance Extracted (AVE) |
|---------------------------------------|-------------------------|------------------------------|---|
| Informational Justice | 0.889 | 0.917 | 0.689 |
| Performance Measurement_(Subordinate) | 0.757 | 0.756 | 0.451 |
| Leader Inclusiveness_(Subordinate) | 0.955 | 0.961 | 0.735 |
| Performance Measurement_(Supervisor) | 0.947 | 0.959 | 0.796 |
| Leader Inclusiveness_(Supervisor) | 0.877 | 0.912 | 0.682 |
| Evaluation | 1.000 | 1.000 | 1.000 |

Discriminant validity. Discriminant validity was assessed to examine the extent to which each construct is distinct from the others by empirical standards. Two approaches were taken to assess the discriminant validity of the indicators within this research: the Fornell-Larcker criterion and the Heterotrait-monotrait ratio (HTMT). In Table 17, the Fornell-Larcker criterion compares the square root of the AVE values for the latent construct against the correlation of other constructs (Fornell & Larcker, 1981). The comparison should indicate that the square root of the AVE is higher than the correlation with the other constructs. For the model, the construct informational justice's square AVE was lower than the correlation with leader inclusiveness (subordinate), and the construct procedural justice was lower than the correlation with distributive justice, informational justice, and LMX. This indicates these constructs are not valid measures of unique concepts. Because the Fornell-Larcker criterion does not reliably detect discriminant validity issues, HTMT was used to confirm the Fornell-Larcker criterion results.

Table 17*Discriminant Validity – Fornell-Larcker Criterion*

| | DV | DJ | EVAL | IFJ | IPJ | LMX | INCSUB | INCSUP | PMSUB | PMSUP | PJ |
|--------|-----------|-----------|-------------|------------|------------|------------|---------------|---------------|--------------|--------------|-----------|
| DV | 0.971 | | | | | | | | | | |
| DJ | 0.412 | 0.935 | | | | | | | | | |
| EVAL | 0.224 | 0.724 | 1 | | | | | | | | |
| IFJ | 0.452 | 0.786 | 0.584 | 0.830 | | | | | | | |
| IPJ | 0.266 | 0.696 | 0.572 | 0.780 | 0.893 | | | | | | |
| LMX | 0.44 | 0.813 | 0.682 | 0.817 | 0.732 | 0.875 | | | | | |
| INCSUB | 0.598 | 0.739 | 0.563 | 0.853 | 0.762 | 0.848 | 0.857 | | | | |
| INCSUP | -0.266 | -0.081 | 0.006 | -0.092 | 0.107 | -0.083 | -0.117 | 0.623 | | | |
| PMSUB | 0.297 | 0.488 | 0.521 | 0.454 | 0.446 | 0.53 | 0.481 | 0.05 | 0.527 | | |
| PMSUP | 0.358 | 0.686 | 0.749 | 0.605 | 0.612 | 0.695 | 0.623 | 0.058 | 0.493 | 0.892 | |
| PJ | 0.341 | 0.854 | 0.636 | 0.826 | 0.769 | 0.849 | 0.794 | -0.086 | 0.472 | 0.626 | 0.816 |

Note. DV = Degree of Virtualness construct; LMX = Leader-Member Exchange construct; DJ = distributive justice construct; PJ = procedural justice construct; IPJ = interpersonal justice construct; IFJ = informational justice construct; PMSUB = performance measurement (subordinate) construct; INCSUB = leader inclusiveness (subordinate); PMSUP = performance measurement (supervisor); INCSUP = leader inclusiveness (supervisor); Eval = evaluation (secondary data).

Hensler et al. (2015) demonstrated that cross-loadings are not able to detect even severe violations of discriminant validity and proposed the HTMT ratio to accurately assess discriminant validity. HTMT is an estimate of what the true correlation between two constructs would be if they were perfectly measured (Hair et al., 2021). Table 18 lists the HTMT ratios for the constructs. Values greater than 0.90 indicate a lack of discriminant validity, which occurred between procedural justice and distributive justice, procedural justice and informational justice, procedural justice and LMX, and leader inclusiveness (subordinate) and informational justice. To address subordinates not being able to differentiate between the dimensions of justice, organizational justice was included as a second-order construct from distributive, procedural, interpersonal, and informational justice.

Table 18*Discriminant Validity – Hetertrait-Monotrait Ratio (HTMT)*

| | DV | DJ | Eval | IFJ | IPJ | LMX | INCSUB | INCSUP | PMSUB | PMSUP | PJ |
|--------|-------|-------|-------|-------|-------|-------|--------|--------|-------|-------|----|
| DV | | | | | | | | | | | |
| DJ | 0.424 | | | | | | | | | | |
| Eval | 0.231 | 0.744 | | | | | | | | | |
| IFJ | 0.467 | 0.856 | 0.616 | | | | | | | | |
| IPJ | 0.277 | 0.738 | 0.594 | 0.871 | | | | | | | |
| LMX | 0.458 | 0.854 | 0.701 | 0.891 | 0.784 | | | | | | |
| INCSUB | 0.604 | 0.776 | 0.573 | 0.927 | 0.814 | 0.892 | | | | | |
| INCSUP | 0.226 | 0.19 | 0.09 | 0.266 | 0.288 | 0.205 | 0.299 | | | | |
| PMSUB | 0.184 | 0.445 | 0.497 | 0.449 | 0.512 | 0.477 | 0.439 | 0.331 | | | |
| PMSUP | 0.376 | 0.721 | 0.77 | 0.652 | 0.655 | 0.732 | 0.65 | 0.189 | 0.465 | | |
| PJ | 0.359 | 0.916 | 0.665 | 0.925 | 0.844 | 0.907 | 0.85 | 0.292 | 0.424 | 0.671 | |

Note. DV = Degree of Virtualness construct; LMX = Leader-Member Exchange construct; DJ = distributive justice construct; PJ = procedural justice construct; IPJ = interpersonal justice construct; IFJ = informational justice construct; PMSUB = performance measurement (subordinate) construct; INCSUB = leader inclusiveness (subordinate); PMSUP = performance measurement (supervisor); INCSUP = leader inclusiveness (supervisor); Eval = evaluation (secondary data).

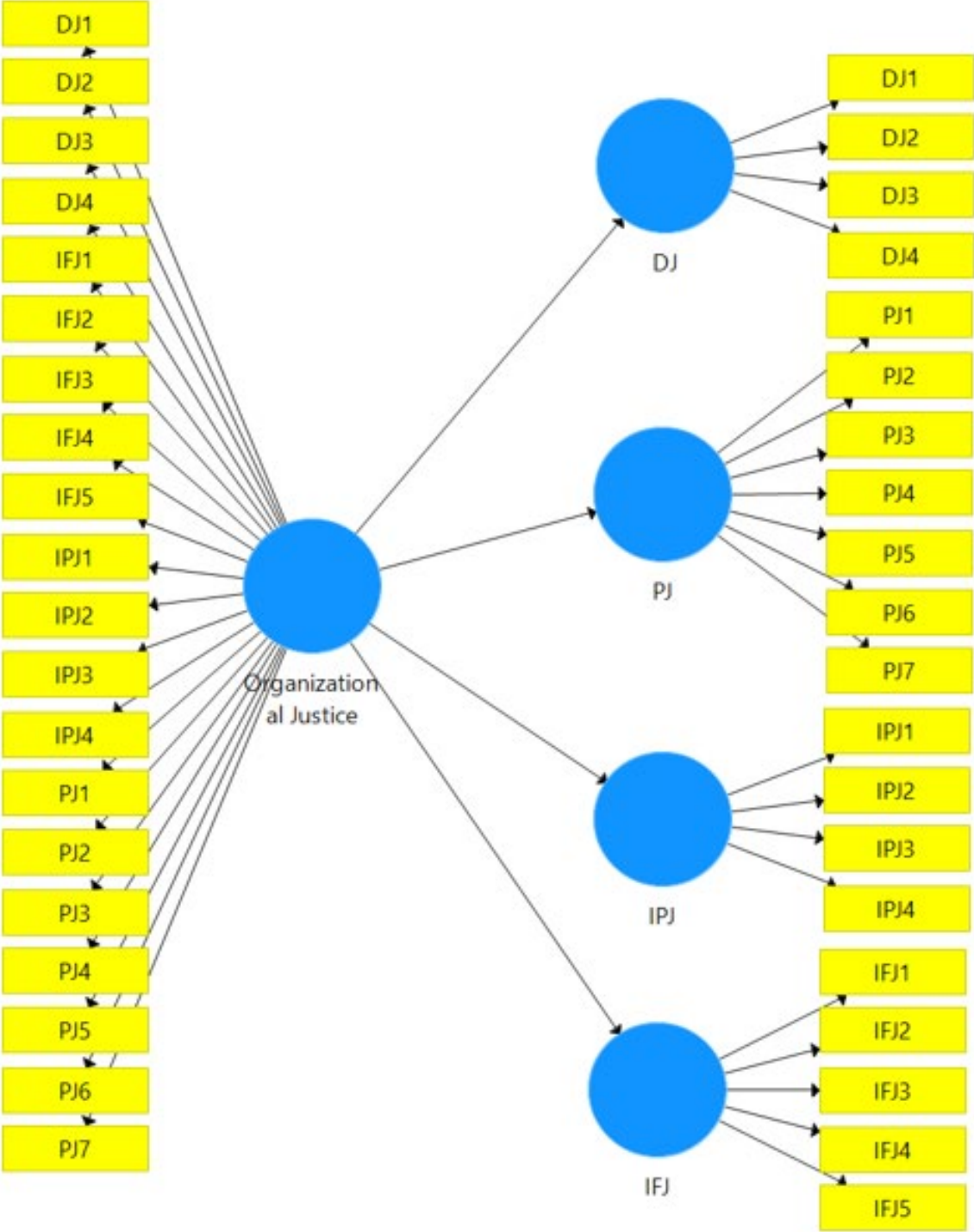
Organizational Justice as a Second-Order Factor

With Composite Reliability and HTMT indicating some constructs have discriminant validity issues, especially with the justice constructs, merging distributive justice, procedural justice, interpersonal justice, and informational justice into a general construct, such as organization justice, may improve discriminant validity. There are three advantages with transforming the four justice constructs from a first-order factor to a second-order factor (Kenny, 2016). First, the second-order factor preserves the initial constructs. Second, collinearity is reduced by having the causality work through the second-order factor. Third, by having just one latent variable instead of many, a second-order model is more parsimonious.

Embedded Two Stage Approach in Creating a High Order Construct

To create a second-order factor, latent variable scores are generated after creating a PLS model based on Figure 6. The latent variable scores are then added to the data, and tests for indicator reliability, internal consistency reliability, convergent validity and discriminant validity are conducted using organizational justice as a second-order factor.

Figure 6
Creating Latent Scores



Assessing First-Order Factors Effects on Second-Order Factor

The first-order factors need to be assessed to determine if they have significant effects on the second-order factor. This is accomplished by bootstrapping and reviewing the outer loading of the indicators. Table 19 displays the outer loadings and supports that distributive justice, procedural justice, interpersonal justice, and informational justice have a significant effect on organizational justice. First-order factors that have a value less than 0.7 were reviewed and were retained if the factors affected content validity (Hair et al., 2021). The same first-order factors removed from the earlier analysis (DV2, PMSUB2, PMSUB4, INCSUP1, INCSUP3, INCSUP7, and INCSUP8) were removed since their factor loadings were less than 0.4. PMSUB3 and PMSUB5 remained as indicators for performance measurement (subordinate) because their exclusion resulted in a less reliable construct.

Table 19*Adjusted Factor Loadings*

| | DV | DJ | EVAL | IFJ | IPJ | LMX | INCSUB | INCSUP | OJ | PMSUB | PMSUP | PJ |
|------------------|-------|-------|-------|-------|-------|-------|--------|--------|----|-------|-------|----|
| DJ | | 1.000 | | | | | | | | | | |
| DV1 ^a | 0.971 | | | | | | | | | | | |
| DV3 | 0.972 | | | | | | | | | | | |
| Eval | | | 1.000 | | | | | | | | | |
| IFJ | | | | 1.000 | | | | | | | | |
| INCSUB1 | | | | | | | 0.848 | | | | | |
| INCSUB2 | | | | | | | 0.783 | | | | | |
| INCSUB3 | | | | | | | 0.764 | | | | | |
| INCSUB4 | | | | | | | 0.911 | | | | | |
| INCSUB5 | | | | | | | 0.912 | | | | | |
| INCSUB6 | | | | | | | 0.895 | | | | | |
| INCSUB7 | | | | | | | 0.850 | | | | | |
| INCSUB8 | | | | | | | 0.812 | | | | | |
| INCSUB9 | | | | | | | 0.925 | | | | | |
| INCSUP2 | | | | | | | | 0.529 | | | | |
| INCSUP4 | | | | | | | | 0.868 | | | | |
| INCSUP5 | | | | | | | | 0.811 | | | | |
| INCSUP6 | | | | | | | | 0.918 | | | | |
| INCSUP9 | | | | | | | | 0.935 | | | | |
| IPJ | | | | | 1.000 | | | | | | | |
| LMXSUB1 | | | | | | 0.878 | | | | | | |
| LMXSUB2 | | | | | | 0.876 | | | | | | |
| LMXSUB3 | | | | | | 0.888 | | | | | | |
| LMXSUB4 | | | | | | 0.857 | | | | | | |
| LMXSUB5 | | | | | | 0.885 | | | | | | |

Table 19*Adjusted Factor Loadings*

| | DV | DJ | EVAL | IFJ | IPJ | LMX | INCSUB | INCSUP | OJ | PMSUB | PMSUP | PJ |
|---------------------|----|----|------|-----|-----|-------|--------|--------|-------|-------|-------|-------|
| LMXSUB6 | | | | | | 0.873 | | | | | | |
| LMXSUB7 | | | | | | 0.872 | | | | | | |
| OJ | | | | | | | | | 1.000 | | | |
| PJ | | | | | | | | | | | | 1.000 |
| PMSUB1 | | | | | | | | | | 0.923 | | |
| PMSUB3 | | | | | | | | | | 0.569 | | |
| PMSUB5 | | | | | | | | | | 0.492 | | |
| PMSUB6 ^a | | | | | | | | | | 0.623 | | |
| PMSUP1 | | | | | | | | | | | 0.920 | |
| PMSUP2 ^a | | | | | | | | | | | 0.723 | |
| PMSUP3 | | | | | | | | | | | 0.923 | |
| PMSUP4 | | | | | | | | | | | 0.912 | |
| PMSUP5 | | | | | | | | | | | 0.909 | |
| PMSUP6 | | | | | | | | | | | 0.946 | |

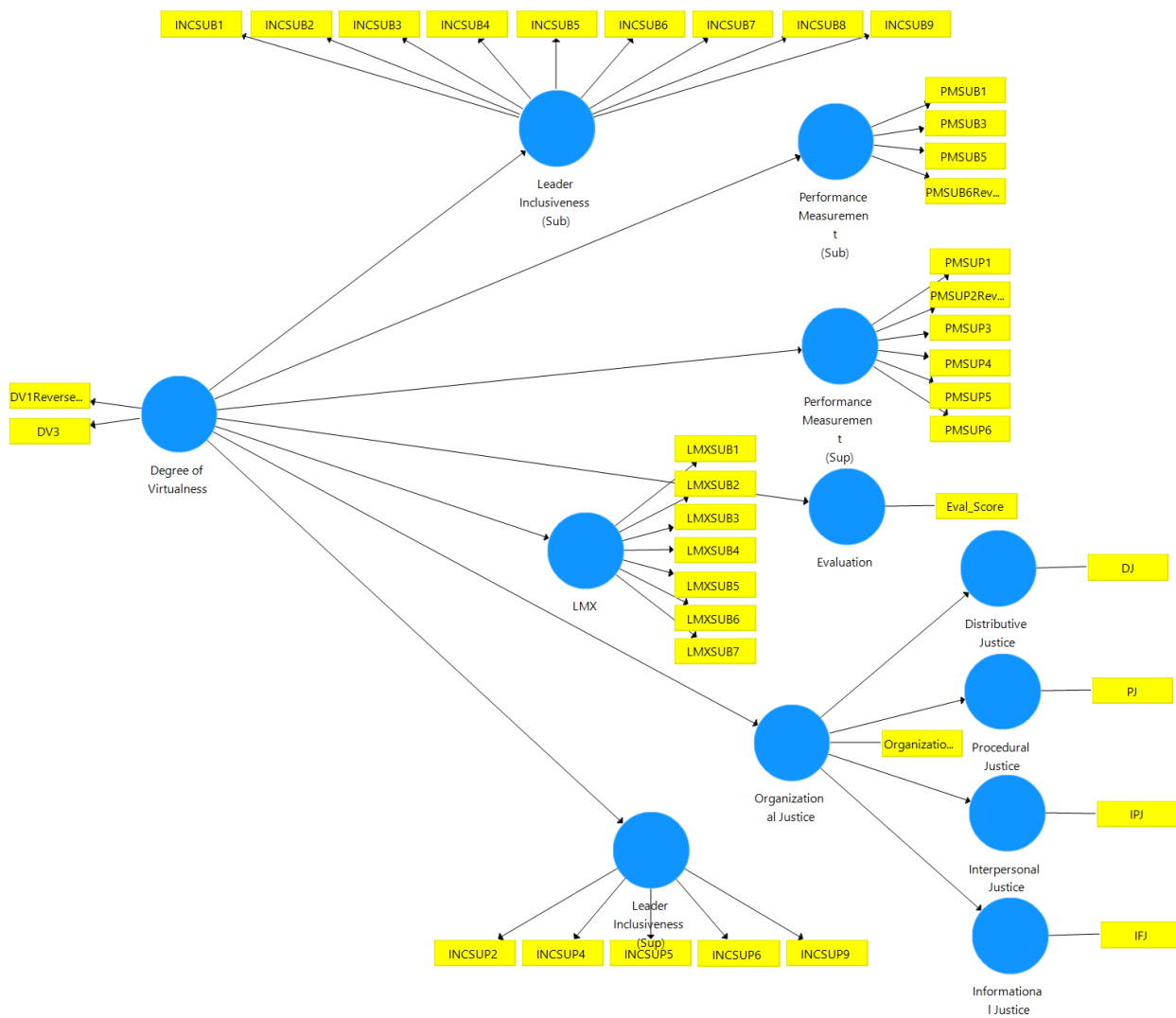
Note. DV = Degree of Virtualness construct; LMX = Leader-Member Exchange construct; DJ = distributive justice construct; PJ = procedural justice construct; IPJ = interpersonal justice construct; IFJ = informational justice construct; PMSUB = performance measurement (subordinate) construct; INCSUB = leader inclusiveness (subordinate); PMSUP = performance measurement (supervisor); INCSUP = leader inclusiveness (supervisor); Eval = evaluation (secondary data); ^a indicator was reverse coded.

Re-Assessment of the Second-Order Measurement Model in PLS Analysis

Re-assessment of the measurement model utilizing the second-order construct of organizational justice was accomplished through reviewing its internal consistency, convergent validity and discriminant validity. Figure 7 shows the updated measurement model in PLS with indicators. Organizational justice is set up as reflective latent variable (J. Colquitt, personal communication, August 13, 2022).

Figure 7

Updated Measurement Model



Internal consistency, convergent validity, and discriminant validity. Construct reliability and validity were assessed, and Table 20 reports the results from the PLS Algorithm. The only change from the prior analysis was that distributive justice, procedural justice, interpersonal justice, and informational justice results are correlated with organizational justice.

Table 20

Updated Cronbach's Alpha, Composite Reliability, and AVE

| | Cronbach's Alpha | Composite Reliability | Average Variance Extracted (AVE) |
|-------------------------------|-------------------------|------------------------------|---|
| Degree of Virtualness | 0.940 | 0.971 | 0.944 |
| Distributive Justice | 1.000 | 1.000 | 1.000 |
| Evaluation | 1.000 | 1.000 | 1.000 |
| Informational Justice | 1.000 | 1.000 | 1.000 |
| Interpersonal Justice | 1.000 | 1.000 | 1.000 |
| LMX | 0.949 | 0.958 | 0.766 |
| Leader Inclusiveness_(Sub) | 0.955 | 0.961 | 0.735 |
| Leader Inclusiveness_(Sup) | 0.817 | 0.879 | 0.654 |
| Organizational Justice | 1.000 | 1.000 | 1.000 |
| Performance Measurement_(Sub) | 0.757 | 0.756 | 0.451 |
| Performance Measurement_(Sup) | 0.947 | 0.959 | 0.796 |
| Procedural Justice | 1.000 | 1.000 | 1.000 |

Convergent Validity. The Average Variance Extracted (AVE) values in Table 21 show that all values are greater than 0.5 for all measures except for performance measurement (subordinate), but it has significance, so the construct was retained in the model.

Table 21*Convergent Validity*

| | Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) | t Statistics (O/STDEV) | p Values |
|-------------------------------|------------------------------------|--------------------------------|---|-------------------------------------|---------------------|
| Degree of Virtualness | 0.944 | 0.944 | 0.015 | 63.644 | 0.000 |
| Distributive Justice | 1.000 | 1.000 | 0.000 | | |
| Evaluation | 1.000 | 1.000 | 0.000 | | |
| Informational Justice | 1.000 | 1.000 | 0.000 | | |
| Interpersonal Justice | 1.000 | 1.000 | 0.000 | | |
| LMX | 0.766 | 0.766 | 0.019 | 40.038 | 0.000 |
| Leader Inclusiveness_(Sub) | 0.735 | 0.734 | 0.022 | 32.926 | 0.000 |
| Leader Inclusiveness_(Sup) | 0.654 | 0.640 | 0.047 | 13.832 | 0.000 |
| Organizational Justice | 1.000 | 1.000 | 0.000 | | |
| Performance Measurement_(Sub) | 0.451 | 0.417 | 0.115 | 3.912 | 0.000 |
| Performance Measurement_(Sup) | 0.796 | 0.796 | 0.017 | 46.841 | 0.000 |
| Procedural Justice | 1.000 | 1.000 | 0.000 | | |

Discriminant Validity. After forming the second-order construct for organizational justice, an updated review of discriminant validity indicates the issue with the four dimensions of justice not having discriminant validity was no longer a concern. Table 22 indicates the square root of each of the construct's AVE values, including organization justice, are greater than its highest correlation with any other construct when assessed using the Fornell-Larcker (1981) criterion.

Table 22*Updated Fornell-Larcker Criterion*

| | DV | DJ | EVAL | IFJ | IPJ | LMX | INCSUB | INCSUP | OJ | PMSUB | PMSUP | PJ |
|--------|-----------|-----------|-------------|------------|------------|------------|---------------|---------------|-----------|--------------|--------------|-----------|
| DV | 0.971 | | | | | | | | | | | |
| DJ | 0.401 | 1.000 | | | | | | | | | | |
| EVAL | 0.224 | 0.727 | 1.000 | | | | | | | | | |
| IFJ | 0.425 | 0.791 | 0.584 | 1.000 | | | | | | | | |
| IPJ | 0.257 | 0.695 | 0.572 | 0.790 | 1.000 | | | | | | | |
| LMX | 0.440 | 0.813 | 0.682 | 0.819 | 0.733 | 0.875 | | | | | | |
| INCSUB | 0.598 | 0.737 | 0.563 | 0.849 | 0.762 | 0.848 | 0.857 | | | | | |
| INCSUP | -0.231 | -0.054 | 0.019 | -0.040 | 0.128 | -0.040 | -0.059 | 0.809 | | | | |
| OJ | 0.390 | 0.910 | 0.680 | 0.932 | 0.877 | 0.874 | 0.854 | -0.012 | 1.000 | | | |
| PMSUB | 0.230 | 0.569 | 0.528 | 0.568 | 0.591 | 0.595 | 0.565 | 0.160 | 0.612 | 0.672 | | |
| PMSUP | 0.358 | 0.685 | 0.749 | 0.600 | 0.611 | 0.695 | 0.623 | 0.076 | 0.679 | 0.541 | 0.892 | |
| PJ | 0.330 | 0.829 | 0.602 | 0.820 | 0.748 | 0.824 | 0.771 | -0.059 | 0.933 | 0.513 | 0.588 | 1.000 |

Note. DV = Degree of Virtualness construct; LMX = Leader-Member Exchange construct; DJ = distributive justice construct; PJ = procedural justice construct; IPJ = interpersonal justice construct; IFJ = informational justice construct; PMSUB = performance measurement (subordinate) construct; INCSUB = leader inclusiveness (subordinate); PMSUP = performance measurement (supervisor); INCSUP = leader inclusiveness (supervisor); Eval = evaluation (secondary data).

The Heterotrait-monotrait ratio (HTMT) is able to detect severe violations of discriminant validity and Table 23 indicates the only instances where HTMT exceeds 0.9 is between distributive justice, procedural justice, informational justice, and organizational justice, which was expected.

Inclusion of a second-order construct maintained internal consistency, convergent validity, and discriminant validity, but affected the hypotheses that could be tested. The original hypotheses for organizational justice included separate hypotheses for (a) distributive justice, (b) procedural justice, (c) interpersonal justice, and (d) informational justice. These a, b, c, and d hypotheses cannot not be separately tested as the data showed that raters did not adequately differentiate among the four types of justice. With the updated model utilizing organizational justice as a second-order construct, statistical analyses and hypothesis testing will focus on organizational justice as an endogenous variable.

Table 23*Updated Heterotrait-Monotrait Ratio (HTMT)*

| | DV | DJ | EVAL | IFJ | IPJ | LMX | INCSUB | INCSUP | OJ | PMSUB | PMSUP | PJ |
|--------|-------|-------|-------|-------|-------|-------|--------|--------|-------|-------|-------|----|
| DV | | | | | | | | | | | | |
| DJ | 0.414 | | | | | | | | | | | |
| EVAL | 0.231 | 0.727 | | | | | | | | | | |
| IFJ | 0.438 | 0.791 | 0.584 | | | | | | | | | |
| IPJ | 0.265 | 0.695 | 0.572 | 0.790 | | | | | | | | |
| LMX | 0.458 | 0.834 | 0.701 | 0.843 | 0.757 | | | | | | | |
| INCSUB | 0.604 | 0.758 | 0.573 | 0.875 | 0.783 | 0.892 | | | | | | |
| INCSUP | 0.241 | 0.110 | 0.083 | 0.131 | 0.185 | 0.127 | 0.185 | | | | | |
| OJ | 0.402 | 0.910 | 0.680 | 0.932 | 0.877 | 0.899 | 0.879 | 0.138 | | | | |
| PMSUB | 0.156 | 0.491 | 0.509 | 0.453 | 0.519 | 0.526 | 0.482 | 0.277 | 0.510 | | | |
| PMSUP | 0.376 | 0.704 | 0.77 | 0.617 | 0.627 | 0.732 | 0.650 | 0.138 | 0.698 | 0.497 | | |
| PJ | 0.340 | 0.829 | 0.602 | 0.820 | 0.748 | 0.849 | 0.796 | 0.165 | 0.933 | 0.410 | 0.605 | |

Note. DV = Degree of Virtualness construct; LMX = Leader-Member Exchange construct; DJ = distributive justice construct; PJ = procedural justice construct; IPJ = interpersonal justice construct; IFJ = informational justice construct; PMSUB = performance measurement (subordinate) construct; INCSUB = leader inclusiveness (subordinate); PMSUP = performance measurement (supervisor); INCSUP = leader inclusiveness (supervisor); Eval = evaluation (secondary data).

Assessment of the Structural Model Results (Inner Model)

The PLS-SEM structural model results were assessed by reviewing the structural model for collinearity issues, significance, and relevance of the structural model relationships by assessing the level of R^2 , reviewing the predictive relevance Q^2 , and determining the f^2 effect size.

The examination of the structural model occurs by first studying only the direct relationships in the model as an unmediated model. The second examination studies the model with LMX as a mediator, exploring the full PLS path model. Finally, the full model is explored through a multigroup analysis to examine the leader inclusiveness variable, both from the perception of the subordinate and supervisor, as a moderator. All structural models were analyzed following guidelines for PLS in the examination of the internal model for coefficients of determination (R^2), predictive relevance (Q^2), effect sizes (f^2) and path coefficients (Hair et al., 2021, p. 110). All results for every analysis reflected within Chapter 4 were derived through running the PLS algorithm in the SmartPLS software, and through bootstrapping and the blindfolding process.

Collinearity. Collinearity occurs when two or more independent variables have high intercorrelation that can skew or mislead interpretation of predictive capability. To assess collinearity in SmartPLS, each set of predictor constructs is separately examined for each subpart of the structural model. Inner variance inflation factors (VIF) should be less than 5 and preferably below 3 to ensure that collinearity has no substantial effect on the structural model estimates (Hair et al., 2021). Table 24 indicates all Inner VIF values are below 3.

Table 24*Collinearity*

| | DV | DJ | EVAL | IFJ | IPJ | LMX | INCSUB | INCSUP | OJ | PMSUB | PMSUP | PJ |
|--------|-----------|-----------|-------------|------------|------------|------------|---------------|---------------|-----------|--------------|--------------|-----------|
| DV | | | 1.000 | | | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | |
| DJ | | | | | | | | | | | | |
| EVAL | | | | | | | | | | | | |
| IFJ | | | | | | | | | | | | |
| IPJ | | | | | | | | | | | | |
| LMX | | | | | | | | | | | | |
| INCSUB | | | | | | | | | | | | |
| INCSUP | | | | | | | | | | | | |
| OJ | | 1.000 | | 1.000 | 1.000 | | | | | | | 1.000 |
| PMSUB | | | | | | | | | | | | |
| PMSUP | | | | | | | | | | | | |
| PJ | | | | | | | | | | | | |

Note. DV = Degree of Virtualness construct; LMX = Leader-Member Exchange construct; DJ = distributive justice construct; PJ = procedural justice construct; IPJ = interpersonal justice construct; IFJ = informational justice construct; PMSUB = performance measurement (subordinate) construct; INCSUB = leader inclusiveness (subordinate); PMSUP = performance measurement (supervisor); INCSUP = leader inclusiveness (supervisor); Eval = evaluation (secondary data).

Significance and Relevance. Significance (p) represents the probability of obtaining a t value at least as extreme as the one that is actually observed, conditional on the null hypothesis being supported (Hair et al., 2021, p. 192). For this study, p values less than 0.05 support the conclusion that the relationship under consideration is significant at the 5% level. Combining significance with the size of the path coefficient can determine the relevance of the significant relationships.

Path coefficients range from -1 to +1, where -1 represents a perfect negative relationship, 0 represents no relationship, and +1 represents a perfect relationship. A change of the exogenous (independent) construct by one standard deviation changes the endogenous (dependent) construct's standard deviation by the size of the path of coefficient when everything else remains constant (Hair et al., 2019). For the direct model, all relationships are significant.

Table 25

Path Coefficients and Significance

| | Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) | t Statistics (O/STDEV) | p Values |
|--|------------------------------------|--------------------------------|---|--|----------------------------------|
| DV -> Eval | 0.224 | 0.225 | 0.068 | 3.278 | 0.001 |
| DV -> LMX | 0.440 | 0.443 | 0.055 | 7.980 | 0.000 |
| DV -> Leader Inclusiveness_(Sub) | 0.598 | 0.601 | 0.043 | 13.899 | 0.000 |
| DV -> Leader Inclusiveness_(Sup) | -0.231 | -0.245 | 0.058 | 3.994 | 0.000 |
| DV -> Organizational Justice | 0.390 | 0.390 | 0.062 | 6.256 | 0.000 |
| DV -> Performance Measurement (Sub) | 0.230 | 0.245 | 0.103 | 2.229 | 0.013 |
| DV -> Performance Measurement (Sup) | 0.358 | 0.360 | 0.062 | 5.773 | 0.000 |

Note: DV = degree of virtualness construct.

Assessment of the model's direct relationships. In evaluating the coefficients of determination (R^2) for the direct relationship model (unmediated), the guidelines describe 0.25 as a weakly explained variance, 0.50 as a moderately explained variance, and 0.75 as a strongly explained variance (Hair et al., 2019, p. 780). The R-squared value assumes that all the independent variables considered affect the result of the model, whereas the adjusted R-squared value considers only those independent variables that actually have an effect on the performance of the model. The dependent construct with the largest R^2 adjusted value was leader inclusiveness (subordinate) at 0.354. All other dependent constructs were below 0.25 and weakly explained the variance.

Table 26

Coefficient of Determination (R^2)

| | R Square | R Square Adjusted |
|-------------------------------|-----------------|--------------------------|
| Evaluation | 0.050 | 0.045 |
| LMX | 0.194 | 0.189 |
| Leader Inclusiveness_(Sub) | 0.357 | 0.354 |
| Leader Inclusiveness_(Sup) | 0.053 | 0.048 |
| Organizational Justice | 0.152 | 0.147 |
| Performance Measurement_(Sub) | 0.053 | 0.048 |
| Performance Measurement_(Sup) | 0.128 | 0.123 |

Stone-Geisser's Q^2 value was also reviewed as a criterion of predictive relevance in examining the path model with direct relationships only. Stone-Geisser's Q^2 value represents an evaluation criterion for the cross-validated predictive relevance of the PLS path model (Stone, 1974; Geisser, 1974). This was produced through using the blindfolding sample re-use technique, which provided the Q^2 value of the latent variables in the PLS path model. When the

PLS path model shows predictive relevance, it predicts well the data points of indicators. If the Q^2 value is larger than 0 for the variable, this indicates the PLS path model has predictive relevance for that construct (Hair et al., 2017). SmartPLS computes Q^2 using both the cross-validated-redundancy and cross-validated-communality approach. The cross-validated-redundancy approach is considered the better criterion (Hair et al., 2019) and the results are displayed in Table 27. The Q^2 values are above 0 for all the latent variables: performance measurement (subordinate) was calculated as 0.011, performance measurement (supervisor) was calculated as 0.098, evaluation (secondary data) was calculated as 0.045, LMX was calculated as 0.142, and organizational justice was calculated as 0.148 when examining the direct relationships of each construct with the degree of virtualness. When reviewing the predictive value after bootstrapping, the R^2 values presented, along with the Q^2 values for the direct relationships show the relationships between the independent construct and the dependent constructs as having predictive validity in this path model.

Table 27

Stone-Geisser's Q^2 Statistic

| | SSO | SSE | $Q^2 (=1-SSE/SSO)$ |
|-------------------------------|------------|------------|--------------------------------------|
| Degree of Virtualness | 356 | 356 | |
| Distributive Justice | 178 | 30.968 | 0.826 |
| Evaluation | 178 | 169.946 | 0.045 |
| Informational Justice | 178 | 25.010 | 0.859 |
| Interpersonal Justice | 178 | 41.990 | 0.764 |
| LMX | 1246 | 1068.850 | 0.142 |
| Leader Inclusiveness_(Sub) | 1602 | 1212.012 | 0.243 |
| Leader Inclusiveness_(Sup) | 712 | 691.593 | 0.029 |
| Organizational Justice | 178 | 151.570 | 0.148 |
| Performance Measurement_(Sub) | 712 | 704.334 | 0.011 |
| Performance Measurement_(Sup) | 1068 | 963.433 | 0.098 |
| Procedural Justice | 178 | 24.594 | 0.862 |

Effect size f^2 assessment on direct relationships. The effect sizes (f^2) are classified as 0.02 (small); 0.15 (medium); and 0.35 (large) by Cohen (1992). In this data, the only effect size that would classify as large is the influence of the degree of virtualness on leader inclusiveness (subordinate) which is $f^2 = 0.580$ ($p < .001$). The next-largest effect size is the influence of degree of virtualness on LMX, which is in-between medium and large effect size at $f^2 = 0.254$ ($p < .01$). The influence of the degree of virtualness on organizational justice and degree of virtualness on performance measurement (supervisor) were slightly better than medium at $f^2 = 0.189$ ($p < .01$) and $f^2 = 0.157$ ($p < .01$), respectively. The last significant effect size was between the degree of virtualness and leader inclusiveness (supervisor), which was slightly above small at $f^2 = .069$ ($p < .05$).

Table 28

Effect Size (f^2)

| | Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) | t Statistics (O/STDEV) | p Values |
|--|------------------------------------|--------------------------------|---|-------------------------------------|---------------------|
| DV -> Evaluation | 0.053 | 0.059 | 0.036 | 1.482 | 0.069 |
| DV -> LMX | 0.240 | 0.254 | 0.078 | 3.060 | 0.001 |
| DV -> Leader Inclusiveness_(Sub) | 0.556 | 0.580 | 0.131 | 4.236 | 0.000 |
| DV -> Leader Inclusiveness_(Sup) | 0.056 | 0.069 | 0.034 | 1.673 | 0.047 |
| DV -> Organizational Justice | 0.179 | 0.189 | 0.071 | 2.538 | 0.006 |
| DV -> Performance Measurement_(Sub) | 0.056 | 0.077 | 0.036 | 1.540 | 0.062 |
| DV -> Performance Measurement_(Sup) | 0.147 | 0.157 | 0.061 | 2.394 | 0.008 |

Note. DV = degree of virtualness construct.

Full model including mediation. Next, the research proceeded to analyze the full model that included the mediating effect of LMX on the relationship between degree of virtualness and

the dependent variables, performance evaluation scores and organizational justice. The complete path model with mediation is presented in this section.

Coefficients of Determination (R^2) and Predictive Relevance (Q^2). When studying the R^2 values for the full mediated model, the associated R^2 for the relationship between the degree of virtualness and performance appraisal shows that for the performance measurement (subordinate) criterion, the $R^2 = 0.366$ and the path coefficient = -0.100; for performance measurement (supervisor) the $R^2 = 0.537$ and the path coefficient = 0.048; and for performance evaluation (secondary data), the $R^2 = 0.501$ and the path coefficient = -0.113. The associated R^2 for the relationship between the degree of virtualness and organizational justice shows that for organizational justice, the $R^2 = 0.810$ and the path coefficient = -0.013.

Blindfolding was performed to arrive at a Q^2 value per variable. The results showed higher predictive values for performance measurement (subordinate) at 0.122 (compared to $Q^2 = 0.011$ in the direct model), performance measurement (supervisor) at 0.384 (compared to $Q^2 = 0.098$ in the direct model), performance evaluation (secondary data) at 0.460 (compared to $Q^2 = 0.045$ in the direct model), and organizational justice at 0.762 (compared to $Q^2 = 0.148$ in the direct model) when examining the relationships of each with the degree of virtualness. The Q^2 values are shown in Table 29.

Table 29

Stone-Geisser's Q^2 Statistic Mediated Model

| | SSO | SSE | <math>Q^2 (=1- SSE/SSO)</math> |
|-----------------------|------------|------------|---|
| Degree of Virtualness | 356 | 356 | |
| Distributive Justice | 178 | 30.968 | 0.826 |
| Evaluation | 178 | 96.163 | 0.460 |
| Informational Justice | 178 | 25.010 | 0.859 |

Table 29*Stone-Geisser's Q² Statistic Mediated Model*

| | SSO | SSE | Q² (=1-SSE/SSO) |
|-------------------------------|------------|------------|-----------------------------------|
| Interpersonal Justice | 178 | 41.990 | 0.764 |
| LMX | 1246 | 1069.462 | 0.142 |
| Organizational Justice | 178 | 42.424 | 0.762 |
| Performance Measurement_(Sub) | 712 | 624.796 | 0.122 |
| Performance Measurement_(Sup) | 1068 | 658.249 | 0.384 |
| Procedural Justice | 178 | 24.594 | 0.862 |

Effect size f^2 assessment on full model. The effect sizes (f^2) changed with the mediated full model. The only effect size that would classify as moderate (0.15) is the influence of the degree of virtualness on LMX which is $f^2 = 0.275$, which is stronger than the $f^2 = 0.254$ ($p < .01$) in the unmediated model. The influence of the degree of virtualness on performance measurement (subordinate) had a small effect size at $f^2 = 0.019$, lower and weaker than the $f^2 = 0.077$ ($p < .1$) in the unmediated model. The influence of the degree of virtualness on performance measurement (supervisor) had a less than small effect size at $f^2 = 0.010$, lower and weaker than the $f^2 = 0.157$ ($p < .01$) in the unmediated model. The influence of the degree of virtualness on evaluation (secondary data) had a slightly higher small effect size at $f^2 = 0.027$, lower and weaker than the $f^2 = 0.059$ ($p < .1$) in the unmediated model. The influence of the degree of virtualness on organizational justice had a small effect size at $f^2 = 0.009$, lower and weaker than the $f^2 = 0.189$ ($p < .01$) in the unmediated model.

Mediation in the structural model. Mediation analysis begins by testing the significance of the indirect effects. If a relationship in the mediated model is not significant, then no mediation exists. If the relationship is significant, then further analysis can determine if it is

an indirect-only mediation, also known as full mediation, where the indirect effect is significant but the direct effect is not; complementary mediation or partial mediation, where the indirect and direct effect is significant and point in the same direction; or competitive mediation, also a partial mediation where the indirect and direct effect is significant but point in the opposite direction (Hair et al., 2021).

Table 30 shows the result of the mediation analysis that indicates there is full mediation for the relationship between the degree of virtualness and performance measurement (subordinate), the degree of virtualness and performance measurement (supervisor), and the degree of virtualness and organizational justice. For the relationship between the degree of virtualness and evaluation (secondary data), it is complementary partial mediation.

Table 30

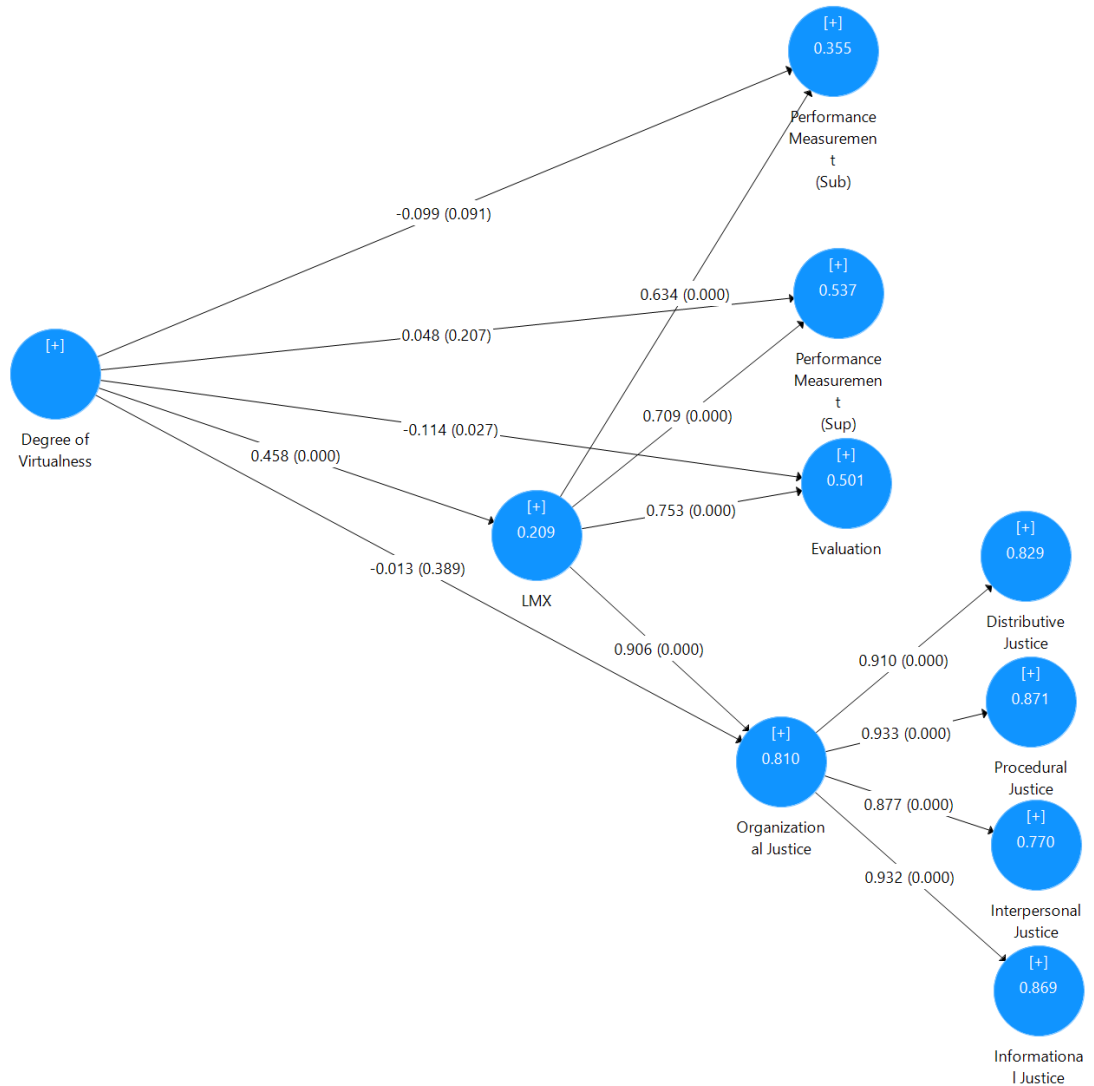
Mediation Analysis

| Relationship | Direct Effect | 95% Confidence Interval of the Direct Effect | Significance ($p < 0.05$) | Indirect Effect (via LMX) | 95% Confidence Interval of the Direct Effect | Significance ($p < 0.05$) |
|---------------------|----------------------|---|--|----------------------------------|---|--|
| DV --> PMSUB | -0.100 | (-0.223, 0.020) | No | 0.253 | (0.209, 0.386) | Yes |
| DV --> PMSUP | 0.048 | (-0.050, 0.146) | No | 0.289 | (0.243, 0.406) | Yes |
| DV --> Eval | 0.753 | (-0.211, -0.014) | Yes | 0.312 | (0.252, 0.437) | Yes |
| DV --> OJ | -0.013 | (-0.087, 0.061) | No | 0.378 | (0.311, 0.515) | Yes |

Note. DV = degree of virtualness construct; PMSUB = performance measurement (subordinate); PMSUP = performance measurement (supervisor); eval = evaluation (secondary data) construct; OJ = organizational justice construct.

Figure 8

Mediated Model with p Values, Path Coefficients, and R²



Moderation in the structural model. In order to perform an analysis of the interaction terms, the moderator variables (leader inclusiveness [subordinate] and leader inclusiveness [supervisor]) must meet all relevant criteria for internal consistency reliability, convergent validity, and discriminant validity (Hair et al., 2021). Factor loading analysis identified that all indicators of leader inclusiveness (subordinate) had values higher than 0.7, and all indicators

with factor loadings less than 0.4 for leader inclusiveness (supervisor) were removed as described earlier (Hair et al., 2011). Cronbach's alpha and composite reliability for leader inclusiveness (subordinate) and leader inclusiveness (supervisor) were above the 0.7 threshold (Hair et al., 2021, p. 119). For convergent validity, the AVE values for both were above the 0.5 threshold (Hair et al., 2021, p. 120). Table 31 lists the results for the variables that were used for moderation analysis. For discriminant validity, Table 32 shows the HTMT values for both are below the 0.90 threshold (Hensler et al., 2015).

Table 31

Cronbach's Alpha, Composite Reliability, and Average Extracted Variance for Moderating Variables

| | Cronbach's Alpha | Composite Reliability | Average Variance Extracted (AVE) |
|----------------------------|-------------------------|------------------------------|---|
| Leader Inclusiveness_(Sub) | 0.955 | 0.961 | 0.735 |
| Leader Inclusiveness_(Sup) | 0.817 | 0.879 | 0.654 |

Table 32*Heterotrait-Monotrait Ratio (HTMT)*

| | DV | DJ | EVAL | IFJ | IPJ | LMX | INCSUB | INCSUP | OJ | PMSUB | PMSUP | PJ |
|--------|-----------|-----------|-------------|------------|------------|------------|---------------|---------------|-----------|--------------|--------------|-----------|
| INCSUB | 0.604 | 0.758 | 0.573 | 0.875 | 0.783 | 0.892 | | | | | | |
| INCSUP | 0.241 | 0.110 | 0.083 | 0.131 | 0.185 | 0.127 | 0.185 | | | | | |

Note. DV = Degree of Virtualness construct; LMX = Leader-Member Exchange construct; DJ = distributive justice construct; PJ = procedural justice construct; IPJ = interpersonal justice construct; IFJ = informational justice construct; PMSUB = performance measurement (subordinate) construct; INCSUB = leader inclusiveness (subordinate); PMSUP = performance measurement (supervisor); INCSUP = leader inclusiveness (supervisor); Eval = evaluation (secondary data).

Table 33 lists the interaction terms' effects on the endogenous constructs. If the interaction term is significant, then it supports that the moderating variable has a significant moderating effect on the relationship between the degree of virtualness and the endogenous constructs. Only the leader inclusiveness (supervisor) had a moderating effect on performance measurement that was perceived by the subordinate.

Table 33

Moderation Results

| | Sample Mean (M) | Standard Deviation (STDEV) | t Statistics (O/STDEV) | p Values |
|---|------------------------|-----------------------------------|---------------------------------|-----------------|
| Leader Inclusiveness (Sub) -> Performance Measurement (Sub) | 0.103 | 0.071 | 1.479 | 0.070 |
| Leader Inclusiveness (Sub) -> Performance Measurement (Sup) | -0.063 | 0.079 | 0.783 | 0.217 |
| Leader Inclusiveness (Sub) -> Evaluation | -0.042 | 0.084 | 0.547 | 0.292 |
| Leader Inclusiveness (Sub) -> Organizational Justice | 0.041 | 0.046 | 0.772 | 0.220 |
| Leader Inclusiveness (Sub) -> LMX | -0.057 | 0.055 | 1.186 | 0.118 |
| Leader Inclusiveness (Sup) -> LMX | 0.006 | 0.052 | 0.331 | 0.370 |
| Leader Inclusiveness (Sup) -> Performance Measurement (Sub) | -0.120 | 0.058 | 2.204 | 0.014 |
| Leader Inclusiveness (Sup) -> Performance Measurement (Sup) | 0.020 | 0.062 | 0.362 | 0.359 |
| Leader Inclusiveness (Sup) -> Evaluation | -0.030 | 0.057 | 0.088 | 0.465 |
| Leader Inclusiveness (Sup) -> Organizational Justice | 0.006 | 0.053 | 0.870 | 0.192 |

Final Structural Model Including Control Variables

The last step in analyzing the data was adding control variables to the structural model used to evaluate whether each of the hypotheses is supported or not.

Control variables included the manner of communication in which the performance

appraisal was conducted, the gender of the subordinate, the tenure the subordinate has with the Reserve unit, and the tenure the subordinate has with the supervisor. Figure 9 shows the moderated model with control variables and their respective path coefficients, significance values, and R^2 . Table 34 reports the results from SmartPLS.

The manner of communication used to conduct the performance appraisal had significant influence on the results of the actual evaluation (secondary data). Reservists who received higher scores on the performance appraisal were more likely to receive feedback about their performance from a face-to-face discussion. Reservists who had better-quality LMX were more likely to receive in-person performance feedback than those who had lower-quality LMX.

The gender of the subordinate had a significant influence on the results of the actual performance evaluation (secondary data). Females received lower performance evaluations than males in the Navy Reserves actual performance appraisals that are used for personnel decisions. The results were nearly significant ($p = .052$) when the measure of performance was supervisors' ratings for the study survey, again with females being rated lower than males.

The amount of time working with a supervisor significantly influenced the subordinates' self-rated performance. The longer the subordinate worked with a supervisor, the more likely the subordinate might have a cordial relationship with them since subordinates have the option to transfer to a different Reserve unit at least every three years if they do not like being assigned to the Reserve unit. Reservists can transfer to another unit that performs the same job responsibilities but remaining with the Reserve unit indicates the Reservist is satisfied how they are being treated. The average amount of time a subordinate Reservist in the study spent with their supervisor is 26 months.

The structural model that includes the control variables is shown in Figure 9. The results of the control-variables and the final effects of all the variables in the model are reported in Table 34. This is the final model used to test the study hypotheses.

Figure 9

Full Model with p Values, Path Coefficients, and R²

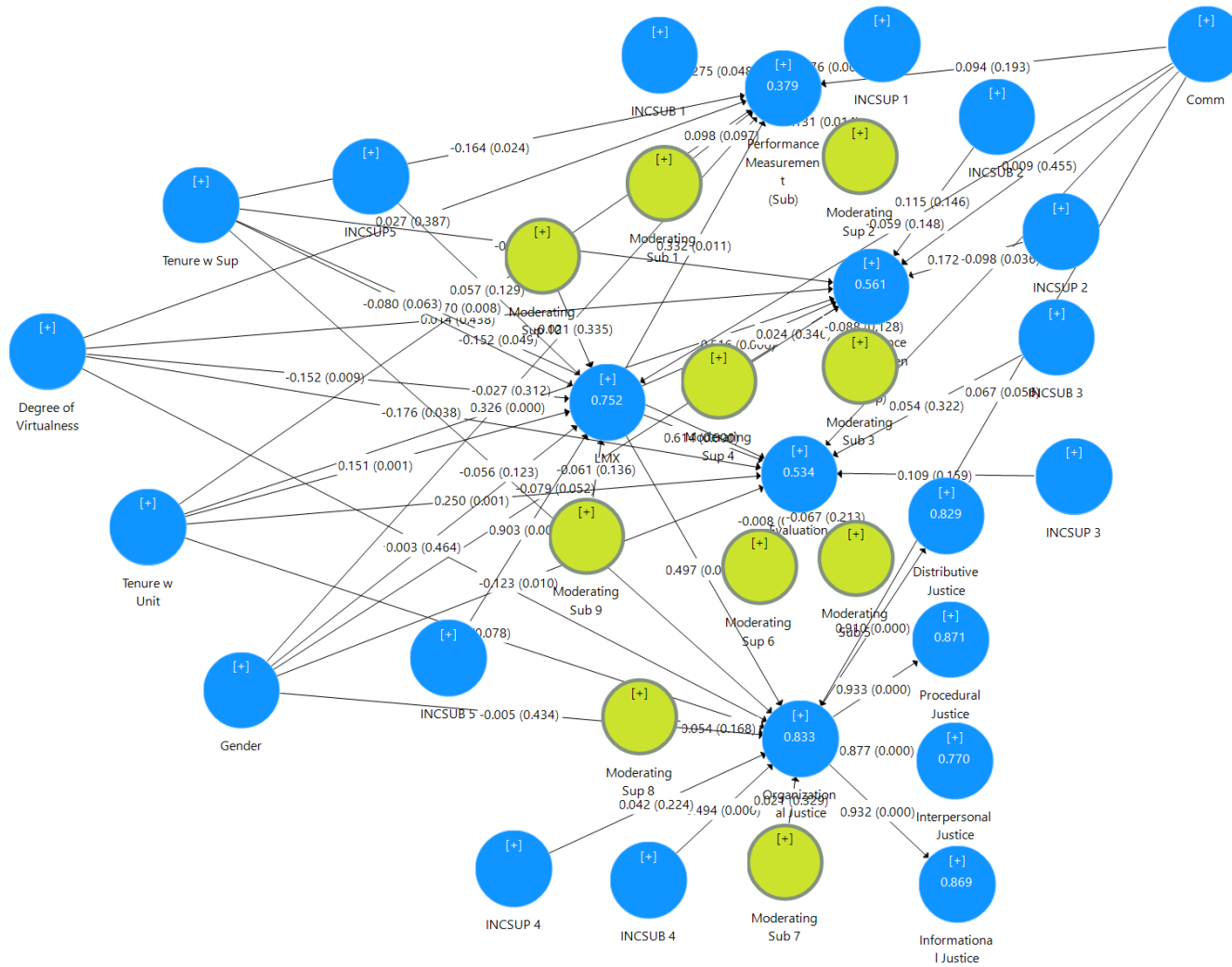


Table 34*Statistics of Full Model*

| | Original Sample (O) | Sample Mean (M) | Standard Deviation (STDEV) | t Statistics ($O/STDEV$) | p Values |
|---|--------------------------------|----------------------------|---|--|-----------------|
| Degree of Virtualness -> LMX** | -0.152 | -0.150 | 0.064 | 2.358 | 0.009 |
| Degree of Virtualness -> Organizational Justice | -0.058 | -0.053 | 0.053 | 1.098 | 0.136 |
| Degree of Virtualness -> Performance Measurement_(Sub) | 0.027 | 0.019 | 0.094 | 0.288 | 0.387 |
| Degree of Virtualness -> Performance Measurement_(Sup) | 0.014 | 0.015 | 0.089 | 0.156 | 0.438 |
| Degree of Virtualness -> Evaluation* | -0.176 | -0.172 | 0.099 | 1.772 | 0.038 |
| LMX -> Organizational Justice*** | 0.497 | 0.499 | 0.068 | 7.313 | 0.000 |
| LMX -> Performance Measurement_(Sub)* | 0.332 | 0.320 | 0.145 | 2.299 | 0.011 |
| LMX -> Performance Measurement_(Sup) *** | 0.516 | 0.514 | 0.092 | 5.588 | 0.000 |
| LMX -> Evaluation*** | 0.614 | 0.606 | 0.109 | 5.627 | 0.000 |
| Degree of Virtualness -> LMX -> Organizational Justice*** | 0.414 | 0.414 | 0.062 | 6.720 | 0.000 |
| Degree of Virtualness -> LMX -> Performance Measurement_(Sub)*** | 0.290 | 0.294 | 0.054 | 5.420 | 0.000 |
| Degree of Virtualness -> LMX -> Performance Measurement_(Sup)*** | 0.325 | 0.324 | 0.049 | 6.560 | 0.000 |
| Degree of Virtualness -> LMX -> Evaluation*** | 0.345 | 0.344 | 0.056 | 6.121 | 0.000 |
| Moderating Sub 1 -> Performance Measurement_(Sub) † | 0.098 | 0.099 | 0.075 | 1.297 | 0.097 |
| Moderating Sup 2 -> Performance Measurement_(Sub)* | -0.131 | -0.124 | 0.060 | 2.203 | 0.014 |

| | | | | | |
|---|--------|--------|-------|-------|-------|
| Moderating Sub 3 -> Performance Measurement_(Sub) | -0.088 | -0.089 | 0.078 | 1.135 | 0.128 |
| Moderating Sup 4 -> Performance Measurement_(Sup) | 0.024 | 0.027 | 0.060 | 0.395 | 0.346 |
| Moderating Sub 5 -> Evaluation | -0.067 | -0.064 | 0.085 | 0.797 | 0.213 |
| Moderating Sup 6 -> Evaluation | -0.008 | -0.026 | 0.054 | 0.150 | 0.440 |
| Moderating Sub 7 -> Organizational Justice | 0.021 | 0.030 | 0.047 | 0.441 | 0.329 |
| Moderating Sup 8 -> Organizational Justice | 0.054 | 0.004 | 0.057 | 0.962 | 0.168 |
| Moderating Sub 9 -> LMX | -0.061 | -0.051 | 0.055 | 1.096 | 0.136 |
| Moderating Sup 10 -> LMX | -0.021 | 0.012 | 0.050 | 0.427 | 0.335 |
| Comm Method -> LMX | -0.059 | -0.066 | 0.057 | 1.045 | 0.148 |
| Comm Method -> Organizational Justice† | 0.067 | 0.068 | 0.042 | 1.589 | 0.056 |
| Comm Method -> Performance Measurement_(Sub) | 0.094 | 0.095 | 0.108 | 0.866 | 0.193 |
| Comm Method -> Performance Measurement_(Sup) | -0.009 | -0.005 | 0.079 | 0.112 | 0.455 |
| Comm Method -> Evaluation* | -0.098 | -0.092 | 0.055 | 1.799 | 0.036 |
| Gender -> LMX | 0.003 | 0.001 | 0.037 | 0.089 | 0.464 |
| Gender -> Organizational Justice | -0.005 | -0.005 | 0.030 | 0.167 | 0.434 |
| Gender -> Performance Measurement_(Sub) | -0.027 | -0.024 | 0.056 | 0.489 | 0.312 |
| Gender -> Performance Measurement_(Sup) † | -0.079 | -0.077 | 0.049 | 1.625 | 0.052 |
| Gender -> Evaluation** | -0.123 | -0.123 | 0.053 | 2.344 | 0.010 |
| Tenure w Sup -> LMX† | -0.080 | -0.078 | 0.053 | 1.528 | 0.063 |
| Tenure w Sup -> Organizational Justice | -0.056 | -0.052 | 0.049 | 1.160 | 0.123 |
| Tenure w Sup -> Performance Measurement_(Sub)* | -0.164 | -0.175 | 0.083 | 1.974 | 0.024 |
| Tenure w Sup -> Performance Measurement_(Sup)** | -0.217 | -0.210 | 0.085 | 2.555 | 0.005 |

| | | | | | |
|---|--------|--------|-------|-------|-------|
| Tenure w Sup -> Evaluation* | -0.152 | -0.136 | 0.092 | 1.651 | 0.049 |
| Tenure w Unit -> LMX*** | 0.151 | 0.151 | 0.050 | 3.048 | 0.001 |
| Tenure w Unit -> Organizational Justice† | 0.068 | 0.059 | 0.048 | 1.420 | 0.078 |
| Tenure w Unit -> Performance Measurement_(Sub)** | 0.170 | 0.177 | 0.070 | 2.425 | 0.008 |
| Tenure w Unit -> Performance Measurement_(Sup)*** | 0.326 | 0.322 | 0.079 | 4.109 | 0.000 |
| Tenure w Unit -> Evaluation*** | 0.250 | 0.240 | 0.082 | 3.041 | 0.001 |

Note. † = $p < .10$. * = $p < .05$. ** = $p < .01$. *** = $p < .001$; Gender – 1 = females and 2 = males in the data analysis.

Results of Hypotheses Testing

The coefficients in Figure 9 includes the p value for each path. The results of this model were used to evaluate each of the study hypotheses.

The p value provides a measure of the probability that an observed difference may have occurred by chance. The smaller the p value, the greater the statistical significance of the observed difference. The p value approach uses the calculated probability to determine if there is sufficient evidence to reject the null hypothesis (that no statistical significance exists in the set of given observation). Smaller p value shows stronger evidence in favor of the alternative hypothesis. The p values are considered significant if less than 0.05, and highly significant if the p value is less than 0.01.

Hypothesis 1 predicted the degree of virtualness will be negatively related to the performance appraisal score. This was tested using three different measures of performance. As shown in Figure 9, the relationship between the degree of virtualness and performance measurement (subordinate) ($\beta = 0.027, t = 0.288, p = 0.387$), is not statistically significant. The relationship between the degree of virtualness and performance measurement (supervisor) ($\beta = 0.014, t = 0.156, p = 0.438$), is also not statistically significant. However, the relationship between the degree of virtualness and performance evaluations (secondary data) ($\beta = -0.176, t = 1.772, p = 0.038$) is negative and statistically significant. Thus, Hypothesis 1 was supported when the Navy Reserves' actual performance appraisal data was uses as the measure of performance.

Hypothesis 2 predicted that the degree of virtualness will be negatively related to organizational justice. This hypothesis is not supported, as the relationship between the degree

of virtualness and organizational justice ($\beta = -0.058$, $t = 1.908$, $p = 0.136$) is not statistically significant.

Hypothesis 3 predicted that higher quality LMX will be positively related to performance appraisal ratings. In support of Hypothesis 3, the p value for the positive relationship between LMX and performance measurement (subordinate) is statistically significant at $\beta = 0.332$, $t = 2.299$, $p = 0.011$; the p value for the positive relationship between LMX and performance measurement (supervisor) is statistically significant ($\beta = 0.516$, $t = 5.588$, $p = 0.000$); and the p value for the positive relationship between LMX and evaluations (secondary data) is statistically significant ($\beta = 0.614$, $t = 5.627$, $p = 0.000$). Thus Hypothesis 3 was supported for all three measures of performance.

Hypothesis 4 predicted that LMX would be positively related to subordinates' perceptions of organizational justice. The path from LMX to organizational justice is statistically significant ($\beta = 0.497$, $t = 7.313$, $p = 0.000$). Thus, Hypothesis 4 was supported.

Hypothesis 5 predicted that the degree of virtualness would be negatively related to LMX. The path from the degree of virtualness to LMX was statistically significant in the same direction as the hypothesis ($\beta = -0.152$, $t = 2.358$, $p = 0.009$). Hypothesis 5 was supported.

Hypothesis 6 predicted that the mediation effects of LMX would partially mediate the relationship between the degree of virtualness and performance measurement. This was tested using each of the three measures of subordinates' performance. The hypothesis utilizing performance measurement (subordinate) is supported, as the specific indirect effects of this variable was statistically significant, ($\beta = 0.290$, $t = 5.420$, $p = 0.000$). The hypothesis utilizing performance measurement (supervisor) is supported, as the specific indirect effects of this variable was statistically significant, ($\beta = 0.325$, $t = 6.560$, $p = 0.000$). The hypothesis utilizing

evaluations (secondary data) is supported, as the specific indirect effects of this variable was statistically significant, ($\beta= 0.345, t=6.121, p=0.000$). Thus, Hypothesis 6 was supported for all three measures of performance.

Hypothesis 7 predicted that the relationship between the degree of virtualness and perceptions of organizational justice would be partially mediated by the quality of LMX. This hypothesis was supported as the path between degree of virtualness and organizational justice was statistically significant ($\beta= 0.414, t=6.720, p=0.000$).

Hypothesis 8 predicted that the perceptions of leader inclusiveness would moderate the negative relationship between the degree of virtualness and performance appraisal ratings, such that when the subordinate perceives the leader is more inclusive, the negative relationship between the degree of virtualness and performance appraisal ratings would be weaker than when the employee perceives the leader to be less inclusive. Measures of perceptions of leader inclusiveness were collected from both the subordinate's and the supervisor's perspectives, and the analysis was conducted using both perceptions as moderating variables on all three measures of performance. For the relationship between the degree of virtualness and performance measurement (subordinate) ($\beta= 0.098, t=1.297, p=0.097$), the degree of virtualness and performance measurement (supervisor) ($\beta= -0.088, t=1.135, p=0.128$), and the degree of virtualness and evaluations (secondary data) ($\beta= -0.067, t=0.797, p=0.213$), none were moderated by leader inclusiveness (subordinate) as none were statistically significant. For the relationship moderated by leader inclusiveness (supervisor) between the degree of virtualness and performance measurement (subordinate) ($\beta= -0.131, t=2.203, p=0.014$), the degree of virtualness and performance measurement (supervisor) ($\beta= 0.024, t=0.395, p=0.346$), and the degree of virtualness and evaluations (secondary data) ($\beta= -0.008, t=0.150, p=0.440$). Thus,

Hypothesis 8 was not supported. Only the relationship between the degree of virtualness and performance measurement (subordinate) was statistically significant for moderation.

Hypothesis 9 predicted that employees' perceptions of leaders' inclusiveness would moderate the relationship between the degree of virtualness and organizational justice, such that when the leader is perceived as more inclusive, the negative relationship between the degree of virtualness and organizational justice will be weaker than when the leader is perceived to be less inclusive. Leader inclusiveness was measured from both the subordinate's and the supervisor's perspectives. Hypothesis 9 was not supported for either measure as leader inclusiveness (subordinate) ($\beta = 0.021, t=0.441, p=0.329$) and leader inclusiveness (supervisor) ($\beta = 0.054, t=0.962, p=0.168$) were not statistically significant.

Hypothesis 10 predicted that perceptions of leaders' inclusiveness would moderate the relationship between the degree of virtualness and LMX quality, such that when the leader is perceived as more inclusive, the negative relationship between the degree of virtualness and LMX quality will be weaker than when the leader is perceived to be less inclusive. This was not supported. As reported for Hypothesis 5, the relationship between the degree of virtualness and LMX was significant in the same direction as the hypothesis. However, the moderation effect was not significant for either the leader inclusiveness (subordinate) ($\beta = -0.061, t=1.096, p=0.136$) or the leader inclusiveness (supervisor) ($\beta = -0.021, t=0.427, p=0.335$).

Altogether, out of the 23 hypotheses in this study, 10 were supported. Table 35 summarizes the results of the hypotheses tests, including the path coefficients taken from Figure 9 and Table 34. These results are discussed in more detail in Chapter 5.

Table 35*Summary of Hypotheses Findings*

| Hypothesis | Prediction | Path Coefficient | Supported |
|-------------------|---|--|------------------|
| H1 | The degree of virtualness will be negatively related to performance appraisal ratings. | | |
| | Performance measurement (subordinate) | $\beta = 0.027, t = 0.288, p = 0.387$ | No |
| | Performance measurement (supervisor) | $\beta = 0.014, t = 0.156, p = 0.438$ | No |
| | Evaluation (secondary data) | $\beta = -0.176, t = 1.772, p = 0.038$ | Yes |
| H2 | The degree of virtualness will be negatively related to employee perceptions of organizational justice. | $\beta = -0.058, t = 1.098, p = 0.136$ | No |
| H3 | Higher-quality Leader-Member Exchange (LMX) will be positively related to performance appraisal ratings. | | |
| | Performance measurement (subordinate) | $\beta = 0.332, t = 2.299, p = 0.011$ | Yes |
| | Performance measurement (supervisor) | $\beta = 0.516, t = 5.588, p = 0.000$ | Yes |
| | Evaluation (secondary data) | $\beta = 0.614, t = 5.627, p = 0.000$ | Yes |
| H4 | Higher-quality Leader-Member Exchange (LMX) will be positively related to subordinates' perceptions of organizational justice. | $\beta = 0.497, t = 7.313, p = 0.000$ | Yes |
| H5 | A higher degree of virtualness will be negatively related to Leader-Member Exchange quality. | $\beta = -0.152, t = 2.358, p = 0.009$ | Yes |
| H6 | The relationship between the degree of virtualness and performance appraisal scores is partially mediated by the quality of Leader-Member Exchange (LMX). | | |
| | Performance measurement (subordinate) | $\beta = 0.294, t = 5.420, p = 0.000$ | Yes |
| | Performance measurement (supervisor) | $\beta = 0.324, t = 6.560, p = 0.000$ | Yes |
| | Evaluation (secondary data) | $\beta = 0.344, t = 6.121, p = 0.000$ | Yes |

Table 35*Summary of Hypotheses Findings*

| Hypothesis | Prediction | Path Coefficient | Supported |
|-------------------|---|--|------------------|
| H7 | The relationship between the degree of virtualness and perceptions of organizational justice is partially mediated by the quality of Leader-Member Exchange (LMX). | $\beta = 0.414, t = 6.720, p = 0.000$ | Yes |
| H8 | Employees' perception of leaders' inclusiveness will moderate the relationship between the degree of virtualness and performance appraisal ratings, such that when the subordinate perceives the leader is more inclusive, the negative relationship between the degree of virtualness and performance appraisal ratings will be weaker than when the employee perceives the leader to be less inclusive. | | |
| | Leader inclusiveness (subordinate) --> Performance measurement (subordinate) | $\beta = 0.098, t = 1.297, p = 0.097$ | No |
| | Leader inclusiveness (subordinate) --> Performance measurement (supervisor) | $\beta = -0.088, t = 1.135, p = 0.128$ | No |
| | Leader inclusiveness (subordinate) --> Evaluation (secondary data) | $\beta = -0.067, t = 0.797, p = 0.213$ | No |
| | Leader inclusiveness (supervisor) --> Performance measurement (subordinate) | $\beta = -0.131, t = 2.203, p = 0.014$ | Yes |
| | Leader inclusiveness (supervisor) --> Performance measurement (supervisor) | $\beta = 0.024, t = 0.395, p = 0.346$ | No |
| | Leader inclusiveness (supervisor) --> Evaluation (secondary data) | $\beta = -0.008, t = 0.150, p = 0.440$ | No |

Table 35*Summary of Hypotheses Findings*

| Hypothesis | Prediction | Path Coefficient | Supported |
|-------------------|--|--|------------------|
| H9 | Employees' perception of leaders' inclusiveness will moderate the relationship between the degree of virtualness and organizational justice, such that when the employee perceives the leader is more inclusive, the negative relationship between the degree of virtualness and organizational justice will be weaker than when the employee perceives the leader to be less inclusive. | | |
| | Leader inclusiveness (subordinate) --> Organizational justice | $\beta = 0.021, t = 0.441, p = 0.329$ | No |
| | Leader inclusiveness (supervisor) --> Organizational justice | $\beta = 0.054, t = 0.962, p = 0.168$ | No |
| H10 | Employees' perception of leaders' inclusiveness will moderate the relationship between the degree of virtualness and LMX quality, such that when the employee perceives the leader is more inclusive, the negative relationship between the degree of virtualness and LMX quality will be weaker than when the employee perceives the leader to be less inclusive. | | |
| | Leader inclusiveness (subordinate) --> LMX | $\beta = -0.061, t = 1.096, p = 0.168$ | No |
| | Leader inclusiveness (supervisor) --> LMX | $\beta = -0.021, t = 0.427, p = 0.335$ | No |

CHAPTER 5 – CONCLUSIONS, LIMITATIONS, AND FUTURE RESEARCH

This chapter offers a discussion of the findings presented in Chapter 4. The chapter begins by revisiting the study's purpose and research questions. This is followed by a summary of key findings, a discussion of the results, contributions to theory, including LMX theory, and implications for management practice related to performance appraisals, especially for the Navy Reserve. The chapter concludes with limitations of this study and potential avenues for future research.

General Discussion

Since telecommuting first began over 40 years ago as a method to reduce employee commuting costs during a time of high fuel costs, working away from the office has become more common as a method to balance quality-of-life issues for workers while reducing costs for the organization. A 2022 survey of US workers asking where work was performed the previous week indicated that the average worker spent one-third of the week working from home (Barrero et al., 2021; 2022).

For Navy Reservists, the use of teleworking enables individuals to support the military without disrupting their civilian employment, college enrollment, or requiring family relocation. Although telework benefits the Navy Reserve as vacant positions can be filled by Reservists located across the US, there are concerns that telecommuting may negatively impact the

performance ratings and career advancement of teleworking Reservists. Navy Reserve leaders have recognized that appraising teleworkers with non-teleworkers can create the perception of unfairness (Reyes, 2018). Reserve supervisors are unable to directly observe teleworkers' performance but use the same criteria to appraise both teleworkers and non-teleworkers.

This study examined (1) whether the degree of virtualness affected performance appraisal scores and employee perceptions of fairness of the performance appraisals, (2) whether these relationships were partially mediated by LMX, and (3) whether leader inclusiveness moderated the effect of the degree of virtualness on LMX quality, performance appraisal scores, and employee perceptions of fairness of the performance appraisals. These questions were investigated in a study of Navy Reserve junior enlisted Reservists in Reserve units in the logistics, medical, ship repair, and aviation fields.

The results showed that teleworkers receive lower performance scores (taken from Navy Reserve performance-evaluation records) than non-teleworkers. LMX fully mediated the relationship between the degree of virtualness and three measures of performance appraisal scores: those that were provided in the survey by the supervisor and the subordinate's self-rated performance, and from the Navy Reserve's archival performance appraisal data. LMX also fully mediated the relationship between the degree of virtualness and organizational justice. Contrary to expectations, the leader's inclusiveness did not have a moderating effect in the study. The next sections discuss the findings in more detail.

Virtualness negatively affects performance appraisal scores. As expected, the degree of virtualness had a negative relationship with performance appraisal scores taken from the Reservists' last performance appraisal on file. This was the key contribution of this study. This

finding supports prior qualitative research that showed teleworkers perceive that they receive lower performance evaluations in comparison to non-teleworkers (Elsbach et al., 2010).

There are five alternative explanations for this finding, which this study's design cannot resolve. It is also possible that some combination of these five explanations is at work in causing virtual workers to receive lower performance ratings.

One explanation is that performance evaluations may be unfairly biased against teleworkers, supporting the perception of unfairness noted above (Reyes, 2018). If this is the case, then virtual workers do not have equal opportunities to earn promotions and career advancements due to biases in the performance-rating system.

A second explanation is that teleworkers have lower performance ratings because they lack access to the same resources and elements of the workplace context and supervisory support that contribute to performing better, and this lack of access causes virtual workers' actual performance to be lower. In this scenario the performance ratings fairly reflect teleworkers' actual performance, but there is not equal access to the support needed to achieve top performance. In the Navy Reserve, Reservists who work in person have more access to equipment, access to peers who can help with training requirements, and access to the supervisor to receive informal feedback.

A third explanation is that supervisors assign additional work responsibilities, also known as collateral duties, to non-teleworkers, and performance on these additional responsibilities contributes to higher performance ratings for non-teleworkers. These responsibilities, such as overseeing the daily work performed by the junior enlisted Reservists, managing the physical fitness program for the unit, managing the administrative requirements for the unit, and maintaining the training records for the unit, have a significant impact on the Reserve unit. They

also receive more attention by the Navy Reserve Center, by the Reserve unit, and by the organization the Reserve unit supports. Reservists receive more credit on performance appraisals if they are able to effectively manage the collateral duties.

A fourth explanation is that there is a self-selection effect whereby people who prefer to put in less effort choose to work remotely and then do, in fact, perform worse than their in-person peers because they are less motivated and/or less capable. In this fourth scenario both the work context and the performance appraisals are unbiased and fair, but teleworkers nevertheless perform lower due to differences in the individual attributes of teleworkers versus in-person workers.

A fifth explanation is that there is no bias in the working conditions or the performance appraisal and no self-selection effect of less motivated or less capable workers choosing to telework, but the inaccurate perception that there is bias causes teleworkers to not give their best efforts. For example, Reservists who telework may not seek out more work responsibilities to compete with non-teleworkers if they perceive there is no benefit to be gained because their performance appraisal will still be lower.

Survey measures of performance have questionable validity. The significance of the relationship between the degree of virtualness and performance appraisals did not carry over to the alternative measures of performance used in the survey, either the subordinates' self-rated performance or the supervisor's survey ratings of subordinates' performance. The degree of virtualness had almost negligible influence on these scores.

When an actual performance appraisal is generated for the Navy Reserves, the process begins up to four months in advance to allow the supervisor adequate time to review the subordinate's accomplishments and compare the performance against the subordinate's peers.

Furthermore, the Reservists are normally separated into smaller groupings of Reservists with equivalent experience, and the performance evaluations are conducted in batches that facilitate accurate comparisons. This allows supervisors make more accurate judgements about subordinates' relative performance.

Then, supervisors are required to distribute subordinate performance ratings into categories of promotion status (early promote, must promote, promotable, progressing, and significant problems), which are the equivalent of well above average, above average, average, below average, and problems in performance. Limitations are placed on the maximum number of Reservists who can be placed into each category to prevent overrating Reservists into the above-average categories. In this process, subordinates are appraised in groups with peers who have similar experience levels.

The self-rated performance measures collected from the survey of subordinate Reservists were inflated. All of the subordinates in the study self-reported that their performance met or exceeded the supervisor's expectations. Thus, there was a self-serving bias in the subordinate Reservists' self-rated performance measure that is consistent with past research that shows there is a self-serving bias in self-ratings of performance (Mulki et al., 2008). One plausible explanation why teleworkers might have inflated views of their performance is that subordinates who telework are unable to gauge how their level of performance compares against their peers, so they are unable to determine if they are performing better or worse. In the absence of contrary information, they then assume they are meeting or exceeding expectations.

Supervisors' ratings of performance for the survey had questionable validity. Virtualness did not have a significant impact on supervisor ratings of subordinates' performance on the survey-based measure, which could be because the supervisors' survey-based ratings of

performance lacked validity. In contrast to the Navy Reserve's procedures grouping similar Reservists for comparison, the survey for this study presented all of the subordinate surveys to the supervisors together. So, for example, a subordinate new to the Reserve unit could have been included with a subordinate with a longer tenure and more experience in the surveys distributed to a particular supervisor.

Furthermore, for this study, supervisors responded to 14 survey questions about subordinates on instruments used in previous research. The repetitive nature of filling out the same 14 items on surveys about different Reservists might have resulted in choice hysteresis, which is a tendency to repeat recent choices (Bonaiuto et al., 2016). For a supervisor with one or two subordinates to assess, choice hysteresis may not have been an issue, but, for a supervisor with over 20 subordinates, survey fatigue might have set in. Instead of spending time to consider the performance of each subordinate, supervisors may have sped through the survey since the items were repetitive. As a consequence, little confidence should be placed in the results for the measure of performance that supervisors completed for the survey.

Virtualness did not influence perceptions of organizational justice. Contrary to expectations, the relationship between the degree of virtualness and perceptions of organizational justice was not significant. This could be because teleworkers may not be seeking more work responsibilities and perceive that the performance appraisal result is appropriate based on their level of effort. The Navy Reserves provides detailed instructions for conducting performance appraisals. These instructions delineate what is acceptable and unacceptable in the process, which may lead to perceptions that the procedures used to generate performance appraisals are appropriate. If the supervisor followed the guidance established by the Navy Reserve,

subordinates may perceive that the supervisor completed the performance appraisal consistent with expectations.

LMX is a mediator. As expected, LMX had a positive relationship with performance appraisal scores and organizational justice and mediates the relationship between degree of virtualness and these outcome variables. Because of time constraints during a 16-hour work period, supervisors have limited opportunities for formal meetings. Therefore, Reservists with high-quality LMX benefit from greater the access to the supervisor through informal interactions. In-person workers' greater ability to receive continual feedback may have increased the likelihood of meeting the supervisor's performance expectations.

As previously discussed, some work responsibilities receive higher recognition. Reservists who have high-quality LMX with the supervisor are assigned these work responsibilities (Xue & Moon, 2019). Supervisors have to be judicious in allocating time and attention, leaders may feel more comfortable assigning the unit's most important work tasks to subordinates they trust. These Reservists are expected to manage the work responsibilities on their own and request involvement from the supervisor when needed.

The study also confirmed that LMX had a positive relationship with organizational justice. While the initial intent was to study the relationship between LMX and the four dimensions of justice (distributive justice, procedural justice, interpersonal justice, and informational justice), subordinates were not able to discern differences among the items used in the survey. Having the justice items follow each other in the survey may have contributed to the subordinates responding in the same manner since a total of 19 justice items were used, and the Likert scale for all 19 items was the same. The repetitive survey items on a survey that had 49 measures and 9 additional demographic items may have contributed to survey fatigue.

Leader inclusiveness did not have a moderating effect. Unexpectedly, leader inclusiveness did not moderate the relationships between the degree of virtualness and performance, between the degree of virtualness and organizational justice, or between the degree of virtualness and LMX. Ten hypotheses were tested for leader inclusion as a moderator, and 9 were not supported. The only significant moderation effect was related to the moderating effect of the leader's inclusiveness on the relationship between degree of virtualness and supervisor survey-rated performance. As discussed earlier, supervisors' survey ratings of performance had questionable validity, so this significant result may not be interpretable.

There were problems with the inclusiveness measure in this study. As a result, the study cannot draw valid conclusions about the effects of leader inclusiveness on the relationship among any of the study variables.

Inclusiveness was highly correlated with the LMX measure, which indicated that subordinates did not distinguish between leader inclusiveness and LMX. In hindsight, the items were too similar. For example, the inclusiveness item, "My supervisor is available for consultation on problems" is very similar to the LMX item, "How well does your supervisor understand your problems and needs?" Conceptually, leader inclusiveness is a behavior and LMX is a perception of the quality of a dyadic relationship, so the constructs have different meanings. In practice, however, it may be hard for raters to notice a difference, particularly given the similarity of the items on the measures. Subordinates may feel they have a closer relationship when the leader makes them feel that their contributions are valued.

It may also be difficult for Reservists to recognize that a supervisor is being inclusive due to the limited amount of interaction Reservists have with supervisors. Reservists located at a different Reserve Center than the supervisor may perform military support on a different day.

Supervisors generally do not work in the same space. After disseminating work to be accomplished at the start of a workday, supervisors only interact with subordinates as needed. Supervisors may not have the opportunity to communicate with or to provide feedback to subordinates during the subordinate's working hours, so it may be difficult for both virtual and in-person Reservists to observe the supervisor's inclusive behaviors. Supervisors may not prioritize making workers feel included when their focus is on completing work during the workday. All of these may have made it difficult for subordinates to recognize inclusive leader behaviors and differentiate them from the quality of the LMX relationship.

Leader inclusiveness might also not matter as much to Reservists as it does in other contexts, so subordinates may not pay enough attention to inclusive behaviors to be able to rate them accurately. The top-down directed leadership style in the military provides limited opportunity for subordinates to have a voice on decision-making and on matters that affect them. Reserve officers coordinate and make decisions in support of higher objectives. The decision is passed down to the supervisor in the form of a directed order. The supervisor then passes the order down to the subordinates. Unless the decision would risk damaging equipment or causing injuries, the subordinates are expected to fully carry out the orders. The needs of the Navy always take precedence over individuals' feelings or desires, perhaps resulting in Reservists' perception that their input is not being valued.

Implications For Theory

The findings in this research extends the body of literature on the impact virtualness has on performance appraisals. The only prior research I could find on physical presence in the workplace influencing performance appraisals was a qualitative study (Elsbach et al., 2010). The same study has been used in academic papers and magazine articles to support virtualness having

a negative relationship with performance appraisals and with negative perceptions of organizational commitment and dedication in the workplace. This is the first quantitative study to provide support for the assertion. Virtualness has been researched in detail as a team concept within organizations, but this dissertation extends the focus to the individual level (Martins et al., 2004; Tijunaitis et al., 2019).

This study also contributes to the literature on LMX theory. The research incorporated a specific segment of the US military that has not been studied in prior LMX research. Prior LMX research conducted in military settings involved other countries' militaries (Cobb & Lau, 2015; Holt et al., 2016).

The overall findings from this study contributes to the growing body of literature in organizational behavior that suggests findings from non-military contexts may generalize to military contexts. Concepts and behaviors found in civilian organizations are often consistent in military organizations, and this study of Reservists suggests that same can be said between full-time employment and part-time employment.

Practical Implications and Contributions

This study is of great interest to the current Commander of the Navy Expeditionary Logistics Support Group, RDML Dennis Collins, as he supported use of the surveys for the study (Collins, Personal Communication, 2022). Navy Expeditionary Logistics Support Group is a Reserve Command with over 3,100 Reservists, representing 5% of the Navy Reserve (Commander, Navy Expeditionary Combat Command, 2020).

One option – create separate categories of workers. A Navy Reserve request to appraise teleworkers separately from non-teleworkers was submitted in 2018 to address the

fairness perceptions (Reyes, 2018). RDML Reyes, who was the leader of the Navy Expeditionary Logistics Support Group in 2018, made the request.

The policy change request submitted by Reyes provided support for the request. This included observing telework Reservists “not being fairly evaluated,” and “not having an opportunity to prove the quality of their service under direct observation.” The document also said virtual Reservists “were utilized to enhance the summary groups and escalate the ability of others to receive elevated promotion recommendations.” These situations placed teleworkers at a disadvantage to non-teleworkers in performance appraisals. No study or research was provided to support the assertion Reserve teleworkers receiving lower appraisal scores than Reserve non-teleworkers, and no further action was taken by the Navy Personnel Command to modify the Navy Performance Evaluation System. This dissertation study provides support for RDML Dennis Collins to submit a follow-up request to place teleworkers in a category from non-teleworkers, which would enable teleworkers and non-teleworkers to be appraised as separate groups.

This study showed that, in fact, the degree of virtualness does have a negative relationship with completed performance appraisal scores submitted as official military records. As the degree of virtualness increased, the score on the completed performance appraisal decreased. The amount of face-to-face interaction or the amount of direct observation is not currently used to separate Reservists into appraisal categories. Utilizing more objective standards to evaluate Reservists who are not located with the supervisor may be more acceptable to telecommuting Reservists than being compared against peers who have regular access to the supervisor. These would be explicit standards telecommuting Reservists could strive to achieve, such as attainment of qualifications or completion of required training.

Creating different categories for teleworking Reservists and in-person Reservists would, in essence, result in having different jobs for teleworkers and in-person workers. Tasks could be separated between those that can be completed by teleworking Reservists and those that can be completed by non-teleworkers. It is likely that many tasks would be appropriate for both types of workers. However, other tasks might be more efficiently or effectively performed by workers in one or the other category. For example, managing the physical fitness program could be assigned to a non-teleworker as there are monthly fitness requirements that requires physical oversight while administrative responsibilities such as completion of appraisals or correspondences can be completed remotely where the Reservist is more efficient due to not having to share computer resources.

Tenure effects. The amount of time a Reservist has been assigned to the Reserve unit and with the supervisor had interesting results. Tenure with the Reserve unit had a positive effect on the performance appraisal score. The longer a Reservist remains with the Reserve unit, the more senior a Reservist becomes, and the more leadership responsibilities the Reservist is assigned. The increased responsibilities provide specific support for being assigned a higher appraisal score due to the required level of work. For the tenure with the supervisor, the relationship was reversed. When Reservists had worked longer with the supervisor, a lower performance appraisal score was more likely. The reason for the negative relationship may be due to the supervisor recognizing the subordinate is comfortable in the current situation and is not willing to take risks or put forth extra effort. Instead of striving to outperform other Reservists, the Reservist may be content to just remain in the middle of the pack and avoid taking on additional responsibilities. Supervisors continually strive to train and develop subordinates who can eventually replace them in the leadership hierarchy, and subordinates who

do not share the same outlook may receive lower performance scores.

Tenure also impacted LMX quality in the same manner as performance appraisal scores. Long assignments to a Reserve unit allow relationships to develop in which the subordinate and supervisor have both formal and informal relations. This benefits the supervisor as the subordinate can be relied upon to provide unsolicited information or feedback due to the comfort of speaking up. From the supervisor's perspective, longer tenure with the supervisor reinforces the relationship with the subordinate. The supervisor reviews completed work assignments, and, if they meet the supervisor's expectations, it increases LMX quality.

Gender effects. Gender had a significant impact on the performance appraisals on file in the Navy Reserves, with women receiving lower appraisals than men. Females tended to lag males in receiving above-average performance appraisals. Three of the Reserve units in the study were related to the medical field, and females made up 42% of those Reserve units. Yet, *none* of the females received the top performance-appraisal rating. Where females were being recognized with higher performance evaluation scores was in the smaller Reserve units. Perhaps appraising performance using objective measures in a matrix and assigning performance scores based on the summation might reduce the discrepancy.

Although examining gender effects on performance appraisals was not the purpose of this study, the results showing that women receive lower performance appraisal ratings should be a concern for the Navy Reserves. Sharing these results is an important practical contribution of this study.

Communication method. The results showed that supervisors communicating the performance appraisal results in-person was associated with higher performance scores. Perhaps

leaders who are assigning a higher performance appraisal score are more willing to share that positive news face-to-face or with some type of direct interaction. Providing good news in the form of an above average performance appraisal is a positive action by the supervisor. However, subordinates whose performance is average or below may not even be contacted to discuss the results. This may result in the subordinate feeling unwanted and unappreciated and deprives them of developmental feedback.

The Navy Reserve evaluation process does not establish the requirement for the communication method to provide performance appraisal feedback. In fact, the Navy Reserve does not even require that the subordinate has the opportunity to review the proposed performance appraisal before it is submitted into the Reservist's official military record. Supervisors may be able to encourage subordinates to elevate their performance by taking the time to review the appraisal results, discuss the subordinate's strengths and weaknesses, and provide recommendations for improvement. Continual feedback at specific points in time would reinforce the supervisor's interest in developing the subordinate. Sharing these results from this dissertation may help the Navy Reserves to develop procedures for communicating performance results in a more consistent manner so all Reservists have opportunities to receive feedback that could help them improve their performance.

Provides support for utilizing Navy Reservists in field studies. The participants in the study were all enlisted Reservists. Prior research involving Navy personnel utilized officers, who are different in terms of education, technical background, and managerial ability. The enlisted personnel have different insights than Navy officers, who are the equivalent of business managers and executives. This study has value to the Navy Reserve by sharing the views of enlisted Reservists in terms of perceptions of fairness, the quality of relationship with their

supervisors, and the experiences of enlisted Reservists related to their performance appraisals.

Earlier this month (August 2022), the Navy Reserve required Reservists who are teleworking to have performance appraised by the Reserve unit they are assigned to and not by the Reserve unit where the Reservist performs monthly military support. As a result, the number of teleworkers who are required to be appraised with non-teleworkers increased from 6,028 to 20,940. The 6,028 Reservists are in special Reserve units that already complete performance appraisals as a group regardless of whether the status of the Reservist is a teleworker or non-teleworker. The expansion supported a realignment strategy of providing Reserve units more administrative oversight of the Reservists assigned to the unit. This makes the insights from this study even more important to the Navy Reserves.

Teleworkers and non-teleworkers are typically appraised under the same process, which may put teleworkers at a disadvantage for performance appraisal scores and have career implications from those appraisals. Reasons for the performance differences between teleworkers and in-person Reservists should be investigated further and solutions provided where bias may exist. For example, instead of appraising performance once per year, shifting to more frequent performance feedback sessions may reduce teleworkers' disadvantages or perceptions of inequity.

Study Limitations

As with all research, there are limitations within this study. As discussed in Chapter 4, 179 Reservists participated in this study. While this number met the minimum sample size, it was not large enough to control for all factors that could have potentially affected the results. This study examined subordinates nested within supervisors nested within Reserve units. The sample size and the number of subordinates per supervisor were not large enough to use

hierarchical linear modeling to control for the potential effects of nesting. There could have also been some nesting effects for the different Reserve units in the study. The Reserve units had different tasks, training requirements, and leadership requirements. The culture of the Reserve units may have skewed the survey responses as each unit focuses on a different mission and units are managed differently. This diversity adds to the generalizability of the results within the Navy Reserves but could have created some nesting effects.

Although performance appraisal scores, a key dependent variable in this study, were taken from archival data, many the constructs were measured using data provided by Reservists who were either a subordinate or a supervisor. Utilizing single-source data can introduce common method variance, which was addressed in this study by using a marker variable and statistical procedures. Some of the data gathered from the subordinates and the supervisors (degree of virtualness, race, age, education, tenure in the Reserve unit, and tenure with the supervisor) exist as secondary data. Future research might be able to collect more of these measures from archival sources.

Data re-analysis. The data collected in this study were analyzed in accordance with the dissertation proposal. Future analyses should be conducted with simpler models that remove the effects of problematic variables.

There was a high correlation between leader inclusiveness and LMX. Inaccurate conclusions can occur when highly correlated constructs are added to a model, such as in this case, leader inclusiveness as a moderator. Future analyses should be conducted without leader inclusiveness measured from either the supervisor or subordinate perspectives to reduce the impact from multicollinearity and increase statistical power.

Subordinates' performance was measured from three separate sources: self-rated

performance perceptions of subordinates, which were affected by self-serving bias; performance ratings from the supervisors for the survey, which appeared to have questionable validity; and archived performance appraisal data from the Navy Reserves records. Future analyses should retain the archival performance measure but remove the survey-derived performance measures to simplify the model and increase statistical power.

Future Research

This study provided interesting and actionable results, and future research in related areas is warranted. This research utilized the Navy Reserve as the source of information. The Reserve units studied included expeditionary operations, medical support, ship repairs, and logistics. Reserve units are not all managed in the same manner or under the same guidance. Future research gathering data only from Reserve units within one Reserve Command may offer specific insights that are unique to that Command as the priorities, training, and work responsibilities would be similar. Future research may be able to broaden the sample even further and control for differences in task type, personnel characteristics, or culture that could affect the results.

The Navy Reserve is a unique organization in how it is structured and how it is managed. The Navy Reserve is different than the active-duty Navy, and the culture of the Navy is different from the Army, Air Force, and Marine Corps. Applying the research to other military services would be beneficial because, if the results do indeed generalize, there could be biases in performance appraisals that impact careers across the military. Future studies that replicate and extend the findings in different branches of the military may interest the Department of Defense. This would provide insights on what knowledge can be applied across the different branches of service versus what knowledge is limited to a specific service.

The completed study utilized a small sample of the telework population. A larger study with more telework Reservists under the new evaluation guidance that was issued in August 2022 can be undertaken to confirm the results are consistent. This would create an opportunity to revise the aspects of measurement that were problematic in this study. In addition, it could offer the larger sample size needed to test for effects of nested data. Such a study could also examine whether female Reservists receive lower ratings than males, as they did in this study. The results would provide additional insights that could be brought to the Bureau of Navy Personnel in support of policy changes to the performance evaluation instruction.

Future research utilizing difference scores as a variable would be fruitful. For example, differences between subordinates' self-rated performance and their performance score assigned by the Navy Reserve might predict justice perceptions better than the actual performance evaluation score. In addition, this study collected LMX perceptions from both subordinates and supervisors, but only the subordinate LMX perceptions were utilized in this study. Looking at difference scores between the leader and subordinates' perceptions could be interesting in future studies. Longitudinal studies of LMX in the Navy Reserves might also be useful so supervisors could learn how to allocate time and resources in a way that has the most effect on building high-quality relationships with subordinates. In the Navy Reserves, relationships have to develop quickly due to the time constraint of only having 16 hours per month for interaction. A two-day working period is the equivalent of a month for a Reservist. A longitudinal LMX study could help bring awareness of the effects of part-time workers' time constraints on LMX development.

Conclusion

Working away from the office is a benefit to workers as it can allow them to balance quality-of-life issues against work commitments. Organizations benefit by reducing facility

costs, increasing retention, and increasing job satisfaction. A drawback to working away from the office is the lack of interaction teleworkers have with their peers and supervisor. The results of this study show that virtualness has a negative impact on the LMX relationship quality between teleworking subordinates and their leaders. The results also show that teleworkers receive lower performance appraisal scores than non-teleworkers. Future research should examine the reasons for these differences, which could be due to actual performance differences between in-person and virtual workers, conditions in the workplace that make it more difficult for virtual workers to perform at high levels, or biased performance ratings.

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Appendix A: Subordinate Survey

PRIVACY ACT STATEMENT

Authority to request this information is granted under 5 U.S.C. 301, Departmental Regulations; 10 U.S.C. 5031 and 5032. License to administer this survey is granted per OPNAVINST 5300.8C under OPNAV Report Control Symbol: which expires __/ __/ __. Personal identifiers will be used to determine the supervisor to obtain survey responses.

PURPOSE: The purpose of this survey is obtain perceptions of performance and the quality of relationship within the Reserve unit.

ROUTINE USES: The information provided in this survey will be analyzed by Pele Bagwell, a doctoral candidate at Rollins College. The data files will be maintained by Qualtrics, an online data collection activity, and stored on encrypted servers. No other individuals will have access to the collected data, and the data will be deleted on Dec 2023.

CONFIDENTIALITY: All responses will be held in confidence by the Rollins College. Information you provide will be statistically summarized with the responses of others and will not be attributable to any single individual.

PARTICIPATION: Completion of this questionnaire is entirely voluntary. Failure to respond to any of the questions will NOT result in any penalties except possible lack of representation of your views in the final results and outcomes.

REPORT COSTS: The estimated cost of this report or study for the Department of Defense is approximately \$980 for the 2022 Fiscal Year. This includes \$0 in expenses and \$980 in DoD labor. Generated on 2022Jul19 RefID: B-E6582D1

You are invited to participate in this research study on performance appraisals in the U.S. Navy Reserves.

This study is being conducted by Pele Bagwell, an Executive Doctorate of Business Administration candidate in the Crummer Graduate School of Business at Rollins College and a Supply Corps Captain in the Navy Reserve. The survey takes approximately 5-7 minutes to complete. There are no risks associated with participating in this study. All of the responses in the survey will be kept confidential. No identifiable individual data will be shared outside of the research team at Rollins College.

As a thank-you for participating in the study, the researcher will donate \$5 for each completed survey to the First Class Petty Officer Association. The results of this study will provide insight into concepts studied and be published in a doctoral dissertation, which may help the U.S. Navy Reserves.

Participation in this research study is voluntary. If you decide to participate in the study and later change your mind, you may stop at any time. If you have any questions regarding the survey or this research project in general, please contact Pele Bagwell at SBagwell@rollins.edu. If you have any questions concerning your rights as a research participant, please contact the Rollins College IRB Chair at jhouston@rollins.edu.

By completing and submitting this survey, you are indicating your consent to participate in the study.

Your participation is greatly appreciated.

Thank you,
Pele Bagwell
Executive Doctorate of Business Administration Candidate
Crummer Graduate School of Business at Rollins College
Winter Park, Florida

[Degree of Virtualness Measure] Consider your current job in the Navy Reserves and the unit that you are assigned to over the past 12 months that is responsible for completing your performance appraisal. Please indicate your level of agreement with the following statements concerning the communication you use with your assigned unit.

Q1. Most of my day-to-day communication with the Reserve Unit was face-to-face.

| | | | | |
|-----------------------|-----------------------|---------------------------------|-----------------------|-----------------------|
| Strongly Disagree | Disagree | Neither Agree or Disagree | Agree | Strongly Agree |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q2. Most of my day-to-day communication with my Reserve Unit was through computer or telephone interaction

| | | | | |
|-----------------------|-----------------------|---------------------------------|-----------------------|-----------------------|
| Strongly Disagree | Disagree | Neither Agree or Disagree | Agree | Strongly Agree |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q3. All of my day-to-day communication with my Reserve Unit was through computer or telephone interaction

| | | | | |
|-----------------------|-----------------------|---------------------------------|-----------------------|-----------------------|
| Strongly Disagree | Disagree | Neither Agree or Disagree | Agree | Strongly Agree |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q4a. Based on your completion of the monthly Reserve requirements and annual training, please provide an estimate of the number of days you performed military duty over the past 12 months: [Drop down list from 0 to 53]

Q4b. Based on the previous question about your number of days of military support, please provide an estimate of the number of days out of the past 12 months you had face-to-face interaction with the supervisor listed as your performance evaluation Rater: [Drop down list from 0 to 53]

[Fatigue Measure] Please rate how you have felt over the past two weeks by indicating your level of agreement with the following statements.

Q5. I feel tired.

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q6. I tire easily.

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q7. I feel fit.

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q8. Physically, I feel exhausted.

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

[LMX Measure – Subordinate Perspective] Consider the supervisor that is identified as your performance evaluation Rater on the most recent appraisal. For the remainder of the survey, the questions will pertain to this supervisor.

Q9. Do you know how satisfied your supervisor is with what you do?

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Rarely | Occasional ly | Sometimes | Fairly Often | Very Often |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q10. How well does your supervisor understand your problems and needs?

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Not a Bit | A Little | A Fair Amount | Quite a Bit | A Great Deal |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q11. How well does your supervisor recognize your potential?

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Not at All | A Little | Moderately | Mostly | Fully |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q12. What are the chances that your supervisor would use his/her power to help you solve your problems in your work?

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| None | Small | Moderate | High | Very High |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q13. What are the chances that your supervisor would 'bail you out' at his/her expense?

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| None | Small | Moderate | High | Very High |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q14. I have enough confidence in my supervisor that I would defend and justify his/her decision if he/she were not present to do so.

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q15. How would you characterize your working relationship with your supervisor?

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Extremely Ineffective | Worse Than Average | Average | Better Than Average | Extremely Effective |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

[Distributive Justice Measure] The following items refer to your most recent performance evaluation.

Q16. To what extent does your performance appraisal reflect the effort you have put into your work?

| | | | | |
|---------------------------|-----------------------|-----------------------|-----------------------|---------------------------|
| To a Very Small Extent | To a Small Extent | Somewhat | To a Large Extent | To a Very Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q17. To what extent is your performance appraisal appropriate for the work you have completed?

| | | | | |
|---------------------------|-----------------------|-----------------------|-----------------------|---------------------------|
| To a Very Small Extent | To a Small Extent | Somewhat | To a Large Extent | To a Very Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q18. To what extent does your performance appraisal reflect what you have contributed to the Unit?

| | | | | |
|---------------------------|-----------------------|-----------------------|-----------------------|---------------------------|
| To a Very Small Extent | To a Small Extent | Somewhat | To a Large Extent | To a Very Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q19. To what extent is your performance appraisal justified, given your performance?

| | | | | |
|---------------------------|-----------------------|-----------------------|-----------------------|---------------------------|
| To a Very Small Extent | To a Small Extent | Somewhat | To a Large Extent | To a Very Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

[Procedural Justice Measure] For the most recent performance appraisal, please answer the questions pertaining to the procedures used to develop the performance evaluation.

Q20. Have you been able to express your views and feelings during those procedures?

| | | | | |
|---------------------------|-----------------------|-----------------------|-----------------------|---------------------------|
| To a Very Small Extent | To a Small Extent | Somewhat | To a Large Extent | To a Very Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q21. Have you had influence over the performance appraisal arrived at by those procedures?

| | | | | |
|------------------------|-----------------------|-----------------------|-----------------------|------------------------|
| To a Very Small Extent | To a Small Extent | Somewhat | To a Large Extent | To a Very Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q22. Have those procedures been applied consistently?

| | | | | |
|------------------------|-----------------------|-----------------------|-----------------------|------------------------|
| To a Very Small Extent | To a Small Extent | Somewhat | To a Large Extent | To a Very Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q23. Have those procedures been based on accurate information?

| | | | | |
|------------------------|-----------------------|-----------------------|-----------------------|------------------------|
| To a Very Small Extent | To a Small Extent | Somewhat | To a Large Extent | To a Very Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q24. Have you been able to appeal the performance appraisal arrived at by those procedures?

| | | | | |
|------------------------|-----------------------|-----------------------|-----------------------|------------------------|
| To a Very Small Extent | To a Small Extent | Somewhat | To a Large Extent | To a Very Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q25. Have those procedures upheld ethical and moral standards?

| | | | | |
|------------------------|-----------------------|-----------------------|-----------------------|------------------------|
| To a Very Small Extent | To a Small Extent | Somewhat | To a Large Extent | To a Very Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

[Interpersonal Justice Measure] The following items refer to the supervisor who developed the performance evaluation.

Q26. To what extent has the supervisor treated you in a polite manner?

| | | | | |
|---------------------------|-----------------------|-----------------------|-----------------------|---------------------------|
| To a Very Small Extent | To a Small Extent | Somewhat | To a Large Extent | To a Very Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q27. To what extent has the supervisor treated you with dignity?

| | | | | |
|---------------------------|-----------------------|-----------------------|-----------------------|---------------------------|
| To a Very Small Extent | To a Small Extent | Somewhat | To a Large Extent | To a Very Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q28. To what extent has the supervisor treated you with respect?

| | | | | |
|---------------------------|-----------------------|-----------------------|-----------------------|---------------------------|
| To a Very Small Extent | To a Small Extent | Somewhat | To a Large Extent | To a Very Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q29. To what extent has the supervisor refrained from improper remarks or comments?

| | | | | |
|---------------------------|-----------------------|-----------------------|-----------------------|---------------------------|
| To a Very Small Extent | To a Small Extent | Somewhat | To a Large Extent | To a Very Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

[Informational Justice Measure] The following items refer to the supervisor who developed your most recent performance evaluation. Procedures represent the process used to develop the performance evaluation.

Q30. To what extent has the supervisor been candid in his/her communication with you?

| | | | | |
|------------------------|-----------------------|-----------------------|-----------------------|------------------------|
| To a Very Small Extent | To a Small Extent | Somewhat | To a Large Extent | To a Very Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q31. To what extent has the supervisor explained the procedures thoroughly?

| | | | | |
|------------------------|-----------------------|-----------------------|-----------------------|------------------------|
| To a Very Small Extent | To a Small Extent | Somewhat | To a Large Extent | To a Very Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q32. To what extent were the supervisor's explanations regarding the procedures reasonable?

| | | | | |
|------------------------|-----------------------|-----------------------|-----------------------|------------------------|
| To a Very Small Extent | To a Small Extent | Somewhat | To a Large Extent | To a Very Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q33. To what extent has the supervisor communicated details in a timely manner?

| | | | | |
|------------------------|-----------------------|-----------------------|-----------------------|------------------------|
| To a Very Small Extent | To a Small Extent | Somewhat | To a Large Extent | To a Very Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q34. To what extent has the supervisor seemed to tailor his/her communications to individuals' specific needs?

| | | | | |
|------------------------|-----------------------|-----------------------|-----------------------|------------------------|
| To a Very Small Extent | To a Small Extent | Somewhat | To a Large Extent | To a Very Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

[Leader Inclusiveness Measure – Subordinate Perspective] Continue to reference the same supervisor when answering the following questions.

Q35. My supervisor is open to hearing new ideas.

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Not at All | Little Extent | Neutral | Large Extent | To a Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q36. My supervisor is attentive to new opportunities to improve work processes.

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Not at All | Little Extent | Neutral | Large Extent | To a Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q37. My supervisor is open to discuss the desired goals and new ways to achieve them.

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Not at All | Little Extent | Neutral | Large Extent | To a Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q38. My supervisor is available for consultation on problems.

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Not at All | Little Extent | Neutral | Large Extent | To a Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q39. My supervisor has an ongoing ‘presence’ on this team.

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Not at All | Little Extent | Neutral | Large Extent | To a Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q40. My supervisor is available for professional questions.

| | | | | |
|------------|---------------|---------|--------------|-------------------|
| Not at All | Little Extent | Neutral | Large Extent | To a Large Extent |
|------------|---------------|---------|--------------|-------------------|

Q41. My supervisor is ready to listen to my requests.

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Not at All | Little Extent | Neutral | Large Extent | To a Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q42. My supervisor encourages me to access him/her on emerging issues.

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Not at All | Little Extent | Neutral | Large Extent | To a Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q43. My supervisor is accessible for discussing emerging problems.

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Not at All | Little Extent | Neutral | Large Extent | To a Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

[Performance Measurement - Subordinate Perspective] Please answer the following questions related to your performance over the past 12 months.

Q44. Overall, to what extent have you been performing your job the way your supervisor would like it to be performed?

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Not at All | Little Extent | Neutral | Large Extent | To a Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q45. If you entirely had your way, to what extent would you change the manner in which you are performing your job?

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Not at All | Little Extent | Neutral | Large Extent | To a Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q46. All in all, you are very competent.

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Not at All | Little Extent | Neutral | Large Extent | To a Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q47. In your estimation, you get your work done very effectively.

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Not at All | Little Extent | Neutral | Large Extent | To a Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q48. Overall, to what extent have you been effectively fulfilling your roles and responsibilities?

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Not at All | Little Extent | Neutral | Large Extent | To a Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q49. Rate your overall level of performance.

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Excellent | Good | Average | Poor | Very Poor |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Additional Questions

Q50. How were the results of your most recent performance appraisal review communicated to you?

| | | | | | | |
|-----------|--------------------|------------|--------|--------------|-------|---------------------------|
| In person | Video Conferencing | Phone Call | E-mail | Text message | Other | Did not have a discussion |
|-----------|--------------------|------------|--------|--------------|-------|---------------------------|

Q51. How long have you been assigned to your current Reserve Unit?

[Drop down list in Years from 0 to 20]

[Drop down list in Months from 0 to 11]

Q52. What is your race?

| | | | | | | |
|---------------------------------------|-----------------------|----------------------------|---|-----------------------|-------------------------|---------------------------------|
| American Indian/Alaska n Native | Asian | Black/Africa n American | Native Hawaiian/ Other Pacific Islander | White | Two or more races | Other/I prefer not to say |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q53. What is your ethnic background?

| | | |
|------------------------------------|-------------------------------------|------------------------|
| Of Hispanic or Latino origin | Not of Hispanic or Latino origin | I prefer not to say |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q54. What is your age in years?

[Drop down list of years from 18 to 60]

Q55. What is the highest education level you have attained?

| | | | | | | |
|------------------------------|---------------------------|-----------------------|-----------------------|-------------------------------------|-----------------------|---|
| High school or equivalent | Completed some college | Associate's degree | Bachelor's degree | Completed some post- graduate | Master's degree | Doctorate, Law, Medicine or Professional degree |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Thank you for your time spent taking this survey.
Your responses have been recorded.

Appendix B: Supervisor Survey One

PRIVACY ACT STATEMENT

Authority to request this information is granted under 5 U.S.C. 301, Departmental Regulations; 10 U.S.C. 5031 and 5032. License to administer this survey is granted per OPNAVINST 5300.8C under OPNAV Report Control Symbol: which expires __/ __/ __. Personal identifiers will be used to determine the supervisor to obtain survey responses.

PURPOSE: The purpose of this survey is obtain perceptions of performance and the quality of relationship within the Reserve Unit.

ROUTINE USES: The information provided in this survey will be analyzed by Pele Bagwell, a doctoral candidate at Rollins College. The data files will be maintained by Qualtrics, an online data collection activity, and stored on encrypted servers. No other individuals will have access to the collected data, and the data will be deleted on Dec 2023.

CONFIDENTIALITY: All responses will be held in confidence by the Rollins College. Information you provide will be statistically summarized with the responses of others and will not be attributable to any single individual.

PARTICIPATION: Completion of this questionnaire is entirely voluntary. Failure to respond to any of the questions will NOT result in any penalties except possible lack of representation of your views in the final results and outcomes.

REPORT COSTS: The estimated cost of this report or study for the Department of Defense is approximately \$980 for the 2022 Fiscal Year. This includes \$0 in expenses and \$980 in DoD labor. Generated on 2022Jul19 RefID: B-E6582D1

You are invited to participate in this research study on performance appraisals in the U.S. Navy Reserves.

[Name/Rank] submitted a response and your input is requested.

This study is being conducted by Pele Bagwell, an Executive Doctorate of Business Administration candidate in the Crummer Graduate School of Business at Rollins College and a Supply Corps Captain in the Navy Reserves. The survey takes approximately 1-2 minutes to complete. You may also receive other surveys about different subordinates. In addition, you will receive a short survey about you that takes approximately one minute to complete.

There are no risks associated with participating in this study. All of the responses in the survey will be kept confidential. No identifiable individual data will be shared outside of the research team at Rollins College.

As a thank-you for participating in the study, the researcher will donate \$5 for each completed survey to the Chief's Mess. The results of this study will provide insight into concepts studied and be published in a doctoral dissertation, which may help the U.S. Navy Reserves.

Participation in this research study is voluntary. If you decide to participate in the study and later change your mind, you may stop at any time. If you have any questions regarding the survey or this research project in general, please contact Pele Bagwell at SBagwell@rollins.edu. If you have any questions concerning your rights as a research participant, please contact the Rollins College IRB Chair at jhouston@rollins.edu.

By completing and submitting this survey, you are indicating your consent to participate in the study.

Your participation is greatly appreciated.

Thank you,
Pele Bagwell
Executive Doctorate of Business Administration Candidate
Crummer Graduate School of Business at Rollins College
Winter Park, FL

[Performance Measure] For the subordinate, please answer the following questions related to their performance over the past 12 months.

Q1. Overall, to what extent has this employee been performing his/her job the way you would like it to be performed?

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Not at All | Little Extent | Neutral | Large Extent | To a Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q2. If you entirely had your way, to what extent would you change the manner in which the employee is performing his/her job?

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Not at All | Little Extent | Neutral | Large Extent | To a Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q3. All in all, this employee is very competent.

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Not at All | Little Extent | Neutral | Large Extent | To a Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q4. In my estimation, this employee gets his/her work done very effectively.

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Not at All | Little Extent | Neutral | Large Extent | To a Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q5. Overall, to what extent has this employee been effectively fulfilling his/her roles and responsibilities?

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Not at All | Little Extent | Neutral | Large Extent | To a Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q6. Rate this employee's overall level of performance.

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Very Poor | Poor | Average | Good | Excellent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

[LMX Measure - Supervisor Perspective] For the subordinate about whom you are completing this survey, please answer the following questions.

Q7. Does your subordinate usually know how satisfied you are with what they do?

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Rarely | Occasionally | Sometimes | Fairly Often | Very Often |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q8. How well do you understand their problems and needs?

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Not a Bit | A Little | A Fair Amount | Quite a Bit | A Great Deal |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q9. How well do you recognize their potential?

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Not at All | A Little | Moderately | Mostly | Fully |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q10. What are the chances that you would use your power to help them solve their problems in their work?

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| None | Small | Moderate | High | Very High |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q11. What are the chances that they would "bail you out" at their expense?

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| None | Small | Moderate | High | Very High |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q12. I have enough confidence in my subordinate that he/she would defend and justify my decision if I were not present to do so.

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q13. How would you characterize your working relationship with your subordinate?

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Extremely Ineffective | Worse Than Average | Average | Better Than Average | Extremely Effective |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

We thank you for your time spent taking this survey.
Your responses have been recorded.

Appendix C: Supervisor Survey Two

PRIVACY ACT STATEMENT

Authority to request this information is granted under 5 U.S.C. 301, Departmental Regulations; 10 U.S.C. 5031 and 5032. License to administer this survey is granted per OPNAVINST 5300.8C under OPNAV Report Control Symbol: which expires __/ __/ __ . Personal identifiers will be used to determine the supervisor to obtain survey responses.

PURPOSE: The purpose of this survey is obtain perceptions of performance and the quality of relationship within the Reserve Unit.

ROUTINE USES: The information provided in this survey will be analyzed by Pele Bagwell, a doctoral candidate at Rollins College. The data files will be maintained by Qualtrics, an online data collection activity, and stored on encrypted servers. No other individuals will have access to the collected data, and the data will be deleted on Dec 2023.

CONFIDENTIALITY: All responses will be held in confidence by the Rollins College. Information you provide will be statistically summarized with the responses of others and will not be attributable to any single individual.

PARTICIPATION: Completion of this questionnaire is entirely voluntary. Failure to respond to any of the questions will NOT result in any penalties except possible lack of representation of your views in the final results and outcomes.

REPORT COSTS: The estimated cost of this report or study for the Department of Defense is approximately \$980 for the 2022 Fiscal Year. This includes \$0 in expenses and \$980 in DoD labor. Generated on 2022Jul19 RefID: B-E6582D1

You are invited to participate in this research study on performance appraisals in the U.S. Navy Reserves.

This study is being conducted by Pele Bagwell, an Executive Doctorate of Business Administration candidate in the Crummer Graduate School of Business at Rollins College and a Supply Corps Captain in the Navy Reserves. This survey asks you for brief information about you and takes approximately one minute to complete. You will receive other surveys asking about your subordinates.

There are no risks associated with participating in this study. All of the responses in the survey will be kept confidential. No identifiable individual data will be shared outside of the research team at Rollins College.

The results of this study will provide insight into concepts studied and be published in a doctoral dissertation, which may help the U.S. Navy Reserves.

Participation in this research study is voluntary. If you decide to participate in the study and later change your mind, you may stop at any time. If you have any questions regarding the survey or this research project in general, please contact Pele Bagwell at SBagwell@rollins.edu. If you have any questions concerning your rights as a research participant, please contact the Rollins College IRB Chair at jhouston@rollins.edu.

By completing and submitting this survey, you are indicating your consent to participate in the study.

Your participation is greatly appreciated.

Thank you,
Pele Bagwell
Executive Doctorate of Business Administration Candidate
Crummer Graduate School of Business at Rollins College
Winter Park, FL

[Leader Inclusiveness Measure – Supervisor’s Perspective] For the following questions, please answer considering the Reservists in the Unit.

Q1. I am open to hear new ideas.

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Not at All | Little Extent | Neutral | Large Extent | To a Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q2. I am attentive to new opportunities to improve work processes.

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Not at All | Little Extent | Neutral | Large Extent | To a Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q3. I am open to discuss the desired goals and new ways to achieve them.

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Not at All | Little Extent | Neutral | Large Extent | To a Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q4. I am available for consultation on problems.

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Not at All | Little Extent | Neutral | Large Extent | To a Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q5. I have an ongoing ‘presence’ on this Reserve Unit.

| | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Not at All | Little Extent | Neutral | Large Extent | To a Large Extent |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q6. I am available for professional questions.

| | | | | |
|------------|---------------|---------|--------------|-------------------|
| Not at All | Little Extent | Neutral | Large Extent | To a Large Extent |
|------------|---------------|---------|--------------|-------------------|

Q7. I am ready to listen to my subordinate's requests.

Not at All Little Extent Neutral Large Extent To a Large Extent

Q8. I encourage subordinates to access me on emerging issues.

Not at All Little Extent Neutral Large Extent To a Large Extent

Q9. I am accessible for discussing emerging problems.

Not at All Little Extent Neutral Large Extent To a Large Extent

Additional Questions

Q10. How long have you been assigned to your current unit as a senior enlisted?

[Drop down for years from 0 to 20] [Drop down for months from 0 to 11]

Q11. What is your race?

| | | | | | | |
|--------------------------------------|-----------------------|-------------------------------|---|-----------------------|-----------------------|------------------------------------|
| American Indian/Alaskan Native | Asian | Black/Afri can American | Native Hawaiian/ Other Pacific Islander | White | Two or more races | Other/I prefer not to say |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q12. What is your ethnic background?

| | | |
|---------------------------------|--|------------------------|
| | Not of Hispanic or Latino origin | I prefer not to say |
| Of Hispanic or Latino origin | | |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q13. What is your age?

[Drop down list for age from 25 to 60]

Q14. What is the highest education level you have attained?

| | | | | | | |
|------------------------------|------------------------------|-----------------------|-----------------------|--|-----------------------|--|
| High school or equivalent | Comple ed some college | Associate's degree | Bachelor's degree | Comple ed some post- graduate | Master's degree | Doctorat e, Law, Medicin e or Professi onal degree |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

We thank you for your time spent taking this survey.
Your responses have been recorded.