Personality as a Predictor Of Job Performance in an All-Remote Workforce: A Study of Workers Within the Canada Pension Centre for the Federal Public Service

by

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Abstract

Prior research has demonstrated that the Big Five dimensions of personality (Extraversion, Neuroticism, Conscientiousness, Openness, and Agreeableness) can significantly predict overall job performance in traditional office settings where employees work in person (Barrick & Mount, 1991). The arrival of the recent pandemic has required many organizations to rethink their service delivery models in response to public health threats and safety measures. Transitioning to remote work was a popular organizational response. The pandemic has likely changed service delivery models for good, with some organizations considering permanently shutting down in-person office space as a cost-saving measure. Remote work has also been viewed as a hiring tool as more employees are showing an interest in working from home. However, despite this interest, remote work may not be suitable for all employees.

Unlike previous research, this study investigates the relationship between the Big Five dimensions of personality and eight job performance criteria (job knowledge, organizational skills, efficiency, persistent effort, cooperation, organizational conscientiousness, interpersonal and relational skills) in an all-remote work environment. The research consists of 201 responses from employees in the Canada Pension Centre who transitioned to fully remote work as a response to public safety measures. It centres around a survey designed to collect personality and job performance data. Semi-structured interviews were conducted with members of the management team to bolster research findings. Conclusions from this research confirmed, as with prior research where employees were situated in offices, a positive relationship exists between personality and job performance in fully remote work environments. As with previous
research in this area, findings demonstrated that Conscientiousness and Openness to new experiences are associated with higher organizational outcomes in a remote work environment. The study also concluded that employees with access to outdoor spaces, such as yards or balconies, reported higher overall job performance.

This research combines past research on personality, job performance, and remote work. It examines the relationship between personality and job performance in a fully remote workforce, specifically the use of personality to predict job performance measured in terms of task and contextual productivity. The findings add to the current literature on personality, job performance, remote work, and the research on the effects of the pandemic on organizations. Results reaffirm a one-size-fits-all approach to organizational design may not improve overall organizational outcomes. Organizations can use these findings to aid in recruitment and productivity decisions and designing the workplace of the future.
Acknowledgements

I would like to dedicate this thesis to my husband, Chris Fournier, who had a crazy idea while biking together across a bridge one day that I should pursue a PhD. The writing of this dissertation has been one of the hardest, yet most rewarding, experiences of my life. His support never wavered since that very first day.

It is also dedicated to my children, Wyatt and Avery. It doesn’t matter what you dream, as long as you have one. Let this dissertation serve as an example that with hard work, perseverance, and dedication any dream can become a reality.

I want to express my gratitude to my thesis advisor, Prof. Ruth McKay, for the guidance, support, and encouragement to pursue this research. I would also like to thank all my professors for opening my mind to new thoughts and perspectives that led me to discover my interests in personality research and organizational psychology.

The future belongs to those who believe in the beauty of their dreams.

Eleanor Roosevelt
Table of Contents

Abstract .................................................................................................................................................. ii

Acknowledgements ............................................................................................................................... iv

Table of Contents .................................................................................................................................. v

List of Tables .......................................................................................................................................... x

List of Illustrations ................................................................................................................................. xi

Chapter 1: Introduction .......................................................................................................................... 1
  1.1 Background of the Problem ........................................................................................................ 1
  1.2 Statement of the Problem ......................................................................................................... 4
  1.3 Purpose of This Study ............................................................................................................. 6
  1.4 Significance of the Study ....................................................................................................... 8
  1.5 Research Questions ............................................................................................................... 9
  1.6 Research Design ................................................................................................................... 13
  1.7 Definition of Terms ............................................................................................................... 15
  1.8 Chapter Organization ........................................................................................................... 16
  1.9 Assumptions .......................................................................................................................... 17

Chapter 2: Literature Review ............................................................................................................. 18
  2.1 Introduction ............................................................................................................................ 18
  2.2 Methods for Conducting Research Review .......................................................................... 18
  2.3 Personality ................................................................................................................................ 20
     2.3.1 Personality Trait Theory .................................................................................................. 20
     2.3.2 The Big Five .................................................................................................................. 22
2.3.3 Interpretation of the Dimensions................................................................. 24
2.3.4 Measures ...................................................................................................... 27
2.3.5 Criticism of the FFM .................................................................................. 28
2.3.6 Summary of Personality .............................................................................. 30
2.4 Job Performance .............................................................................................. 30
  2.4.1 Task Performance ...................................................................................... 31
  2.4.2 Contextual Performance .......................................................................... 32
  2.4.3 History of Job Performance Research ...................................................... 32
  2.4.4 Measures .................................................................................................... 34
  2.4.5 Summary of Job Performance .................................................................... 36
2.5 Relationship Between Personality and Job Performance ......................... 36
2.6 Work Personality ........................................................................................... 37
2.7 Remote Work ................................................................................................ 40
2.8 Person-Environment Fit ................................................................................. 41
2.9 Summary and Conclusion ............................................................................. 43

Chapter 3: Methodology ...................................................................................... 44
3.1 Introduction ...................................................................................................... 44
3.2 Research Questions and Hypotheses ............................................................ 47
3.3 Research Design ............................................................................................. 57
3.4 Participants ...................................................................................................... 58
3.5 The Survey ...................................................................................................... 59
  3.5.1 Personality Questionnaire ......................................................................... 60
  3.5.2 Job Performance Questionnaire ............................................................... 61
  3.5.3 Demographic Questionnaire ..................................................................... 62
  3.6 Semi-Structured Interviews ....................................................................... 64
3.7 Survey Data Collection and Analysis ................................................................. 67
3.8 Ethical Considerations ...................................................................................... 69
3.9 Summary and Conclusion ............................................................................... 71

Chapter 4: Data Analysis, Findings and Discussion .............................................. 72
4.1 Introduction ...................................................................................................... 72
4.2 Demographic Characteristics ......................................................................... 73
4.3 Procedures ....................................................................................................... 74
4.4 Data Screening ................................................................................................. 75
4.5 Assumptions Testing ....................................................................................... 76
4.6 Survey Data Analysis ..................................................................................... 77
4.7 Survey Findings ............................................................................................... 78
   4.7.1 Personality and Overall Job Performance .................................................... 78
      4.7.1.1 Personality and Overall Task Performance .......................................... 79
      4.7.1.2 Personality and Overall Contextual Performance ......................... 80
   4.7.2 Task Performance Analysis ....................................................................... 81
      4.7.2.1 Personality and Task Performance 1: Job Knowledge ..................... 81
      4.7.2.2 Personality and Task Performance 2: Organizational Skills .......... 82
      4.7.2.3 Personality and Task Performance 3: Efficiency ......................... 83
   4.7.3 Contextual Performance Analysis ............................................................. 84
      4.7.3.1 Personality and Contextual Performance 1: Persistent Effort .......... 85
      4.7.3.2 Personality and Contextual Performance 2: Cooperation ........... 85
      4.7.3.3 Personality and Contextual Performance 3: Organizational Conscientiousness
          86
      4.7.3.4 Personality and Contextual Performance 4 and 5: Interpersonal and Relational
          Skills 87
B.1 Email Invitation and Consent................................................................. 154

Appendix C Ethics Certification...................................................................... 156

Appendix D Linear Regression Model Summaries ........................................ 157
  D.1 Overall Job Performance................................................................. 157
  D.2 Task Performance.............................................................................. 158
  D.3 Contextual Performance................................................................. 160
List of Tables

Table 1.1 Titles and High-Level Definitions of the Great Eight Competencies .............. 5
Table 2.1 Five-factor Model .......................................................................................... 29
Table 2.2 Perspectives of the Multidimensional Nature of Performance ..................... 33
Table 4.1 Overall Job Performance ............................................................................. 79
Table 4.2 Overall Task Performance ......................................................................... 80
Table 4.3 Overall Contextual Performance .................................................................. 81
Table 4.4 Task Performance, Job Knowledge ............................................................... 82
Table 4.5 Task Performance, Organizational Skills ...................................................... 83
Table 4.6 Task Performance, Efficiency ...................................................................... 84
Table 4.7 Contextual Performance, Persistent Effort .................................................... 85
Table 4.8 Contextual Performance, Cooperation ......................................................... 86
Table 4.9 Contextual Performance, Organizational Conscientiousness ...................... 87
Table 4.10 Contextual Performance, Interpersonal Skills ............................................. 88
Table 4.11 Moderating Effects ..................................................................................... 91
List of Illustrations

Illustration 2.1  The Big Five dimensions of personality.................................................. 24
Illustration 2.2  A suggested conceptualization of job performance. .............................. 35
Illustration 2.3  A theory of individual differences in task and contextual performance. 38
Illustration 3.1  Personality-performance relationship model......................................... 46
Illustration 3.2  Conceptual Framework: Job Performance. .......................................... 50
Illustration 3.3  Conceptual Framework: Task Performance. ......................................... 53
Illustration 3.4  Conceptual Framework: Contextual Performance. .............................. 56
Illustration 3.5  Testing model...................................................................................... 69
Chapter 1: Introduction

1.1 Background of the Problem

Due to the uncertainty about variants and outbreaks, the COVID-19 pandemic accelerated the adoption of protocols at fully remote organizations. For example, approximately 78 percent of public servants worldwide work remotely at least part of the time, according to an exclusive survey by Global Government Forum (Hunt, 2022). Canada had the highest percentage of its government employees working away from the office at 70 percent, while 19 percent had a hybrid working arrangement (Hunt, 2022). Since the pandemic’s start, the federal public service in Canada has more than doubled its capacity for secure remote access, providing access to more than 284,000 employees (Shared Services Canada, 2021).

It is possible that many workers will not return to full-time, in-person employment in the post-pandemic world. Research has shown that 41 percent of jobs in Canada can be performed remotely (Gallacher & Hossain, 2020). The Canada Pensions Centre is one such organization that pivoted to fully remote work during the pandemic. Moving forward, the organization will follow a hybrid return to work model combining time in the office as well as remote work. However, it is possible that some employees may not be appropriate for remote work and that some employees are more suited to remote work than others. Previous research has shown that in traditional in-person work settings, personality can predict job performance across various types of occupations (Barrick & Mount, 1991) by helping to predict how employees respond to various work-related events. Research such as this study will help understand if the personality-job
performance relationship still exists in this post-pandemic way of working. The individual differences in personality will offer insight into selecting employees with high potential for success in remote organizations, as well as how to manage remote workers for organizational success.

Inconsistent research exists on the benefits of remote work. Ten Brummelhuis et al. (2010) found that telework, a flexible work arrangement whereby employees have the approval to carry out some or all their work duties from a location other than their designated workplace (Treasury Board Secretariat, 1999) for a certain number of days, correlated with increased employee satisfaction. In contrast, Solis (2017) suggested that telework, which is different from remote work, whereby employees work 100 percent of their time at a location other than the workplace, results in increased stress and the inability to separate work from one’s personal schedule. Clark et al. (2012) examined the relationship between personality and telecommuting and found workers high in Agreeableness (a personality trait with attributes such as trust, cooperation, and kindness (Digman, 1990)) and low in Emotional Stability (a personality trait with attributes such as anxiety, moodiness, stress (Digman, 1990)) more receptive to remote work. More recently, Evans et al. (2021) found that individuals with high Extraversion (a personality trait with attributes such as sociability, talkativeness, and assertiveness (Digman, 1990)) and Conscientiousness (a personality trait with attributes such as thoughtfulness, organization, and preparedness (Digman, 1990)), two traits traditionally associated with higher performance, showed deteriorating job outcomes over time in fully remote organizations. A 2022 post-pandemic meta-analysis examined 20 peer-reviewed papers published between 2010 and 2021 and concluded that some studies reported positive
effects on perceived productivity (Ferrara et al., 2022). Given that remote work has now been normalized in many organizations, researchers must undertake to better understand its effects and how to address them (Chatterjee et al., 2022).

Within fully remote organizations, the employees’ work environment has changed. Trait activation theory examines job-personality fit and posits that personality is stable across different situations/locations. Therefore, changing the work environment, such as transitioning to full-time remote work, would not change one’s personality. By contrast, a situation strength theory perspective on personality would suggest that, unlike trait activation, personality changes in response to situations (Judge & Zapata, 2015). This change in environment, from office to remote work, could cause workers to behave differently than when they were in traditional offices. Interactionism theory recognizes that personality and situation are interdependent, and that people often recognize situations that are a good fit with their personalities, as was seen in the famous Stanford Prison Experiment (Haney et al., 1973). In this study of prisoners and guards in a simulated prison, the researcher recreated a prison environment and selected students to assume the roles of guards and prisoners. The experiments showed that situations could influence aggression traits and submission traits within its participants. Understanding how the transition to a new situation, such as the transition to fully remote work, impacts the personality and job performance relationship is important to understanding the effects on organizational performance.

Employers have long evaluated job candidates via routine staffing processes, such as in-person interviews to scenario-based questions or judging competence based on years of experience doing a particular function. However, many employers have adapted
the tools needed to evaluate candidates for new hires outside of their normal parameters due to the expedited implementation of remote work during the pandemic (O’Neill et al., 2009). Personality can be a predictor of job performance in traditional office settings (Barrick & Mount, 1991). Bartram (2005) suggested workplace behaviors or competencies can be defined in terms of eight broad factors, referred to as the Great Eight and that personality traits predict these eight job performance measures. Table 1.1 shows the relationship between each of the Great Eight and its predictor Big Five trait (Bartram 2005). If personality remains a valid predictor of job performance in fully remote environments, employers could use this information to hire employees who perform best in a remote environment and improve productivity and overall organizational performance. This study will address the gap in the research related to fully remote workforces, personality, and job performance by providing insight into how employers could evaluate potential candidates for fully remote work.

1.2 Statement of the Problem

This shift to accelerated adoption of remote work has generated debate about the advantages and disadvantages of remote work and how employees were affected by the transition to enforced remote working (Evans et al., 2022). Part of the debate is about whether employees are more productive at home or in a more traditional office. As remote work arrangements are likely to remain in place post-pandemic, it is important to understand the impacts of this new environment on individual workers to better understand how they cope in remote workplaces.

The COVID-19 pandemic has caused individuals to change how they work, possibly forever. Before the pandemic, employees traveled to work sites and worked
alongside colleagues. However, due to increased pandemic safety measures, such as lockdowns and nonessential worksite closures, employers kept their businesses open by rethinking how their workers performed their daily operations. Many employers quickly transitioned to almost entirely remote workforces, where most employees performed their duties from their homes.

Table 1.1 Titles and High-Level Definitions of the Great Eight Competencies

<table>
<thead>
<tr>
<th>Factor</th>
<th>Competency domain title</th>
<th>Competency domain definition</th>
<th>Hypothesized Big Five, motivation, and ability relationships</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Leading and Deciding</td>
<td>Takes control and exercises leadership. Initiates action, gives direction, and takes responsibility.</td>
<td>Need for power and control, extraversion</td>
</tr>
<tr>
<td>2</td>
<td>Supporting and Cooperating</td>
<td>Supports others and shows respect and positive regard for them in social situations. Puts people first, working effectively with individuals and teams, clients, and staff. Behaves consistently with clear personal values that complement those of the organization.</td>
<td>Agreeableness</td>
</tr>
<tr>
<td>3</td>
<td>Interacting and Presenting</td>
<td>Communicates and networks effectively. Successfully persuades and influences others. Relates to others in a confident, relaxed manner.</td>
<td>Extraversion, general mental ability</td>
</tr>
<tr>
<td>4</td>
<td>Analyzing and Interpreting</td>
<td>Shows evidence of clear analytical thinking. Gets to the heart of complex problems and issues. Applies own expertise effectively. Quickly takes on new technology. Communicates well in writing</td>
<td>General mental ability, openness to new experience</td>
</tr>
<tr>
<td>5</td>
<td>Creating and Conceptualizing</td>
<td>Works well in situations requiring openness to new ideas and experiences. Seeks out learning opportunities. Handles situations and problems with innovation and creativity. Thinks broadly and strategically. Supports and drives organizational change.</td>
<td>Openness to new experiences, general mental ability</td>
</tr>
<tr>
<td>6</td>
<td>Organizing and Executing</td>
<td>Plans ahead and works in a systematic and organized way. Follows directions and procedures. Focuses on customer satisfaction and delivers a quality service or product to the agreed standards.</td>
<td>Conscientiousness, general mental ability</td>
</tr>
<tr>
<td>7</td>
<td>Adapting and Coping</td>
<td>Adapts and responds well to change. Manages pressure effectively and copes well with setbacks.</td>
<td>Emotional stability</td>
</tr>
<tr>
<td>8</td>
<td>Enterprising and Performing</td>
<td>Focuses on results and achieving personal work objectives. Works best when work is related closely to results and the impact of personal efforts is obvious. Shows an understanding of business, commerce, and finance. Seeks opportunities for self-development and career advancement.</td>
<td>Need for achievement, negative agreeableness</td>
</tr>
</tbody>
</table>

Note: More detailed definitions
*Where more than one predictor is shown, the second is expected to be of lesser importance than the first. The competency titles and definitions are taken from the SHL Universal Competency Framework™ Profiler and Designer Cards (copyright © 2004 by SHL Group plc, reproduced with permission of the copyright holder). These titles may be freely used for research purposes subject to due acknowledgment of the copyright holder.

Remote workforces are not like traditional workforces. There is a lack of face-to-face interactions between colleagues, leaders, and clients. Due to virtual meetings and other interactions, remote work requires significantly more screen time than traditional
workplaces. Additionally, network capacity or other technical issues can substantially impact an employee’s ability to perform tasks in the virtual workplace. The urgent and rapid transition to remote workforces in response to the public health and safety threat required an immediate change in employers’ service delivery methods. Although the quickest way to do this was to replicate what already existed, little research indicates if this approach was the most productive or optimal way to perform tasks in a remote workforce.

Employers quickly implemented new technical networks and provided technology to accommodate the massive transition to remote employment. For the Federal Government of Canada, the transition to a remote workforce required more than 187,000 workers to move out of their offices and away from their colleagues, set up home offices, and work in isolation from their work teams (Shared Service Canada, 2021). This shift in the way we work is widespread across almost all industries. Research on the relationship between personality and job performance conducted before the pandemic needs to be re-examined in the remote work environment that arose from the COVID-19 pandemic. It is unknown if the findings of this previous research hold true in this new remote work environment. It is unknown if all employees are suitable or appropriate for remote work. There is a need to expand upon the literature with new data gathered from fully remote organizations that reflects the realities of remote work and the use of new technology and communication techniques required during the pandemic.

1.3 Purpose of This Study

The purpose of this study is to examine the relationship between the Big Five personality traits and job performance from a task and contextual performance
perspective in an entirely remote workforce to determine if personality traits are predicting factors of job performance. Different office types (e.g., cell (containing one individual workstation), shared room (containing 2 or 3 individual workstations), open plan (at least 4 or more individual workstations), and flex offices (no assigned individual workstations, employees can choose at random where they sit) apparently have no impact on the relationship between personality and job performance (Seddigh et al., 2016). In a 2016 study, Seddigh et al. examined the main effects of office types and personality on job satisfaction, performance, and distraction. They reviewed five organizations that each contained a variety of office settings, resulting in a sample size of 1205 participants. Findings showed little evidence for interaction between an office environment and an individual’s personality.

However, a post-pandemic study of employees whose work environment transitioned to working from home due to COVID-19 showed decreased performance over the course of the study (Evans et al., 2021). The research comprised of a four-wave longitudinal study of UK remote employees forced to work from home during the first wave of the COVID-19 pandemic, from 13 May to 24 August 2020. Approximately 634 workers completed all four waves of the study. They demonstrated that those workers who scored high in Extraversion and Conscientiousness reported less productivity, less engagement, and lower job satisfaction over time, while those with lower scores in these factors improved on these same outcomes.

This study contributes to personality research by adding to the understanding of how personality predicts job outcomes in fully remote organizations. This cross-sectional study examines the relationship between personality and job performance by fully remote
workers within one of Canada’s largest employers, the federal public service. It assesses the remote work environments’ impact on productivity from an individual-differences perspective. This cross-sectional approach allows for the examination of many variables simultaneously, such as gender, age, and living conditions, to understand their interaction with the personality/job performance relationship and any cohort differences that may arise from the remote workforce experience. This study collected the data approximately one year into the pandemic. More hybrid models of working began to emerge shortly after the data collection was complete. This era of forced remote work provided a unique opportunity for examining a fully remote organization with no access to a central office. With the end of stringent public safety measures and the introduction of hybrid return-to-work models where employees have access to a common workplace, coupled with the growing expectation of employees returning to working at on-site workplaces and employees being able to self-select to return to the office full time, the period for forced all remote work due to public health safety measures has ended.

Organizational leaders could use the findings from this study in their selection processes for organizations that are maintaining fully remote workforces or choose to go to fully remote workforces in the future. This research will further the understanding of the relationship between personality factors and job performance outcomes. Organizational leaders could also use the study’s information to select employees who can best perform in a remote environment, thus improving organizational performance.

1.4 Significance of the Study

The federal public service has offered telework, the option to work from a location outside of the workplace for a predetermined time, to some employees for
several years. However, organizational leaders had to expedite their transition to remote work due to the COVID-19 pandemic. The Canada Pension Centre was no exception. Understanding the impact of this transition on employees and their ability to perform could be of significant financial interest to organizations. Understanding which employees thrive in remote work environments could contribute to the selection of future candidates who perform well, avoiding underperformers. Understanding individual differences, such as personality traits, provides insight into how individuals cope and respond to remote work. Therefore, employers could also use these study results to determine the assistance or training to provide to employees deemed to be a good fit for their remote workforces. For example, new communications training or policies/procedures could be provided to improve communications or develop new networking skills and opportunities among employees.

This study of personality and job performance in a remote work environment also has academic significance. There is a gap in the literature on this subject. Evidence is still emerging on remote work’s impacts on workers and organizations. The research findings will contribute to this literature and the ongoing conversations about personality and job performance in remote workforces, providing empirical evidence that could contribute to theory development.

1.5 Research Questions

During the pandemic, many companies transitioned to remote work environments in response to public safety measures, and many organizations are retaining remote workforces after public health restrictions have been lifted. Studies have shown that certain personality traits are associated with better job performance (Barrick & Mount,
Evidence of the impact of remote work on aspects of job performance has been limited. Consequently, this study examines the relationship between personality and job performance in a remote workforce.

The study investigates the following primary research questions and sub-questions:

**RQ1. Does personality predict job performance in fully remote organizations?**

Earlier research has conducted its research related to personality and job performance in traditional office settings (Barrick & Mount, 1991). This study will test the personality-to-job performance relationship in a fully remote organization. To test this, all Big Five traits will be combined and regressed against job performance. Further testing will examine the relationship of each personality trait separately against job performance.

**SQ1. Does the variable Conscientiousness predict job performance in fully remote organizations when all other variables are held constant?**

**SQ2. Does the variable Neuroticism predict job performance in fully remote organizations when all other variables are held constant?**

**SQ3. Does the variable Agreeableness predict job performance in fully remote organizations when all other variables are held constant?**
SQ4. Does the variable Openness to Experience predict job performance in fully remote organizations when all other variables are held constant?

SQ5. Does the variable Extraversion predict job performance in fully remote organizations when all other variables are held constant?

RQ2. Does personality predict task performance in fully remote organizations?

Job Performance is a combination of two sub-dimensions, task performance and contextual performance. Task performance is related to core job responsibilities and contextual performance is the other duties outside of these core responsibilities, such as good communication. Task performance indicators are related to cognitive abilities (Motowildo et al., 1997). Although cognitive abilities have some effects on contextual performance, their strongest effects are on task performance (Motowildo et al., 1997). To fully understand any changes in the relationship between personality predictors in fully remote organizations, it is essential to examine task and contextual performance separately (Borman & Motowildo, 1997).

SQ1. Does the variable Conscientiousness predict task performance in fully remote organizations when all other variables are held constant?

SQ2. Does the variable Neuroticism predict task performance in fully remote organizations when all other variables are held constant?

SQ3. Does the variable Agreeableness predict task performance in fully remote organizations when all other variables are held constant?
SQ4. Does the variable Openness to Experience predict task performance in fully remote organizations when all other variables are held constant?

SQ5. Does the variable Extraversion predict task performance in fully remote organizations when all other variables are held constant?

RQ3. Does personality predict contextual performance in fully remote organizations?

Contextual performance is comprised of activities such as persistent effort, relational skills, cooperation, and conscientiousness 2 (Carlos & Rodrigues, 2016). Personality variables should have a strong effect on contextual performance. Therefore, in this study, the five personality traits will be tested against contextual performance, both collectively and individually.

SQ1. Does the variable Conscientiousness predict contextual performance in fully remote organizations when all other variables are held constant?

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1 The term Conscientiousness occurs to describe a single measure in each of the two pre-validated measures. The IPIP-NEO-60 (Maples-Keller et al., 2017) uses Conscientiousness as part of the common lexicon for The Big Five personality traits, while the self-reported job performance measure uses the term conscientiousness to depict the measure for organizational conscientiousness, defined as personal discipline and the extent to which individuals refrain from negative performance behaviours (Carlos & Rodrigues, 2016). While both measures use the same word, the definition of the word is different for each study and measures separate elements. To assist in clarification between the two measures, the term conscientiousness 2 has been adopted for the self-reported job performance measure. Continuousness, when used, should be understood to be Continuousness 1. The 1 has been dropped due to the frequency of the use of this term.
SQ2. Does the variable Neuroticism predict contextual performance in fully remote organizations when all other variables are held constant?

SQ3. Does the variable Agreeableness predict contextual performance in fully remote organizations when all other variables are held constant?

SQ4. Does the variable Openness to Experience predict contextual performance in fully remote organizations when all other variables are held constant?

SQ5. Does the variable Extraversion predict contextual performance in fully remote organizations when all other variables are held constant?

Transitioning from traditional office settings to fully remote work environments will be different for everyone. Examining job performance from the individual differences lens of personality will help to understand better if Conscientiousness is still a valid predictor of job performance in remote workforces. It will also help to understand the relationship between other personality traits and if there are any changes to their ability to predict job performance.

1.6 Research Design

This study examines the relationship between personality and job performance through the lens of organizational psychology of employee behaviors in the workplace to determine if personality is a valid predictor of performance in fully remote organizations. The results contribute to the conversation and understanding of remote work and its
unique properties. The study uses a quantitative approach with a survey questionnaire to collect data related to personality traits, job performance, and demographics. After the analysis of the survey data, qualitative semi-structured interviews were completed with the managers of the sample group to obtain further context details and enrich the findings.

Scholars tend to use surveys for data collection in personality and performance research (Barrick & Mount, 1991; Seddigh et al., 2016). Surveys allow researchers to collect a large amount of data in a relatively short time frame providing insight at a point in time. For this research, the employees of the targeted sample group received and completed the survey in July and August 2021. The survey consisted of two previously validated measures: one for personality and one for self-reported job performance. Chapter 3 and the appendices contain more information on the survey and its measures.

The target group for this study consisted of employees of the Canada Pension Centre of the federal public service at the call center in New Brunswick, Canada. The federal government is one of Canada’s largest employers. According to Shared Services Canada (2021), more than 284,000 members of the federal government’s workforce transitioned to fully remote working from home in response to public safety concerns related to the pandemic. Therefore, the federal government provided a good population for this study on working remotely.

Multiple regression was the statistical method used to analyze the relationship between the variables for personality and performance. Multiple regression analysis is a method commonly used to research the predictability of the impact of personality on job
This study utilized previously validated measures (Maples-Keller et al., 2017; Carlos & Rodriguez, 2016).

Both personality and job performance can be quantified and measured. Research in these areas allows for quantitative data collection and statistical analysis methodologies. This quantified approach and the use of previously validated measures allow for the generalizability of findings beyond federal institutions and consistent comparison against other studies of a similar nature. Semi-structured interviews provided additional contextual information about the remote work experience that enriched the quantitative results.

1.7 Definition of Terms

To ensure a common understanding of the function of words and terms used in this research, this section will define the following terms in the context of this study.

**Personality:** A psychological construct referring to an individual’s characteristic styles of thought, feeling, and behavior (Costa & McCrae, 1986; Just, 2011; American Psychological Association, 2022).

**Job performance:** Evaluative and episodic behaviors that individuals adopt towards their work and jobs due to the dynamics between cognitive abilities, personality, and learning experiences that jointly contribute to organizational value (Carlos & Rodriguez, 2016).

**Task Performance:** Activities directly related to the organization’s technical core, either by carrying out its technical processes or maintaining and servicing its technical requirements (Motowidlo et al., 1997).
**Contextual Performance:** Activities not formally part of the job (volunteering) or cooperating with others to get tasks accomplished (Borman & Motowidlo, 1997).

**Remote work:** Any type of work outside a central location and can occur interchangeably with telework, telecommuting, and virtual work (Morganson et al., 2010).

**Telework:** A flexible work arrangement whereby employees have approval to carry out some or all their work duties from a telework place, defined as the alternative location where the employee is permitted to carry out the work otherwise performed at or from their designated workplace (Treasury Board Secretariat, 1999).

**Fully (or entirely) remote work:** For this study, fully remote work consists of work at an organization or by a group of employees that occurs entirely virtually with no access to a central office (Waldron & Schwartzberg, 2017). Fully remote employees do not have the option to work from a company-provided location and do not interact with employers or coworkers in person for work purposes. Fully remote work may also be referred to as working remotely or remote work.

### 1.8 Chapter Organization

Chapter 1 presented the research problem, purpose, and research questions. This chapter also presented the research design, assumptions, and limitations. Chapter 2 will include a comprehensive review of the literature on personality and job performance, the measurement constructs, remote work, the concept of work personality, and the theory of person-environment fit. Chapter 3 will present the research questions, methodology, and details about the measures and data collection techniques used in this study. Chapter 4
will give an overview of the data analysis, findings, and discussion. Lastly, Chapter 5 will present conclusions, limitations, and recommendations for future research.

1.9 Assumptions

This research includes four philosophical assumptions. An ontological assumption relates to the nature of reality and its characteristics. This study assumes that personality is an observable and measurable trait defined through the Big Five or the Five-Factor Model (FFM). Measured variables are those variables observable by all (Bryman et al., 2011). Epistemically, the assumption is that the research includes an objective and adequately measured process for collecting knowledge about personality and job performance and provides reliable and useful data (Bryman et al., 2011). The axiological assumption is that the survey is an objective means of obtaining information about the participants’ personality traits and job performance without bias (Aliyu et al., 2015). The methodological assumption is that the quantitative method is appropriate for generating valid knowledge.
Chapter 2: Literature Review

2.1 Introduction

Chapter 2 reviews the literature on personality, job performance, and the relationship between personality and job performance. The chapter also includes an overview of remote work and the concepts of work-personality and person-environment fit. Chapter 2 contains eight main sections. Section 2.2 describes the methods, databases, and procedures used to search for sources. Section 2.3 provides information on the study’s personality trait theory theoretical framework, the Big Five (Goldberg, 1990), and the FFM (Costa & McCrae, 1992). Section 2.4 reviews the models and constructs of job performance and addresses job performance from two perspectives: task performance and contextual performance. Section 2.5 is an overview of the literature on the relationship between personality and job performance. The sixth section addresses work-personality, and the seventh section presents a synthesis of the research related to fully remote work. The last section is a brief explanation of the person-environment fit theory. Chapter 2 concludes with a summary.

2.2 Methods for Conducting Research Review

The research review commenced with a search for peer-reviewed journal articles on the FFM and job performance. Keyword searches occurred via Carleton University’s MacOdrum online library and databases such as JSTOR, ProQuest, PsycArticles, and the Academy of Management. Other searches for peer-reviewed articles occurred through Google Scholar. The keywords searched, singularly and in varying combinations, were
five-factor model, Big Five personality traits, and personality AND job performance, personality trait theory, job performance theory, remote work, working remotely during pandemic, transition to remote work, personality AND remote work, and remote work AND productivity. Lastly, a search for peer-reviewed articles on remote work, work-personality, and person-environment fit theory commenced with the same methodology outlined above.

In addition to the keyword searches, the references of relevant articles provided another way to source other pertinent articles via searches in MacOdrum or Google Scholar. The searches for relevant measures of both personality traits and job performance resulted in the identification of two measures suitable for this study: the International Personality Item Pool (IPIP) 60-item questionnaire for personality (Maples-Keller et al., 2017) and a self-reported measure of job performance (Carlos & Rodrigues, 2016). Chapter 3 presents the details of these instruments.

The next step was to repeat this process for materials of interest related to remote work. Remote work was a topic of interest before the pandemic; however, this study is primarily focused on the transition to fully remote work occurring in organizations since the beginning of the COVID-19 pandemic. Therefore, literature searches centered on research conducted after or during the pandemic related to the concept of fully remote work. Despite focusing on remote work during the pandemic, the literature search returned few studies about personality research and remote work during this period. The goal of this study will address a gap in the literature, focusing on an organization with a fully remote working environment and contributing to post-pandemic research on personality and remote work.
2.3 Personality

Personality is how an individual responds to external stimuli in a stable manner within a given environment (Allport, 1961). Psychologists and researchers have sought to understand the individual differences in personalities with the development of trait-based models of personality. Despite a variety of trait models, researchers tend to use two models more often: the Big Five (Goldberg, 1990) and the FFM (Costa & McCrae, 1992).

2.3.1 Personality Trait Theory

Researchers have studied personality dating as far back as the ancient Greeks (Hofstede & McCrae, 2004). Allport (1927) defined a personality trait as “a dynamic trend of behavior, which results from the integration of numerous specific habits of adjustment, and which expresses a characteristic mode of the individual’s reaction to his surroundings” (p. 288). Allport categorized traits into three levels: cardinal traits (rare and dominant, developing later in life), central (general and basic foundations), and secondary (attitudes or preferences). Eysenck (1947) proposed three hereditary dimensions of personality traits: Extraversion, Neuroticism, and Psychoticism. More recently, Piekkola (2011) asserted that all individuals share five hierarchically structured dimensions, regardless of culture or nationality: Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Intellect. Research has shown that personality traits have a hierarchical nature (John & Srivastava, 1999) and consist of factors and facets. Factors are groups of similar traits (Costa & McCrae, 1995), whereas facets are narrower, lower-level traits. Table 2.1 provides a list of the factors and facets.
The Revised NEO Personality Inventory (NEO-PI-R; Costa & McCrae, 1995) assesses the Big Five personality traits using six specific facet scales in each of the five broad domains. The 60-item International Personality Item Pool personality measure (Maples-Keller et al., 2017) representation of the NEO PI-R used in this study provides equal representation to the FFM facets.

Personality trait studies have provided insight into human behavior on many levels and can predict behaviors (Allport, 1927; Goldberg, 1993; McCrae & Costa, 1997; McCrae & Terracciano, 2005). Understanding these differences could be a way to achieve better organizational outcomes. Allport (1955) noted that personality is dynamic instead of static or unchanging. The opposite of trait theory, this behavioral theory of personality suggests that although some parts of an individual’s personality could remain constant, most individuals have mutable character traits that can change based on the environment, such as remote work. Social Cognition theory suggests personality is formed by watching and emulating others (Cervone et al., 2001). If you work remotely alone, there is limited exposure to others to emulate.

Personality Trait Theory will be this study’s theoretical foundation. The theory suggests that people form their personalities based on five basic trait dimensions, commonly referred to as The Big Five, and individuals differ based on the strength of these traits. For example, people who are very social and outgoing tend to score high in Extraversion, and those who are timider tend to score very low on the extraversion scale. Trait theory also posits that different cultures and nationalities have common personality traits (Goldberg, 1993; McCrae & Costa, 1997) that remain moderately fixed over time and in varying circumstances (Weatherford & Spokane, 2013). In other words, according
to Personality Trait Theory, the Big Five applies to all persons regardless of their individual culture or nationality. Personality traits can predict or explain human behavior, dispositions, and attitudes (Fretwell et al., 2013; Ganu & Kogutu, 2014; Hee, 2014). Personality traits are essentially the psychological “blueprint” that informs behavioral patterns, which is why traits theory has been chosen as the foundation for this research.

2.3.2 The Big Five

Researchers have long attempted to understand personality from many perspectives and approaches. The abundance of research has led to increased numbers of personality traits and measures (Goldberg, 1971). Accumulating findings and communications among researchers was a challenge. Personality research required a commonly accepted descriptive taxonomy to facilitate the systemic accumulation and a standard vocabulary for communication (John & Srivastava, 1981).

In personality psychology, the lexical hypothesis indicates that personality traits and differences most important and relevant to people eventually become part of their natural language. Personality psychology also suggests that the most critical concepts in personality become single descriptive words in a language, enabling using language as a resource to establish a taxonomy of personality traits (Goldberg, 1993). Barrick and Mount (1991) stated,

In order for any field of science to advance, it is necessary to have an accepted classification scheme for accumulating and categorizing empirical findings. We believe that the robustness of the 5-factor model provides a meaningful
framework for formulating and testing hypotheses relating individual differences in personality to a wide range of criteria in personnel psychology, especially in the subfields of personnel selection, performance appraisal, and training and development. (p. 23)

Over time, many researchers have contributed to the vocabulary for personality. One early investigator, Thurston (1934), compiled a list of 60 adjectives for personality according to only five common factors. In the 1940s, Cattell identified five factors other researchers could replicate (Goldberg 1993). Other researchers have also suggested FFMs (Borgatta, 1964; Digman & Inouye, 1986; Goldberg, 1990, 1992; McCrae & Costa, 1985, 1987).

The Big Five (Dignan, 1990) is a common taxonomy many personality researchers use. The factors are:

1. Surgency (or Extraversion)
2. Agreeableness
3. Conscientiousness
4. Emotional Stability (versus Neuroticism)
5. Culture (Openness; McCrae & John, 1992).

Scholars have found this lexicon stable and replicable as an FFM. The following section presents the Big Five FFM in greater detail. Illustration 2.1 is a visual depiction of the Big Five.
2.3.3 Interpretation of the Dimensions

Some inconsistency exists in the names given to the five personality domains. However, McCrae and Costa (1985) provided the most accepted labeling: Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. Each domain consists of six lesser facet traits.

Neuroticism is the trait applied to individuals who are highly neurotic and react negatively to stress (Costa et al., 2001; McCrae & John, 1992). These individuals might spend more time worrying than focusing on tasks (Wayne et al., 2004). Researchers describe individuals who score high in this area as anxious, insecure, depressed, and emotional. Neuroticism is sometimes referred to as emotional stability in other models. Neuroticism has a negative correlation with job performance (Barrick & Mount, 1991)
Individuals high in Conscientiousness tend to plan and organize carefully, possess good time management skills, and become high achievers (McCrae & John, 1992). Conscientiousness is a trait sometimes referred to as dependability (Hogan, 1983) or will-to-achieve (Digman, 1989). Individuals who score high in this domain tend to be hard workers who accomplish more in a given timeframe than those with lower scores (Wayne et al., 2004). There is a positive relationship between Conscientiousness and job performance (Barrick & Mount, 1991).

Openness to experience includes a need for variety. High scores in the Openness domain indicate an imaginative individual sensitive to aesthetics who follows unconventional values (Costa & McCrae, 1999; McCrae & John, 1992; Wayne et al., 2004). Individuals with high Openness scores could be more likely to accept change and work outside traditional roles than those with low scores. Openness has not been determined to be a valid predictor of job performance (Barrick & Mount, 1991).

Agreeableness is the degree to which someone acts cooperative, courteous, flexible, forgiving, and good-natured (Behling, 1998). Individuals with a higher score in Agreeableness tend to act in a more likable, nurturing, and caring manner toward others. In contrast, those who score low on Agreeableness could act more self-centered and sometimes hostile (McCrae & John, 1992). However, individuals high in Agreeableness might take on too many responsibilities and struggle to balance everything (Kinnunen et al., 2003). Agreeableness is not a significant predictor of job performance (Barrick & Mount, 1991).

Extraversion consists of assertive, gregarious, sociable, talkative, and active behaviors (Barrick & Mount, 1991). Individuals who score high in Extraversion tend to
experience more positive affect, act more outgoing and active, and have more energy than those scoring lower in this domain (McCrae & John, 1992). The high energy of extraverted individuals enables them to accomplish more and fatigue less easily than those with lower extraversion scores in a given time (Wayne et al., 2004). Extraversion has been shown to be a significant predictor of job performance in occupations that involve social interactions, such as management and sales (Barrick & Mount, 1991).

The five-factor model of personality (FFM) consists of five broad trait domains, often referred to as the “Big Five”: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience. It was developed to represent as much variability in individuals’ personalities as possible, using only a small set of trait dimensions. Many personality psychologists agree that these five broad trait domains capture the most basic individual differences in personality. McCrae and John (1992) said, “The FFM of personality is a hierarchical organization of personality traits in terms of five basic dimensions: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience” (p. 175). The paper will use the terms The Big Five and the FFM interchangeably.

The FFM is one of the most common frameworks for studying personality. Rooted in trait theory, the FFM suggests that researchers can characterize individuals by thoughts, feelings, and actions to predict recurrent patterns of behavior. Factors, or domains, are the broad themes of personality for groups of similar personality traits: Neuroticism versus Emotional Stability, Agreeableness versus Antagonism, Extraversion versus Introversion, Openness versus Closedness to Experience, and Conscientiousness
versus Disinhibition. The FFM includes the Big Five factors broken down into six lower-level personality traits or facets (Costa & McCrae, 1995; See Table 2.1).

2.3.4 Measures

Scholars have created several measures to research the Big Five personality traits. Some measures focus on specific information, such as maladaptive traits, for clinical assessment or personnel selection (Widiger & Trull, 1997). Among other scholars, Salgado (2003) identified over 15 Big Five measures commonly used in personality research, such as the NEO-PI-R (Costa & McCrae, 1995), Abridged Big Five Circumplex (Goldberg, 1992), and various versions of measures by the International Personality Item Pool (IPIP), such as the one proposed by Goldberg (1999) and the one used in this study. Salgado (2003) found that FFM models had more validity than non-FFM models, which were poorer predictors of performance.

The FFM is widely found in many domains, such as organizational psychology, health psychology, and educational psychology (Costa & McCrae, 1992b; Hogan et al., 2007a; Widiger & Trull, 1992). Its frequent use has contributed to developing a wide array of measuring instruments (Widiger & Trull, 1997), a trend likely to continue. By systemically aligning facets to factors, McCrae and Costa (1985) developed the NEO Personality Inventory with scales for 18 personality traits and six facets for the factors of Neuroticism, Extraversion, and Openness. The researchers later updated the questionnaire to include Agreeableness and Conscientiousness. McCrae and Costa (1985) published the first Neuroticism, Extraversion, Openness–Personality Inventory (NEO-PR) with scales for the five FFM factors, excluding Agreeableness and
Conscientiousness. The scholars validated the facets for these two remaining factors and developed a revised measure known as the NEO PI-R.

2.3.5 Criticism of the FFM

Although FFM has increased in recognition and use in research, not all researchers have accepted the model, instead challenging it for various reasons. For example, there have been debates about the number of factors needed to capture and describe personality. Some researchers prefer a six-factor model (e.g., Hogan et al., 2007b; Douglas et al., 2000; Jackson, 1976; Ashton et al., 2000), whereas others have identified as few as three factors in a model (Eysenck, 1991; O’Gorman & Hattie 1986; McKenzie, 1988). In addition, Holden et al. (2006) produced a four-factor version. Further, some (John & Srivastava, 1999; Mottus et al., 2020) have argued that the FFM is more descriptive than explanatory and does not fully address the differences between individuals. These scholars have also suggested that the FFM does not sufficiently provide a causal reason for human behavior.

The FFM has its critics. For example, Guion and Gottier (1965) found no evidence that personality had any predictive relationship with job performance. In contrast, Mount, Barrick, and Stewart (1998) suggested that the FFM could predict job performance. Lastly, although scholars have tested the FFM in many countries and supported its accuracy with their findings (McCrae, 2002), most have studied it among urbanized, literate populations. Gurven et al. (2013) were the first to test the validity of the FFM among a largely illiterate, indigenous population in Bolivia. The
Table 2. 1 Five-factor Model

<table>
<thead>
<tr>
<th>Facets</th>
<th>Definition of factor</th>
<th>ACL(^a) marker items for factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Openness to experience</td>
<td>The degree to which a person needs intellectual stimulation, change, and variety</td>
<td>Commonplace, narrow-interest, simple-vs. wide interest, imaginative, intelligent</td>
</tr>
<tr>
<td>(intellect)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>II. Conscientiousness</td>
<td>The degree to which a person is willing to comply with conventional rules, norms, and standards</td>
<td>Careless, disorderly, frivolous vs. organized, thorough, precise</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III. Extraversion</td>
<td>The degree to which a person needs attention and social interaction</td>
<td>Quiet, reserved, shy v.s talkative, assertive, active</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV. Agreeableness</td>
<td>The degree to which a person needs pleasant and harmonious relations with others</td>
<td>Fault-finding, cold, unfriendly vs. sympathetic, kind, friendly</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V. Neuroticism</td>
<td>The degree to which a person experiences the world as threatening and beyond his/her control</td>
<td>Tense, anxious, nervous vs. stable, calm, contented</td>
</tr>
<tr>
<td>(emotional stability)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. From Hogan and Hogan (2007).

\(^a\) ACL = Adjective Check List (Gough & Heilbrun, 1983)
scholars administered a 44-item Big Five Inventory but found that the participants did not sort the items consistently with the Big Five. Thus, Gurven et al. (2013) did not find the FFM a completely universal measure.

2.3.6 Summary of Personality

The development and acceptance of a common lexicon related to personality research have contributed to advancements in personality research. The FFM (Costa & McCrae, 1992a) is one of the most widely used models in personality psychology research. However, some researchers have challenged the FFM based on the number of factors (too many or too few) and improper factor analysis methods (Hogan et al., 2007b; Eysenck, 1991; Block, 1995). Scholars have also debated which factors should appear in the model. Personality predicts job performance (Barrick & Mount, 1991), specifically the Big Five factor of Conscientiousness. This study will contribute to the literature by using the FFM to focus on the relationship between personality and job performance within fully remote organizations using all factors of the Big Five to assess if previous findings in traditional office settings are the same in remote workforces. Since the FFM is the most widely used model in personality research, it will allow for more consistent comparisons in findings and increased generalizability.

2.4 Job Performance

Individual performance is a core concept in organizational psychology (Sonnenfag & Frese, 2002). Employees’ positive individual job performance is an essential element of organizational success and profitability and is significant to the individual. Carlos and Rodriguez (2016) defined job performance as “evaluative and
episodic behaviors that an individual adopts towards her/his work and job, as a result of the dynamics between cognitive abilities, personality, and learning experiences that aggregate value to the organization” (p. 283).

Researchers have examined the multidimensional nature of performance from various perspectives, the three most common of which are individual differences, situational, and performance regulation (performance evaluation process; Sonnentag & Frese, 2002; See Table 2.2 for an overview of these perspectives). Personality is a factor based on individual differences; therefore, this research will have an individual differences perspective of job performance, examining which individuals perform best in remote work environments.

2.4.1 Task Performance

Task performance is one of the multidimensional aspects of job performance. It refers to activities that transform raw materials into the goods and services the organization produces (Motowildo & Van Scotter, 1994). These activities are considered contributions to the organization’s “technical core” and are directly related to an individual’s abilities (Sonnentag & Frese, 2002). In fact, five of the Great Eight (Campbell et al., 1993) competencies for work performance identified in Table 1.1 refer to task performance, specifically job-specific task proficiency, non-job-specific task proficiency, written and oral communication proficiency, supervision (in the case of a supervisory or leadership position), and partly management/administration.
2.4.2 Contextual Performance

Contextual performance is another multidimensional aspect of job performance that refers to activities that do not contribute to the organization’s technical core but rather support the organizational, social, and psychological environment in which organizational goals are pursued (Sonnentag & Frese, 2002). Contextual performance is more discretionary in nature than task performance and is more related to personality and motivation (Motowildo & Van Scotter, 1994). It includes behaviors such as helping coworkers, volunteering, and making suggestions about improving work procedures (Sonnentag & Frese, 2002).

2.4.3 History of Job Performance Research

Before the 1980s, there was little research conducted to develop the constructs of job performance (Campbell & Wiernik, 2015). The gap in the literature occurred partly due to the “criterion problem,” a term for the difficulties of conceptualizing and measuring multidimensional performance constructs appropriate for different purposes (Austin & Villanova, 1992). During the 1980s, researchers began to use confirmatory factor analysis on multidimensional models to test substantive models of performance (Borman & Motowildo, 1993; Campbell et al., 1993). The research presented a generally accepted definition of job performance as the measurable behaviors (Campbell & Wiernik, 2015) relevant to an organization’s goals (Sonnentag & Frese, 2002). The generally accepted definition has enabled the development of new models, such as the eight-factor model for general performance (Campbell et al., 1993) and the Great Eight model of job competencies (Bartram, 2005).
Table 2. 2 Perspectives of the Multidimensional Nature of Performance

<table>
<thead>
<tr>
<th>Core question</th>
<th>Individual differences perspective</th>
<th>Situational perspective</th>
<th>Performance regulation perspective</th>
</tr>
</thead>
</table>
| Which individuals perform best? | In which situations do individuals perform best? | How does the performance process look like? What is happening when someone is “performing”?

<table>
<thead>
<tr>
<th>Core assumptions and findings</th>
<th>Cognitive ability</th>
<th>Motivation and personality</th>
<th>Professional experience</th>
<th>Job characteristics</th>
<th>Role stressors</th>
<th>Situational constraints</th>
<th>Action process factors</th>
<th>Adequate hierarchical level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practical Implications for performance improvement</td>
<td>Training</td>
<td>Personnel selection</td>
<td>Exposure to specific experiences</td>
<td>Job design</td>
<td>Goal setting</td>
<td>Feedback interventions</td>
<td>Behaviour modifications</td>
<td>Improvement of action process</td>
</tr>
</tbody>
</table>

Note. From Sonnentag and Frese (2002).

Since the 1990s, research has expanded rapidly. Carpini et al. (2017) analyzed 9,299 articles from the previous 40 years and classified 97 different performance constructs. Sonnentag and Frese (2002) conducted a literature search of 12 major work and organizational psychology journals. Of the 146 meta-analyses found within the previous 20 years, about half addressed individual performance as a core construct. Koopmans et al. (2011) conducted a systematic review of the conceptual frameworks of individual work performance. The authors found significant growth in the literature by
identifying 17 generic frameworks for addressing individual work performance across occupations.

### 2.4.4 Measures

Borman and Motowildo (1997) suggested measuring task performance separately from contextual performance. Subsequently, Carlos and Rodrigues (2016) developed an eight-dimension taxonomy for measuring job performance consisting of three dimensions of task performance (job knowledge, organizational skills, and efficiency) and five dimensions of contextual performance (persistent effort, cooperation, organizational conscientiousness, personal characteristics, and interpersonal and relational skills). Illustration 2.2 provides a visual depiction of this taxonomy. It is important to note that while this measure has a dimension name like that of a factor of the Big Five, namely Conscientiousness, they are measuring two different things. Since these are previously validated measures, it has been decided to maintain the names of the original labels given by the measures’ authors but to distinguish them in this research paper as Conscientiousness for the Big Five Measure and conscientiousness 2 for the Job Performance dimension.

Task and contextual performance are independent contributors to overall performance (Motowildo & Van Scotter, 1994). Contextual performance consists of behaviors under the motivational control of the worker (Griffin et al., 2000), such as volunteering for activities not formally part of the job description that contribute to the organization’s social and psychological contexts. Contextual performance highly correlates with personality variables. Borman and Motowildo (1997) provided evidence
of personality as a predictor of contextual performance. The authors suggested that the inclusion of contextual performance dimensions as criteria results in personality predictors that are more likely to be successful correlates. Therefore, measuring contextual performance separately could result in higher personality-job performance validity. Further, although Motowildo et al. (1997) recognized that some personality variables could affect task performance, they dismissed the relationship between

Illustration 2.2  A suggested conceptualization of job performance.

Note. From Carlos and Rodrigues (2016).

personality predictors and task performance. The present study explores the relationship between personality variables and task performance, contextual performance, and overall job performance.
2.4.5 Summary of Job Performance

Job performance is a multidimensional set of behaviors relevant to an organization. Task performance and contextual performance are two distinct dimensions of job performance that contribute independently to individual performance and, thereby, organizational outcomes (Motowildo & Van Scotter, 1994; Sonnentag & Frese, 2004; Griffin et al., 2000). Despite many models and perspectives for studying job performance, the criterion problem still exists. Job performance can be measured in many ways, and it is difficult to know which is best given that no empirical standard measure exists. This study could provide a further understanding of trait- and situational-based perspectives of job performance in fully remote organizations.

2.5 Relationship Between Personality and Job Performance

Numerous studies have focused on the relationship between personality and job performance. For example, while their meta-analysis did not examine task and contextual performance specifically, Barrick and Mount (1991) found a consistent relationship between Conscientiousness and positive job performance criteria (job proficiency, training proficiency, and personnel data) within all occupational groups, with other areas of personality being valid predictors in limited areas of work. Huntz and Donovan (2000) published a meta-analysis consistent with Barrick and Mount’s results, confirming that Conscientiousness has a strong predictability relationship with overall job performance categories of task performance, job dedication, and interpersonal facilitation. Tett et al. (1991) further validated this relationship with confirmatory factor analysis. Behling (1998) claimed Conscientiousness to be one of the most valid predictors of performance for most jobs.
According to Motowildo et al. (1997), individual differences in personality and cognitive ability variables, combined with learning experiences, result in variability in knowledge, skills, and work habits with the mediating effect of personality and cognitive ability on job performance. Motowildo et al. (1997) suggested that the knowledge, skills, habits, and traits associated with task performance differ from those associated with contextual performance. Their model contains two dimensions of job performance (task and contextual performance) and two categories of basic tendencies (cognitive abilities and personality). Basic tendencies are the capacities and dispositions indicating the differences between individuals. The model suggests that cognitive ability is a better predictor of task performance and that personality variables, such as Extraversion, Agreeableness, and Conscientiousness are better predictors of contextual performance. Illustration 2.3 visually outlines this model.

Not all researchers have supported the notion that personality is a predictor of job performance. Schmitt et al. (1984) deemed a personality test one of the least valid measures for predicting job performance, with a correlation of only .21. Hough (1992) attributed some of the inconsistency of the personality-job performance relationship to overly broad criteria for personality predictors that are too heterogeneous and incomplete.

2.6 Work Personality

Traditionally, scholars have thought of personality as consisting of static characteristics that do not change (McCrae & Costa, 2008). However, some research has suggested that people change their Big Five traits across their lifespans (Roberts et al., 2006). This change occurs because work is a significant part of adult life, and work
environments and experiences can affect values, social roles, and activities daily (Wu, 2016). Experiences at work can indicate how an individual thinks, feels, and behaves over time and thus indicates personality (Wu et al., 2015). Personality change can be an adaptation by which individuals change how they interact with the environment (Savickas, 1997, 2005). For example, in a study of personality change at work, Wu (2016) found that time demand and job stress had a long-term impact on personality, resulting in increased neurotic behaviors and decreased extraversion behaviors.
There can be personality differences between roles assumed by actors (Donahue & Harary, 1998). Roles consist of the expectations and demands that indicate the parts people play in social interactions (Sarbin, 1964). People assume different roles throughout their lives and even within a single day; therefore, they can shift their behaviors (Wood & Roberts, 2006). However, from the person-situation perspective to personality, individuals demonstrate consistency in their core personality across contexts (Donahue & Harary, 1998). Therefore, while personality is dynamic, it is also stable.

A personality specific to a particular context is a contextualized personality. The concept of contextualized personality suggests that people differ when the context differs (e.g., home versus work). In the context of work, work personality consists of the characteristic thoughts, feelings, and behaviors related to work (Heller et al., 2009). Using the Occupation Personality Questionnaire (OPQ) to measure work-specific criteria, Bowling and Burns (2010) found work personality a better predictor of work-related criteria, such as work performance, job satisfaction, absenteeism, and turnover, than overall personality.

In traditional personality measures, individuals report how they behave in general. In work-specific personality measures, such as the OPQ, employees report how they behave at work. However, the OPQ is a proprietary instrument, which could pose a barrier to many researchers. Future scholars could develop a free measure of work personality available to all researchers. If work-specific personality measures are a more accurate predictor than general personality measures, then a free measure would encourage more research to examine if this is indeed the case and deeper examination into the effects of each personality criterion.
2.7 Remote Work

Before the pandemic, at most five percent of American employees worked remotely more than three days per week (Yang et al., 2021). However, approximately 78 percent of public servants worldwide work remotely at least part of the time, according to an exclusive survey by Global Government Forum (Hunt, 2022). Canada has the highest percentage of its government employees working away from the office at 70 percent, while 19 percent have a hybrid working arrangement (Hunt, 2022). Also, beginning in March 2020, nearly 40 percent of knowledge workers in the United States worked from home full-time (Yang et al., 2021). An estimated 50 percent of Europeans work from home due to the pandemic (Galanti et al., 2021).

The COVID-19 pandemic led to the accelerated and wide acceptance of full-time remote work among both organizations and employees. In some instances, the shift to firm-wide remote work caused a lack of connection within organizations, isolating employees from one another (Yang et al., 2021). For example, people working remotely might only connect with close ties, such as immediate team members, or fail to increase collaboration networks due to a lack of visibility, making it harder for employees to gain or share information.

Communication techniques have changed among employees in a remote world. Remote work led to the near-elimination of in-person communications, resulting in an overall loss of communication in real-time (i.e., virtual meetings). In other words, people communicated directly less during the pandemic (Yang et al., 2021), relying more on emails and social-media-type postings.
In the past, many employers presented remote work as a perk to help employees balance work and family. However, during the pandemic, distractions from work-life conflict and crowded homes with visual and audio distractions have impacted the productivity of individuals working from home (Galanti et al., 2021).

Van Zoonen et al. (2021) found that structural job factors, such as high work independence and clarity of job criteria, enabled employees to adjust more easily to remote work settings. In turn, relational factors (i.e., interpersonal trust and isolation) negatively correlated to adjustment. Van Zoonen et al. (2021) also discovered that feelings of social isolation resulted in a decreased adjustment to remote work, providing further evidence that the social dynamics of work are a key barrier in adjusting during the COVID-19 pandemic.

The pandemic saw a rise in remote workforces, and it is unlikely that organizations will return to pre-pandemic work environments. This shift to remote workforces saw a decrease in communication among employees and a change in how employees communicate with each other. Some employees may have adapted better to this new way of working than others. Examining personality’s ability to predict job performance in remote workforces may assist in better understanding which employees could adapt better to this type of work environment.

2.8 Person-Environment Fit

Person-environment fit theory suggests a relationship exists between employees (people) and their environments, such as offices or workspaces (Lewin, 1935, 1951; Murray, 1938, 1951). Person-environment fit theories also indicate the following:
1. That people seek out and create environments that allow them to behaviorally manifest their traits (e.g., dominant individuals seek leadership positions); 

2. The extent to which people fit their work environments has significant consequences (e.g., satisfaction, performance, stress, productivity, turnover); with better fit comes better outcomes; and 

3. P-E fit is a reciprocal and ongoing process whereby people shape their environments, and environments shape people.

Fit is a factor related to significant behavioral outcomes, such as job performance and career success (Nye et al., 2012). A meta-analysis of 60 empirical studies spanning 70 years found a link between vocational interest and various work performance criteria (Nye et al., 2012). Fit is the degree to which individual interests and the environment match. Additionally, Roberts and Robins (2004) demonstrated that person-environment fit related to higher levels of personality consistency, increased self-esteem, and decreased Agreeableness and Neuroticism.

Holland’s theory of vocational personalities and work environments focuses on individuals’ tendency to seek and create work environments that enable them to manifest their work personalities (Su et al., 2015). The theory, which addresses the person and environment characteristics that result in positive and negative vocational outcomes, is a means of determining the attributes that result in career stability based on person and environment. The theory of work adjustment focuses on employees’ adjustment to the expectations and rewards of work (Dawis, 2005; Dawis & Lofquist, 1984).
The attraction-selection-attrition framework also addresses the process by which people are attracted to, selected for, and leave or remain in organizations. Scholars have used the theory to explain important outcomes, such as career choice, organizational commitment, and turnover (Schneider et al., 2000, De Cooman et al., 2009). According to the theory, similar people in terms of personality, interest, and other attributes feel attracted to similar organizational settings. Organizations tend to hire employees with similar knowledge, skills, and abilities to their current workforce. Those who are a good fit tend to stay with the organization, and those who are not a good fit tend to leave. Among the individuals attracted to an organization, employers choose those with the competencies to achieve the organization’s goals (Su et al., 2015). Chatman’s (1989, 1991) model of person-organization fit presents values as the most crucial aspect in determining person-environment fit. Organizations will need to consider the fitness of employees to work remotely to maximize their investments in recruitment and retention of employees.

2.9 Summary and Conclusion

This chapter began with an introduction of the Big Five personality traits and FFM, followed by a definition of job performance and its multiple dimensions. Chapter 2 also presented remote work and its relevance to personality-performance research. There was a discussion of the relationship between personality and job performance. Finally, the chapter showed the impact of work environments on work personalities.
Chapter 3: Methodology

This chapter outlines the methodology followed in this study. After the study’s introduction in section 3.1, section 3.2 will provide a list of the research questions and hypothesis, while section 3.3 will provide the overall research design. Sections 3.4 and 3.5 discuss the participants and the survey design, while section 3.6 will discuss the semi-structured interviews that were conducted. An overview of the data collection process and analysis techniques employed in this research are provided in section 3.7. Lastly, an overview of ethical considerations has been included in section 3.8, followed by a chapter summary in section 3.9.

3.1 Introduction

After finding evidence of the Big Five as predictors of job performance, Barrick and Mount (1991) later solidified their position with a subsequent meta-analysis, especially concerning Conscientiousness (Mount & Barrick, 1995). Behling (1998) declared Conscientiousness to be one of the most valid predictors of job performance, second only to general intelligence. Later research (e.g., Huntz & Donovan, 2000) found relationships between other Big Five domains and job performance, including contextual performance.

The COVID-19 pandemic changed how and where employees work at many organizations. All levels of the government focused on implementing extreme public safety measures to protect the public. Many businesses closed due to lockdown measures; others could reopen only in compliance with the new safety protocols, such as
social distancing regulations, appropriate personal protective gear, and enhanced cleaning protocols. Business challenges included the transition to remote workforces that differed significantly from the telework arrangements used in the past.

Telework consists of employees working remotely occasionally while their colleagues remain in the office. According to the Treasury Board Secretariat of Canada (1999), telework is:

A flexible work arrangement whereby employees have approval to carry out some or all of their work duties from a telework place, defined as the alternative location where the employee is permitted to carry out the work otherwise performed at or from their designated workplace. (para. 6)

Employers can terminate telework at any time, and there is an expectation for the employee to spend some time in the office. During the pandemic, almost all Canadian federal government employees worked remotely full-time without access to shared office space. During the pandemic, organizations underwent transition at a rapid pace, increasing remote work by roughly 45 percent (Iwunze, 2021).

Previous research on personality has focused on employees in traditional work environments. Traditional workspaces could be forever altered or eliminated by the pandemic; therefore, it is necessary to understand how employees perform in the new remote work environment. The present study investigates if the established relationship between personality and job performance remains when the majority of employees have transitioned from office locations to working remotely from home. Illustration 3.1 provides an overview of the personality-job performance relationship model used in this study. The relationship between personality and job performance (task and contextual)
has been well established in prior research. As per Illustration 3.1, in this study this relationship is assessed within a fully remote work environment. The study tests the relationship between personality and task performance, contextual performance, and overall performance (which combines task and contextual performance). One hypothesis of the study is that the personality traits of Conscientiousness and Extraversion continue to have a positive relationship and be valid predictors of job performance in a remote work environment. Another is that no other personality variables appear as strong predictors of job performance.

The researcher heard speculation about factors that may impact or influence an employees’ ability to perform in a fully remote environment. The researcher formulated other hypotheses based on this anecdotal information. Other hypotheses of the research are that employees with pets and workspaces separate from their living spaces will have a positive relationship with job performance outside the office. In contrast, those having young children at home and those sharing a workspace with others will have a negative relationship with job performance, regardless of their personality trait profiles.

**Illustration 3.1  Personality-performance relationship model.**
This study begins by regressing the personality trait variables against task and contextual performance variables, first separately and then combined as the overall job performance variable. An examination of this relationship is presented in Chapter 4 with the inclusion of the moderating effects of the demographics data for age, gender, isolation, and other moderating variables.

3.2 Research Questions and Hypotheses

The nature of work has changed with the introduction of fully remote work environments accelerated during the pandemic. This study examines the relationship between personality and job performance to assess the impact, if any, of using personality to predict job performance in a fully remote context. One hypothesis of the study is that the personality traits of Conscientiousness and Extraversion will continue to have a positive relationship with, and be valid predictors of, job performance in a remote work environment. Another hypothesis is that no other Big Five personality traits will emerge as predictors of job performance. Other hypotheses of the research focus on the moderating effects of non-personality traits. It is hypothesized in this research that employees with pets and workspaces separate from their living spaces will report a more positive relationship between personality and job performance, in this remote context. In contrast, those with young children at home and those who must share workspaces with others will report a more negative relationship between personality and job performance.

The study answers the following questions and sub-questions to address the broad question of whether personality is a predictor of job performance in a fully remote workforce. Earlier research has conducted its research related to personality and job
performance in traditional office settings (Barrick & Mount, 1991). This study will test the personality-to-job performance relationship in a fully remote organization. To test this, overall personality, combining all Big five traits, will be tested with job performance. Further testing will examine the relationship of each personality trait separately against job performance.

**RQ1. Does personality predict job performance in fully remote organizations?**

\[ H_0 \]: Collectively, the Big Five do not predict job performance in an entirely remote workforce.

\[ H_a \]: Collectively, the Big Five do predict job performance in an entirely remote workforce.

**SQ1.** Does the variable Extraversion predict job performance in fully remote organizations when all other variables are held constant?

\[ H_0 \]: The variable of Extraversion does not predict job performance in an entirely remote workforce when all other variables are held constant.

\[ H_a \]: The variable of Extraversion does predict job performance in an entirely remote workforce when all other variables are held constant.

**SQ2.** Does the variable Agreeableness predict job performance in fully remote organizations when all other variables are held constant?
H₀₂. The variable of Agreeableness does not predict job performance in an entirely remote workforce when all other variables are held constant.

Hₐ₂. The variable of Agreeableness does predict job performance in an entirely remote workforce when all other variables are held constant.

SQ₃. Does the variable Conscientiousness predict job performance in fully remote organizations when all other variables are held constant?

H₀₃. The variable of Conscientiousness does not predict job performance in an entirely remote workforce when all other variables are held constant.

Hₐ₃. The variable of Conscientiousness does predict job performance in an entirely remote workforce when all other variables are held constant.

SQ₄. Does the variable Neuroticism predict job performance in fully remote organizations when all other variables are held constant?

H₀₄. The variable of Neuroticism does not predict job performance in an entirely remote workforce when all other variables are held constant.

Hₐ₄. The variable of Neuroticism does predict job performance in an entirely remote workforce when all other variables are held constant.
SQ5. Does the variable Openness to Experience predict job performance in fully remote organizations when all other variables are held constant?

H05. The variable of Openness does not predict job performance in an entirely remote workforce when all other variables are held constant.

Ha5. The variable of Openness does predict job performance in an entirely remote workforce when all other variables are held constant.

Illustration 3.2 outlines the conceptual framework of the hypotheses outlined above.

**Illustration 3.2 Conceptual Framework: Job Performance.**

Job performance is a combination of two sub-dimensions, task performance and contextual performance. Task performance is related to core job responsibilities and contextual performance is the other duties outside of these core responsibilities, such as
good communication. Task performance indicators are related to cognitive abilities (Motowildo et al., 1997). Although cognitive abilities have some effects on contextual performance, their strongest effects are on task performance (Motowildo et al., 1997). To fully understand any changes in the relationship between personality predictors in fully remote organizations it is essential to examine task and contextual performance separately (Borman & Motowildo, 1997). Therefore, in this study, the five personality traits will be tested against task performance, both collectively and individually.

**RQ2. Does personality predict task performance in fully remote organizations?**

- **$H_02$.** Collectively, the Big Five do not predict task performance in an entirely remote workforce.  
- **$H_a2$.** Collectively, the Big Five do predict task performance in an entirely remote workforce.

**SQ1.** Does the variable Extraversion predict task performance in fully remote organizations when all other variables are held constant?

- **$H_01$.** The variable Extraversion does not predict task performance in fully remote organizations when all other variables are held constant.  
- **$H_a1$.** The variable Extraversion does predict task performance in fully remote organizations when all other variables are held constant.
SQ2. Does the variable Agreeableness predict task performance in fully remote organizations when all other variables are held constant?

$H_02$. The variable Agreeableness does not predict task performance in fully remote organizations when all other variables are held constant.

$H_a2$. The variable Agreeableness does predict task performance in fully remote organizations when all other variables are held constant.

SQ3. Does the variable Conscientiousness predict task performance in fully remote organizations when all other variables are held constant?

$H_03$. The variable Conscientiousness does not predict task performance in fully remote organizations when all other variables are held constant.

$H_a3$. The variable Conscientiousness does predict task performance in fully remote organizations when all other variables are held constant.

SQ4. Does the variable Neuroticism predict task performance in fully remote organizations when all other variables are held constant?

$H_04$. The variable Neuroticism does not predict task performance in fully remote organizations when all other variables are held constant.
Ha4. The variable Neuroticism does predict task performance in fully remote organizations when all other variables are held constant.

SQ5. Does the variable Openness to Experience predict task performance in fully remote organizations when all other variables are held constant?

H05. The variable Openness does not predict task performance in fully remote organizations when all other variables are held constant.

Ha5. The variable Openness does predict task performance in fully remote organizations when all other variables are held constant.

Illustration 3.3 outlines the conceptual framework of the hypotheses outlined above.

Illustration 3.3 Conceptual Framework: Task Performance.
Contextual performance is comprised of activities such as persistent effort, relational skills, cooperation, and conscientiousness (Carlos & Rodrigues, 2016). Personality variables should have a strong effect on contextual performance. Therefore, in this study, the five personality traits will be tested against contextual performance, both collectively and individually.

RQ3. Does personality predict contextual performance in fully remote organizations?

H03. Collectively, the Big Five do not predict contextual performance in an entirely remote workforce.

Ha3. Collectively, the Big Five do predict contextual performance in an entirely remote workforce.

SQ1. Does the variable Extraversion predict contextual performance in fully remote organizations when all other variables are held constant?

H01. The variable Extraversion does not predict task performance in fully remote organizations when all other variables are held constant.

Ha1. The variable Extraversion does predict task performance in fully remote organizations when all other variables are held constant.
SQ2. Does the variable Agreeableness predict contextual performance in fully remote organizations when all other variables are held constant?

H₀². The variable Agreeableness does not predict task performance in fully remote organizations when all other variables are held constant.

Hₐ². The variable Agreeableness does predict task performance in fully remote organizations when all other variables are held constant.

SQ3. Does the variable Conscientiousness predict contextual performance in fully remote organizations when all other variables are held constant?

H₀³. The variable Conscientiousness does not predict task performance in fully remote organizations when all other variables are held constant.

Hₐ³. The variable Conscientiousness does predict task performance in fully remote organizations when all other variables are held constant.

SQ4. Does the variable Neuroticism predict contextual performance in fully remote organizations when all other variables are held constant?
H₀₄. The variable Neuroticism does not predict task performance in fully remote organizations when all other variables are held constant.

Hₐ₄. The variable Neuroticism does predict task performance in fully remote organizations when all other variables are held constant.

SQ₅. Does the variable Openness to Experience predict contextual performance in fully remote organizations when all other variables are held constant?

H₀₅. The variable Openness does not predict task performance in fully remote organizations when all other variables are held constant.

Hₐ₅. The variable Openness does predict task performance in fully remote organizations when all other variables are held constant.

Illustration 3.4 outlines the conceptual framework of the hypotheses outlined above.

Illustration 3.4 Conceptual Framework: Contextual Performance.
3.3 Research Design

According to Bryman et al. (2011), quantitative research consists of collecting numerical data, viewing the relationship between theory and research deductively, having an affinity for a natural science approach (positivism), and having an objectivist conception of social reality. Quantitative research is an approach used widely in personality research (Maples-Keller et al., 2017; Costa & McCrae, 1992a; Costa & McCrae, 1992b; Ozer & Benet-Martínez, 2006). Questionnaires are a common means of quantitative data collection (Costa & McCrae, 1992b). Additionally, scholars have used surveys with self-reporting measures in a wide range of studies on job performance (Pransky et al., 2006).

The cross-sectional perspective of this study will allow for the examination of many variables at the same time, such as gender, age, and living conditions, to understand their interaction with the personality/job performance relationship and identify any cohort differences that may arise from the remote workforce experience. Data collection included administering a survey with a validated personality measure (IPIP-NEO-60, a 60-item survey (Maples-Keller et al., 2017)), a validated self-reported measure of performance (29 questions survey (Carlos & Rodrigues, 2016)), and demographic information (16 questions). The researcher used Qualtrics software available from Carleton University to administer the instrument to participants at the Canada Pension Centre for the federal public service in Shediac, New Brunswick. The goal of the survey was to capture personality and job performance data at the individual level; a factor organizational leaders should understand to optimize worker performance (Sonnentag & Frese, 2002).
The study also included interviews with organizational management to provide contextual or supplemental information for the survey findings. Including this qualitative data provided an enriched understanding of the remote work experience for the research. Managers for the group were interviewed to discuss challenges they observed in employees and the organization that resulted during the period of fully remote work and what measures were put in place to assist employees in adapting. Managers were also asked what challenges they see continuing to confront remote workers now that remote work has become more normalized over time.

3.4 Participants

The proposed research consists of survey data from federal government employees at the Canada Pension Centre for the federal public service in Shediac, New Brunswick. The employees at this organization conduct various administrative tasks and accept inquiries from pension contributors, both current and retired. Most employees are full-time employees or full-time equivalents, as they are known in the federal government, who historically had worked in a traditional office environment. However, all employees had to transition to full-time remote work from home in March 2020 as part of the employer’s pandemic safety measures.

More than 1,000 employees work at the Canada Pension Centre at various levels, including administration officers, managers, and other employment categories. All employees received the study survey via email in July and August 2021, and 335 responded by completing the survey, with a response rate of 32 percent. The employer granted permission to send only one email to employees; therefore, the researcher sent no reminder or follow-up emails. Survey distribution occurred during a prime vacation
leave period for employees, which could have affected the response rate. The Canada Pension Centre supported the study and encouraged and supported participation, enabling employees to respond during working hours. The participants could respond to the survey in English or French, as they preferred. The team’s senior management are colleagues of the researcher, who is also a federal public servant. When they heard of the study, senior management volunteered their organization to participate in the study. The employees were chosen to be the study’s sample group because they comprise a large team that is representative of the typical program delivery team in the federal public services sector. Although the survey produces results specific to workers at the Canada Pension Centre, the findings could be generalizable across government organizations with remote workforces and applied to non-government organizations with similar types of service-related work.

3.5 The Survey

The survey consists of a previously validated measure of the Big Five available to researchers through the International Personality Item Pool (IPIP). The self-reported job performance survey questions include two job performance measures. Demographic information was collected to assess their possible moderating effects on the personality-job performance relationship. Many of the existing validated personality measures are proprietary and must be purchased before use. This can be very expensive for researchers. The NEO PI-R (Neuroticism Extraversion Openness to Experience Personality Inventory Revised) is one such measure (Costa & McCrae, 1992a) with the FFM, a commonly used assessment in personality research. The FFM includes the five personality domains—Neuroticism, Agreeableness, Extraversion, Openness, and
Conscientiousness—with the six facets of personality in each domain (Costa & McCrae, 1995), as noted in Table 2.1. The proprietary nature of the NEO PI-R and other measures presents a challenge to their use in large-scale studies (Funder et al., 2014). IPIP is an international collaboration for developing a broad pool of personality items to promote access and advance research in this area (Goldberg, 1999).

3.5.1 Personality Questionnaire

The IPIP-NEO-60, a 60-item survey (Maples-Keller et al., 2017), is an open-access tool that represents the FFM facets equal to that of the proprietary NEO-PI-R measure developed and validated by Costa and McCrae (1992a). Maples-Kelle et al. (2017) developed an open-access 60-item representation of the validated and proprietary NEO PI-R (Costa & McCrae, 1992a). The IPIP-NEO-60 has similar reliability and convergent validity to the NEO-PI-R (Maples-Keller et al., 2017), suggesting that the instrument is a viable alternative to accurately measure the FFM domains readily. The shorter, 60-item measure was a desirable tool for this study compared to larger-scale measures to avoid participant fatigue, particularly since the study combined the personality measure with other measures. The survey provides an equal representation of the 30 facets (two items per facet) from the NEIO-PI-R–based model of the FFM (Maples-Keller et al., 2017). Appendix A contains a complete list of the measures used in this study.

Social desirability bias is a tendency of respondents to answer the questions in a manner they believe will allow them to be viewed favorably by others. Self-reporting measures such as personality testing have been criticized for the potential for such
response distortion (Hogan & Nicholson, 1998). However, a 1996 meta-analysis of social desirability research concluded that social desirability was not a predictor of task performance or job performance. It was also found not to impact the validity of the Big Five in predicting job performance (Ones et al., 1996).

3.5.2 Job Performance Questionnaire

In addition to personality, this study includes a measure of job performance at the individual level, as defined and measured by Carlos and Rodrigues (2016). The authors’ validated self-reported measure for job performance includes a 29-question instrument focused on the two dimensions of individual job performance (task and contextual) broken down into eight subdivisions, three task and five contextual measures. (See Appendix A). Task performance and contextual performance are independent contributors to overall performance. Therefore, part of this study distinguished the influence level of each factor separately and combined (Motowildo & Van Scotter, 1994).

Researchers have struggled to measure job performance due to a lack of objective measurements (Murphy, 2008). Many scholars have used various self-reported data collection tools due to the unavailability of objective measurements of work function and performance (Coleman & Broman, 2000; Pransky et al., 2006; Tyagi, 1985). Although self-reported ratings may contain bias (Van Woerkom & de Reuver, 2009), the measure used in this study was established using data collected for research purposes and not as part of an employer performance review process that could impact the employee at work. Therefore, this measure is not expected to produce biased results because respondents are not incentivized to provide a biased view of reality (Carlos & Rodrigues, 2016). The
measure will produce results applicable across all jobs and cultures regarding the relationships between performance and other variables, such as personality.

The self-reported measure includes indicators for individual work performance dimensions in both task and contextual performance. The model consists of three subdimensions of task performance: efficiency, job knowledge, and organizational skills. The model also includes five subdimensions for contextual performance: corporation, organizational conscientiousness 2, personal characteristics, interpersonal and relational skills, and persistent effort.

3.5.3 Demographic Questionnaire

In addition to answering questions regarding the Big Five and job performance, the participants in this study responded to 16 items related to their demographic characteristics. The demographic questions provide descriptive information about the sample and the similarities and differences between participants to contribute to the future replication of the study. The demographic information collected for this study was treated as a moderator (Wu & Zumbo, 2008). It provided a means of understanding the relationship between personality and job performance in remote workforces. The demographic questions underwent updates to align with wording and data collection strategies familiar to public servants through the regular Public Service Employee Survey (PSES; 2020).

In total, the survey consisted of 105 questions and took approximately 20 minutes to complete. (See Appendix A.) The participants are a mix of both anglophone and francophone employees. Because employees in the federal public service may work in
the official language of their choice (English or French), the study included the survey translated into French so the participants could complete the survey in the language of their choice. The translation was completed by the Translation Bureau, the official translation service for the federal public service. This service was used to ensure compliance with federal government translation processes and quality protocols. The employees received an invitation to complete the questionnaire via their work emails from the researcher’s Carleton University email account that included a link to the survey on Carleton’s Qualtrics survey software. Each invitation email contained a link to the survey in the official language of the participant’s choice. The participants could complete the questionnaires during their working hours.

Data collection for this survey was completed prior to the approval of the thesis proposal. The decision to conduct data collection before finalizing the thesis proposal was made to ensure the data could be collected from remote workers before a return-to-work order was issued by the employer, as the pandemic that led to the adoption of remote work was becoming a lesser public health threat. The survey results remained on the Qualtrics server and were not accessed between when the survey closed in August 2021 and the beginning of the data analysis phase in September 2022.

Before completing the questionnaire, the participants received information on the study, the voluntary nature of participation, and the anonymity of the results in the email invitation to participate in the survey. A copy of the email invitation can be found in Appendix B. The participants also knew they could withdraw at any time before submitting the questionnaire and were to confirm consent. The participants did not
receive incentives for participation as public servants must not accept gifts from third parties.

3.6 Semi-Structured Interviews

Semi-structured interviews with four managers for this group were conducted in October 2022, after the completion of the quantitative data analysis, to present the findings and collect relevant feedback. A semi-structured interview is a qualitative data collection method that relies on asking questions within a predetermined thematic framework used to conduct exploratory research. During a semi-structured interview, some questions are predetermined, while others may arise out of the natural flow of the conversation (Bryman et al., 2011). Semi-structured interviews can be a valuable tool for researchers to supplement and add depth to other data collection approaches, such as survey data (Adams, 2015). While interviews can be costly and time-consuming, they provide additional information that allows a researcher to probe into difficult situations with a depth that is not possible in survey research (Binder et al., 1983).

For the purposes of this research study, semi-structured interviews were conducted with managers of the survey participant group to explore findings from the survey data. The interviewer sought to uncover any vital data that was not captured in the survey and any thoughts, feelings, or experiences interview participants felt could provide additional context or relevancy to the data findings. The interviews were guided by the following list of prepared questions and did not use a script:

1. How was job performance measured prior to the pandemic?

2. Did you change how you measured job performance after transitioning to fully remote work?
3. Could you describe the personality traits of the type of person you would be looking to work with as part of your team?

4. Did you notice that some people had a more challenging time than others after beginning remote work?

5. Did you notice any barriers to working remotely full-time?

6. How did you respond to these barriers?

7. How was onboarding and training new employees in a fully remote environment?

8. Did you notice any changes to conflict in the workplace once you were in a fully remote workplace?

9. Which model do you think is better, the hybrid model (working one or more days a week in the office) or fully remote?

All questions were delivered and recorded via MS Teams using an open-ended format. This exploratory research approach allowed the researcher to gain information from interview respondents that was unknown before the interview or survey. After each interview, the recording was transcribed using MS Teams functionality, coded, and categorized accordingly. Avoiding fixed response questions allowed respondents to provide valuable information that would otherwise have been lost. Open-ended questions also allowed for a significant amount of probing during interviews. For these reasons, semi-structured interviews were the most appropriate method for collecting data that could supplement the findings of the survey data.
Ethics approval from Carleton University for this project was initially granted solely for collecting data via a survey. Before contacting participants, the study protocol was updated and approved in June 2022 to include semi-structured interviews. Four managers were selected at random from a list provided by the organization’s Director General, selecting two from front line service operations and two from supporting services to get a perspective from both parts of the organization. Participants were contacted via email by the researcher, inviting them to a 60-minute interview using MS Teams. Participants included two managers for frontline service teams and two managers whose teams provide support functions to these frontline sectors. Interviews were conducted in October 2022. At the onset of each interview, and again after it began, participating managers were informed of the nature of the research, consented to be recorded, and to the use of MS Teams transcription functionality to transcribe their interviews. An interview guide was developed that included a list of questions and topics to be covered during the interview.

All respondents were guaranteed anonymity before the interview and assured that the study was done solely for academic purposes. Participants in the semi-structured interviews provided verbal consent before the interview began. This consent was recorded by MS Teams before the interview began. They were reminded that their participation would be voluntary, and they were given the opportunity to end the interview at any time. Further, participants were informed that the information collected would be used in a Ph.D. thesis and not for any other purposes.
3.7 Survey Data Collection and Analysis

The response data collected in Qualtrics was transferred to SPSS for analysis purposes. Analyzing the data entailed using a series of data screening procedures to identify and address any missing data, outliers, and estimate means and to check for other aspects of data integrity, such as skewness and kurtosis (Tabachnick & Fidell, 1989). The variables of interest contributed to addressing the proposed hypotheses in the research questions section: the personality factors of the IPIP-NEO-60 and the dimensions of job performance (task and contextual) from the self-reported questionnaire.

Missing values analysis was the strategy used to determine any patterns of missing values, calculate standard deviations, and identify any extreme scores. The predictor and criterion variables underwent examination for skewness and kurtosis. A review of correlations and bivariate correlations also occurred. Cronbach’s alpha was the means used to test internal reliability, with a score of 0.8 and greater indicating acceptable internal reliability. This method of testing reliability aligns with most other research (Bryman et al., 2011). The survey in this study included two previously validated measures of personality and job performance; the measure’s face validity had already been determined.

Usually, personality is a predictor (independent) variable for other outcomes in personality research, while performance is a dependent variable, as most organizational leaders seek to optimize performance (Sonnentag & Frese, 2002). In this study, personality was the continuous independent variable used to predict the dependent variables of job performance, task and contextual performance, and overall combined job
performance. Examining the relationships between predictors and criterion variables in this study consisted of computing correlations before completing multiple regressions and confirmatory factor analysis. The analysis focused on the relationship in remote workers from both a task and contextual performance perspective for predictability. The analysis also focused on the moderating effects of demographic considerations (e.g., age, years of experience, gender) on these relationships.

The study commenced by estimating the effects of personality traits on performance without the effects of demographic variables. Next, the analysis continued by estimating the models of performance that include both task and personality traits in the empirical specifications, followed by estimating the models of contextual performance and personality traits. This was followed by estimating the models of overall job performance, calculated by combining task and contextual performance together, and personality traits. Lastly, testing of the relationships between personality and performance occurred considering the effects of the demographic variables. Dummy variables were used in regression analysis to represent categorical variables that had more than two levels, such as tenure, pets and children. Illustration 3.5 presents the testing model that demonstrates the testing of the direct relationship between personality variables and job performance variables, as well as the testing of the effect of moderating variables captured in the demographic data on this relationship.

This research adopted a thematic approach to qualitative analysis of the semi-structured interviews to identify patterns within the data. Thematic analysis identified key themes from each of the semi-structured interviews to be grouped and labeled for coding purposes. Linkages between the themes and patterns were also identified. This
analytical approach allowed the researcher to gain a better understanding of managers’ experiences, views, and opinions on how different personalities respond to fully remote work environments.

**Illustration 3.5  Testing model**

![Testing model diagram]

### 3.8 Ethical Considerations

Ethics are the standards of conduct that researchers use to guide their actions. Ethical considerations indicate the difference between right and wrong and acceptable and unacceptable behaviors. Scholars must consider ethical implications during the research process at the onset of their research designs to promote truth in the knowledge built or founded, trust in the compliance of laws and public safety, and the avoidance of error in the research results through data integrity. According to Diener and Crandall (1978), four main types of ethical concerns exist when conducting research involving...
human subjects: (a) whether there is harm to the participants, (b) whether there is a lack of informed consent, (c) whether there is an invasion of privacy, and (d) whether there is deception involved.

The participants in the survey are a complete team of federal public servants who worked in a cubicle setting and transitioned to remote work from home in response to the public health threat of the pandemic. The employees participated by taking the survey. The survey is a predetermined list of questions on personality traits and a predetermined list of job performance questions. The survey does not include questions with sensitive data that could cause harm to the participants. The data collection included individual performance data confidential to the individual employees. The study does not include the participants’ identifying information. Therefore, the participants faced minimal risk of harm. Because the participants in the survey are federal public servants, ethics approval from the federal department, Public Services and Procurement Canada (PSPC) was required. A copy of the survey material and information on the research and data usage was provided to the ethics division for PSPC to review to ensure no conflict of interest and/or ethics that could place the department at risk. Once this was determined, the researcher also had to obtain clearance from the Public Opinion Research (POR) division to ensure this type of research did not meet the definition of POR. The Assistant Deputy Minister responsible for the survey participants received these internal departmental clearances and provided his approval to contact the employees directly.

The collected data consisted of electronic survey responses. All the data downloaded for analysis from the Qualtrics server at Carleton was stored on a secured personal laptop to maintain the privacy and integrity of the data. The original data
collection remained on the Qualtrics server. Carleton University’s Qualtrics server was the means used to store the quantitative data for analysis.

This study received ethical approval for the survey data collection from Carleton University’s Office of Research Ethics before the completion of the proposal (Ethics Clearance ID: Project # 115813, Effective: June 14, 2021, Expired: June 30, 2022). Due to the changing work environment, federal workers could return to work, either part-time or full-time beginning September 2022. Therefore, this study required collecting the data as quickly as possible. This approval was updated to include the semi-structured interviews discussed earlier in this paper before conducting any interview-related activities. Ethics approval for the semi-structured interviews was granted in June 2022. The interviews took place in October 2022.

3.9 Summary and Conclusion

This chapter provided support for using a quantitative and qualitative approach to collect the data, as a qualitative approach is the most suitable for personality trait research and the qualitative approach added rich context. Specifically, this chapter addressed using self-reported questionnaires to collect both personality and performance-related data and participant demographic information. The use of semi-structured interviews with the participants’ management team to collect their perspectives on the remote work experience was also addressed. The chapter additionally discusses how both the quantitative and qualitative data have been treated and analyzed and the ethical considerations undertaken.
Chapter 4: Data Analysis, Findings and Discussion

4.1 Introduction

The current study examined the relationship between personality and job performance in remote work environments. A survey was administered, which consisted of a pre-existing measure for personality based on the Big Five (Maples-Keller et al., 2017) and a pre-existing measure of self-rated job performance (Carlos & Rodriques, 2016). The study was provided to employees at the Canada Pension Centre in New Brunswick. The hypotheses examined were that personality would predict job performance.

Analyses were performed using data from these responses to answer the research questions guiding this study:

Research question 1: RQ1. Does personality predict job performance in fully remote organizations?

H₀1. Collectively, the Big Five do not predict job performance in an entirely remote workforce.

Hₐ1. Collectively, the Big Five do predict job performance in an entirely remote workforce.

Research question 2: RQ2. Does personality predict task performance in fully remote organizations?

H₀2. Collectively, the Big Five do not predict task performance in an entirely remote workforce.
H\textsubscript{a}2. Collectively, the Big Five do predict task performance in an entirely remote workforce.

**Research question 3: RQ3. Does personality predict contextual performance in fully remote organizations?**

H\textsubscript{0}1. Collectively, the Big Five do not predict contextual performance in an entirely remote workforce.

H\textsubscript{a}1. Collectively, the Big Five do predict contextual performance in an entirely remote workforce.

The first null hypothesis stated that there is no relationship between the Big Five and overall job performance, as measured by the IPIP -NEO-60 and the self-reported measure of job performance. The second null hypothesis stated no relationship between the Big Five and task performance. The third null hypothesis stated no relationship between the Big Five and contextual performance. These hypotheses were tested using correlational and multiple regression analyses. This chapter presents the demographic characteristics of the participants, quantitative statistical analyses, and results from these analyses. It also includes a discussion of these findings.

**4.2 Demographic Characteristics**

There were 335 respondents in total for the survey. Of these responses, 95 percent of the participants identified as, and chose to respond in, English. Out of the returned responses, 36 were missing the answer to question 121, “Are you working remotely full time”, while 37 responded they were working remotely part-time, and 21 indicated they were not working remotely at all. Because this study is concentrated on
fully remote work environments, the respondents described above were eliminated from the final dataset, leaving 239 respondents. Of the 239 respondents, 37 indicated working in a capacity other than full-time indeterminate, such as casual, term, or student positions. Again, because this study concentrates on fully remote work environments, these respondents were eliminated from the data set, leaving a final sample size of \(N=201\).

The majority of the respondents were female (78 percent), and almost half of the sample population was in their 40’s (40 percent). Seventy-five percent (75 percent) of respondents were married or living with a common-law partner and over half of the respondents (53.4 percent) indicated that they had at least one child at home. Ninety percent of respondents had a college diploma or a university degree and 82.2 percent responded that they have some type of pet at home. Only 3 percent of respondents identified as a visible minority. Because the sample size for visible minorities is so small (\(N<30\)), it will not be considered for further analysis (Kwak & Kim, 2017).

4.3 Procedures

Surveys were distributed via email during July and August 2021. Personality factors were scored on a 60-point scale from 0 to 60. Each of the 60 questions related to one of the five factors (12 questions each). Participants could select Strongly Disagree, Disagree a Little, Neither Agree Nor Disagree, Agree a Little, or Strongly Agree. These responses correspond to a value of 1 through 5, although some were reverse-scored. All response values for each factor were summed to arrive at the factor score. An overall factor score for the Big Five was calculated by adding the factor scores from each of the five factors together.
Job performance factors were scored on a 29-point scale from 0 to 29. Each of the 29 questions related to one of the eight job performance subdimensions (three for task performance, five for contextual performance). For all questions, answer choices included Strongly Disagree, Disagree, Somewhat Disagree, Neither Agree nor Disagree, Somewhat Agree, Agree, and Strongly Agree. These values corresponded to a value of 1 through 7, although some were reverse-scored. All response values for each dimension were summed to arrive at the factor score. An overall factor score for overall task performance was calculated by adding the factor scores for each task performance subdimension. An overall factor score for overall contextual performance was calculated by adding the factor score for each of the contextual job performance subdimensions. Lastly, an overall job performance factor score was calculated by adding the factor scores of the overall task performance and the overall contextual performance factors together.

4.4 Data Screening

Data was transferred from Qualtrics to SPSS statistical software. The data was then examined for outliers to understand any potential distortion these data points may have on the statistical analysis (Peng et al., 2016). To check for outliers in this sample data, casewise diagnostics were generated by SPSS to identify any case where the standardized residual is greater than ±3 standard deviations.

Approximately eight outlier cases were identified during the task performance analysis, and no outliers were identified during the contextual performance analysis. To determine whether any cases exhibit high leverage, one general rule of thumb is to consider leverage values less than 0.2 as safe, 0.2 to less than 0.5 as risky, and values of
0.5 and above as dangerous (Huber, 1981). Cook’s Distance is a measure of influence. As a rule of thumb, if Cook’s Distance values exceed 1 (Cook & Weisberg, 1982), they should be investigated. For the outliers identified by casewise diagnostics in this study, all were determined to have a leverage of less than 0.2 and a Cook’s Distance below 1. These outliers were therefore considered not to be highly influential and were not removed from the dataset.

4.5 Assumptions Testing

The measure used for personality in this study was the IPIP-NEO-60 (Maples-Keller et al., 2017). Reliability of the personality scale had a high level of internal consistency, as determined by Cronbach’s alphas ranging from 0.74 to 0.89. The self-reported job performance measure used in this study (Carlos & Rodrigues, 2016) has a high level of internal consistency, with a Cronbach’s alpha of 0.749. There was independence of residuals in all test cases of this study, as assessed by a Dubin-Watson statistic of around 2 for each test (Draper & Smith, 1998). To test for linearity of the variables, scatter plots of the studentized residuals against the unstandardized predicted values were generated, which indicated linear relationships between the predictor and criterion variables. Partial regression plots between each independent variable and the dependent variable were generated to assess if a linear relationship exists between the dependent variable and each independent variable individually. Homoscedasticity was confirmed through analyses of these scatter plots which revealed this assumption had been met.
SPSS Statistics was used to detect multicollinearity by generating correlation coefficients and Tolerance/VIF values. Tolerance values were greater than 0.1 in all cases, providing confidence that there are no collinearity problems in this dataset (Hair et al., 2014). Normality was assessed through the generation of histograms and with a superimposed normal curve and confirmed with the generation of p-plots to visualize the data was normally distributed. Outliers were identified using casewise diagnostics. Cook’s Distance was used to assess influence and leverage.

4.6 Survey Data Analysis

This nonexperimental, quantitative study aimed to examine the relationship between personality and job performance in fully remote work environments. Additionally, the researcher assessed whether gender, age, ethnicity, years of service, education level, owning pets, remote office environments, and having children at home moderated the association between personality and job performance.

There were three research questions guiding this study.

- Does personality predict job performance in fully remote organizations?
- Does personality predict task performance in fully remote work organizations?
- Does personality predict contextual performance in fully remote work organizations?

Data analysis was conducted using SPSS, version 28, to perform multiple regression to assess the linear relationship between personality and job performance variables. In other words, multiple regression was used to predict the value of the
dependent variable based on the value of the independent variable. Independent variables included the five scores from the personality measure (Neuroticism, Extraversion, Openness to experience, Agreeableness, Conscientiousness). The dependent variable in the first set of analyses was task performance and its sub-dimensions, followed by contextual performance and its sub-dimensions. The last set of analyses was overall job performance, calculated by adding the total factor score for both task and contextual performance. SPSS PROCESS was then used to examine the moderating interaction effects of various demographic data.

The goodness of fit of the data to the multiple regression model was assessed using the percentage of variance explained (R squared and R adjusted) and the statistical significance of the overall model. A significance level of p=0.05 was used to determine the statistical significance of the findings. Anything over this level (e.g., 0.051) is not included as significant. The model summary and ANOVA tables for each regression can be found in Appendix D.

4.7 Survey Findings

4.7.1 Personality and Overall Job Performance

Adding the factor score for total task performance and total contextual performance allowed the researcher to calculate a total factor score for both task and contextual performance. It also allowed the researcher to combine the total task and total contextual scores to calculate an overall job performance score. The multiple regression analysis used this overall job performance factor score as its dependent variable.
Independent variables included the five scores from the personality measure (Neuroticism, Extraversion, Openness to experience, Agreeableness, Conscientiousness).

Results of the analysis demonstrate two of the Big Five (Openness and Conscientiousness) are considered significant predictors of overall job performance. Table 4.1 shows the p-values for the five personality variables as individual predictors of overall job performance. Conscientiousness has the strongest relationship with a coefficient of 1.042 while Openness has a coefficient of .305. Extraversion, Agreeableness and Neuroticism were found not to have a significant relationship with overall job performance.

<table>
<thead>
<tr>
<th>Table 4. 1 Overall Job Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coefficients</td>
</tr>
<tr>
<td>Model</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>Neuro</td>
</tr>
<tr>
<td>Extraversion</td>
</tr>
<tr>
<td>Openness</td>
</tr>
<tr>
<td>Agreeableness</td>
</tr>
<tr>
<td>Conscientiousness</td>
</tr>
<tr>
<td>a. Dependent Variable: Overall Job Performance</td>
</tr>
</tbody>
</table>

4.7.1.1 Personality and Overall Task Performance

Table 4.2 shows the p-values for the five personality variables as individual predictors of overall task performance. Overall task performance is a combination of job knowledge, organizational skills, and efficiency factor scores. In this overall analysis, we see that Openness (p= 0.016) and Conscientiousness (p=<0.001) positively correlate with
overall task performance. This suggests that workers who remain open to new experiences and new ways of doing things will see higher task performance. While both variables have a positive relationship with overall task performance, Conscientiousness has the stronger relationship with a coefficient of 0.502.

Table 4.2 Overall Task Performance

<table>
<thead>
<tr>
<th>Model</th>
<th>Coefficientsa</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unstandardized Coefficients</td>
<td>Beta</td>
<td>t</td>
<td>Sig.</td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>29.355</td>
<td>5.189</td>
<td>5.658</td>
</tr>
<tr>
<td></td>
<td>Neuro</td>
<td>.018</td>
<td>.046</td>
<td>.028</td>
</tr>
<tr>
<td></td>
<td>Extraversion</td>
<td>-.005</td>
<td>.053</td>
<td>-.007</td>
</tr>
<tr>
<td></td>
<td>Openness</td>
<td>.130</td>
<td>.053</td>
<td>.159</td>
</tr>
<tr>
<td></td>
<td>Agreeableness</td>
<td>-.093</td>
<td>.079</td>
<td>-.079</td>
</tr>
<tr>
<td></td>
<td>Conscientiousness</td>
<td>.502</td>
<td>.073</td>
<td>.493</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Overall Task Performance

4.7.1.2 Personality and Overall Contextual Performance

Table 4.3 shows the p-values for the overall contextual performance model. Overall contextual performance is calculated by combining the factor scores for each of the four sub-dimensions that make up contextual performance. Results of this analysis suggest that all the dimensions of the Big Five, apart from Neuroticism, are significant predictors of overall contextual performance, and all factors positively correlate with the dependent variable.
Table 4.3 Overall Contextual Performance

<table>
<thead>
<tr>
<th>Model</th>
<th>Coefficients&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>35.628</td>
<td>7.376</td>
<td>4.831</td>
<td>&lt;.001</td>
</tr>
<tr>
<td></td>
<td>Neuro</td>
<td>-.101</td>
<td>.066</td>
<td>-.101</td>
<td>-1.527</td>
</tr>
<tr>
<td></td>
<td>Extraversion</td>
<td>.224</td>
<td>.075</td>
<td>.196</td>
<td>3.001</td>
</tr>
<tr>
<td></td>
<td>Openness</td>
<td>.190</td>
<td>.075</td>
<td>.150</td>
<td>2.545</td>
</tr>
<tr>
<td></td>
<td>Agreeableness</td>
<td>.265</td>
<td>.112</td>
<td>.144</td>
<td>2.354</td>
</tr>
<tr>
<td></td>
<td>Conscientiousness</td>
<td>.549</td>
<td>.104</td>
<td>.343</td>
<td>5.267</td>
</tr>
</tbody>
</table>

<sup>a</sup> Dependent Variable: Overall Contextual Performance

4.7.2 Task Performance Analysis

Analyses began with task performance, using each sub-dimension for task performance as the dependent variable and adding the factor score for each sub-dimension to calculate an overall task performance factor. Independent variables included the five scores from the personality measure (Neuroticism, Extraversion, Openness to experience, Agreeableness, Conscientiousness). In the first analysis of task performance, the dependent variable was the sub-dimension Job Knowledge. The second analysis of task performance used the sub-dimension Organizational Skills as the dependent variable. The subsequent analysis used the task performance sub-dimension Efficiency as its dependent variable.

4.7.2.1 Personality and Task Performance 1: Job Knowledge

This section presents the results of the multiple regression analysis between the Big Five personality measures and task performance, Job Knowledge. This would ideally
demonstrate what, if any, personality factors are associated with increased Job Knowledge.

Table 4.4 shows the p-values for the five personality variables as individual predictors of task performance, Job Knowledge. None of the five independent variables appear to be significant predictors of job performance based on p-values well over 0.05.

**Table 4. 4 Task Performance 1, Job Knowledge**

<table>
<thead>
<tr>
<th>Model</th>
<th>Coefficientsa</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unstandardized Coefficients</td>
</tr>
<tr>
<td></td>
<td>B</td>
</tr>
<tr>
<td>(Constant)</td>
<td>18.959</td>
</tr>
<tr>
<td>Neuro</td>
<td>.055</td>
</tr>
<tr>
<td>Extraversion</td>
<td>.000</td>
</tr>
<tr>
<td>Openness</td>
<td>.038</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>-.042</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>-.078</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Job Knowledge

### 4.7.2.2 Personality and Task Performance 2: Organizational Skills

Table 4.5 shows the p-values for the five personality variables as individual predictors of task performance, Organizational Skills. Of the Big Five, Conscientiousness is the only independent variable that appears to be a significant predictor of task performance, Organizational Skills (p < 0.001). The Conscientiousness regression seems to indicate that higher Conscientiousness correlates positively with job performance as it relates to Organizational Skills, which is not surprising given that organization is one of the traits used to define Conscientiousness.
Table 4. 5 Task Performance 2, Organizational Skills

<table>
<thead>
<tr>
<th>Model</th>
<th>Coefficients&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>5.698</td>
<td>3.606</td>
</tr>
<tr>
<td></td>
<td>Neuro</td>
<td>.042</td>
<td>.032</td>
</tr>
<tr>
<td></td>
<td>Extraversion</td>
<td>.027</td>
<td>.037</td>
</tr>
<tr>
<td></td>
<td>Openness</td>
<td>.055</td>
<td>.037</td>
</tr>
<tr>
<td></td>
<td>Agreeableness</td>
<td>-.080</td>
<td>.055</td>
</tr>
<tr>
<td></td>
<td>Conscientiousness</td>
<td>.405</td>
<td>.051</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Organizational Skills

4.7.2.3 Personality and Task Performance 3: Efficiency

Table 4.6 shows the p-values for the five personality variables as individual predictors of task performance, Efficiency. Conscientiousness (p=<0.001) and Neuroticism (p=0.008) are both identified as significant predictors of Efficiency. Conscientious people are goal-oriented and self-disciplined. According to the regression model, higher Conscientiousness would see an increase in Efficiency.

The Neuroticism regression, on the other, has a negative correlation with Efficiency. This suggests that the higher the Neuroticism score, the lower the performance related to Efficiency.
Table 4.6 Task Performance 3, Efficiency

<table>
<thead>
<tr>
<th>Model</th>
<th>Coefficientsa</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unstandardized Coefficients</td>
<td>Standardized Coefficients</td>
<td>t</td>
<td>Sig.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>5.957</td>
<td>3.018</td>
<td>1.974</td>
<td>.050</td>
<td></td>
</tr>
<tr>
<td>Neuro</td>
<td>-.073</td>
<td>.027</td>
<td>-.205</td>
<td>-2.698</td>
<td>.008</td>
<td></td>
</tr>
<tr>
<td>Extraversion</td>
<td>-.040</td>
<td>.031</td>
<td>-.098</td>
<td>-1.309</td>
<td>.192</td>
<td></td>
</tr>
<tr>
<td>Openness</td>
<td>.021</td>
<td>.031</td>
<td>.047</td>
<td>.695</td>
<td>.488</td>
<td></td>
</tr>
<tr>
<td>Agreeableness</td>
<td>.016</td>
<td>.046</td>
<td>.025</td>
<td>.350</td>
<td>.727</td>
<td></td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>.166</td>
<td>.043</td>
<td>.292</td>
<td>3.892</td>
<td>&lt;.001</td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: Efficiency

4.7.3 Contextual Performance Analysis

Subsequent analyses for contextual performance followed suit, using each sub-dimension for the dependent variable and adding the factor score for each sub-dimension to calculate a total contextual performance variable. Independent variables included the five scores from the personality measure (Neuroticism, Extraversion, Openness to experience, Agreeableness, Conscientiousness). In the first analysis of contextual performance, the dependent variable was the sub-dimension Persistent Effort. The second analysis of contextual performance used the sub-dimension Cooperation as the dependent variable. The subsequent analysis used the contextual performance sub-dimension Organizational Consciousness (conscientiousness 2) as its dependent variable. Next, Interpersonal and Relational Skills were combined as the dependent variable in the analysis for the last contextual performance sub-dimension.
4.7.3.1 Personality and Contextual Performance 1: Persistent Effort

This section presents the results of the multiple regression analysis between the Big Five personality measures and contextual performance, Persistent Effort. This would ideally demonstrate what, if any, personality factors are associated with increasing Persistent Effort.

Table 4.7 shows the p-values for the five personality variables as individual predictors of Persistent Effort. Analytic results show that Neuroticism (p=.001), Openness (p=.014), and Conscientiousness (p=.002) are all significant predictors of Persistent Effort. Neuroticism has a negative correlation suggesting those who score higher in Neuroticism would report lower job performance related to Persistent Effort.

Table 4.7 Contextual Performance 1, Persistent Effort

<table>
<thead>
<tr>
<th>Model</th>
<th>Coefficientsa</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>13.968</td>
<td>3.403</td>
<td>4.105</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Neuro</td>
<td>-.099</td>
<td>.030</td>
<td>-.232</td>
<td>-3.263</td>
<td>.001</td>
</tr>
<tr>
<td>Extraversion</td>
<td>.054</td>
<td>.034</td>
<td>.110</td>
<td>1.563</td>
<td>.120</td>
</tr>
<tr>
<td>Openness</td>
<td>.086</td>
<td>.035</td>
<td>.158</td>
<td>2.480</td>
<td>.014</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>.050</td>
<td>.052</td>
<td>.064</td>
<td>.968</td>
<td>.334</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>.153</td>
<td>.048</td>
<td>.225</td>
<td>3.192</td>
<td>.002</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Persistent Effort

4.7.3.2 Personality and Contextual Performance 2: Cooperation

Table 4.8 shows the p-values for the five personality variables as individual predictors of Cooperation. Extraversion (p=.009) and Conscientiousness (p=.005) both
have a p-value that indicates significance. This suggests that the higher one’s score for Extraversion and Conscientiousness, the more cooperative they are at work.

Table 4.8 Contextual Performance 2, Cooperation

<table>
<thead>
<tr>
<th>Model</th>
<th>Coefficients&lt;sup&gt;a&lt;/sup&gt;</th>
<th>B</th>
<th>Std. Error</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unstandardized Coefficients</td>
<td></td>
<td></td>
<td>Standardized Coefficients</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>2.092</td>
<td>2.569</td>
<td>.139</td>
<td>.814</td>
<td>.416</td>
</tr>
<tr>
<td></td>
<td>Neuro</td>
<td>.042</td>
<td>.023</td>
<td>.200</td>
<td>1.816</td>
<td>.071</td>
</tr>
<tr>
<td></td>
<td>Extraversion</td>
<td>.069</td>
<td>.026</td>
<td>.200</td>
<td>2.644</td>
<td>.009</td>
</tr>
<tr>
<td></td>
<td>Openness</td>
<td>.041</td>
<td>.026</td>
<td>.108</td>
<td>1.585</td>
<td>.115</td>
</tr>
<tr>
<td></td>
<td>Agreeableness</td>
<td>.077</td>
<td>.039</td>
<td>.139</td>
<td>1.955</td>
<td>.052</td>
</tr>
<tr>
<td></td>
<td>Conscientiousness</td>
<td>.103</td>
<td>.036</td>
<td>.213</td>
<td>2.824</td>
<td>.005</td>
</tr>
</tbody>
</table>

<sup>a</sup> Dependent Variable: Cooperation

4.7.3.3 Personality and Contextual Performance 3: Organizational Conscientiousness

Table 4.9 shows the p-values for the five personality variables as individual predictors of Organizational Conscientiousness (conscientiousness 2). The output from this analysis suggests that Agreeableness (p=<.001) and Conscientiousness (p=<.001) are all significant predictors of Organizational Conscientiousness as it relates to contextual performance. Organizational Conscientiousness is defined in this case as the extent to which individuals refrain from negative performance behaviors such as infractions of work rules and procedures (Carlos & Rodrigues, 2016). These findings suggest that those higher in Conscientiousness and Agreeableness would have higher Organizational Conscientiousness (conscientiousness 2) and, thereby, be better performers.
Table 4. 9 Contextual Performance 3, Organizational Conscientiousness

<table>
<thead>
<tr>
<th>Model</th>
<th>Coefficientsa</th>
<th></th>
<th></th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unstandardized Coefficients</td>
<td>Standardized Coefficients</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>7.868</td>
<td>3.510</td>
<td></td>
<td>2.242</td>
<td>.026</td>
</tr>
<tr>
<td>Neuro</td>
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<td>.031</td>
<td>-.029</td>
<td>-.413</td>
<td>.680</td>
</tr>
<tr>
<td>Extraversion</td>
<td>.029</td>
<td>.036</td>
<td>.058</td>
<td>.825</td>
<td>.411</td>
</tr>
<tr>
<td>Openness</td>
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<td>.036</td>
<td>-.116</td>
<td>-1.819</td>
<td>.070</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>.217</td>
<td>.054</td>
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</tr>
<tr>
<td>Conscientiousness</td>
<td>.224</td>
<td>.050</td>
<td>.318</td>
<td>4.511</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Org Conscientiousness

4.7.3.4 Personality and Contextual Performance 4 and 5: Interpersonal and Relational Skills

Interpersonal and Relational Skills were combined in the job performance measure and were therefore combined in this analysis. Table 4.10 shows the p-values for the five personality variables as individual predictors of Interpersonal and Relational Skills. Extraversion (p=.009) and Openness (p=<.001) are both significant predictors of Interpersonal and Relational Skills. Employees with higher levels of Extraversion and Openness are stronger communicators with more negotiating and conflict-resolution skills.
Table 4. 10 Contextual Performance 4 and 5, Interpersonal and Relational Skills

<table>
<thead>
<tr>
<th>Model</th>
<th>Coefficientsa</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unstandardized Coefficients</td>
<td>Standardized Coefficients</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td>t</td>
<td>Sig.</td>
</tr>
<tr>
<td>1</td>
<td>(Constant)</td>
<td>11.699</td>
<td>2.685</td>
<td>4.358</td>
<td>&lt;.001</td>
</tr>
<tr>
<td></td>
<td>Neuro</td>
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<td>.024</td>
<td>-.092</td>
<td>-1.257</td>
</tr>
<tr>
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<td>Extraversion</td>
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</tr>
<tr>
<td></td>
<td>Openness</td>
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<td>.027</td>
<td>.309</td>
<td>4.711</td>
</tr>
<tr>
<td></td>
<td>Agreeableness</td>
<td>-.079</td>
<td>.041</td>
<td>-.132</td>
<td>-1.937</td>
</tr>
<tr>
<td></td>
<td>Conscientiousness</td>
<td>.069</td>
<td>.038</td>
<td>.132</td>
<td>1.823</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Interpersonal and Relational Skills

4.8 Interactions:

Correlation matrixes showed no linear relationships exist between the independent variables. Therefore, no tests for interactions were performed on these variables. However, several demographic details assessed the effect of personality on job performance relationships. Interaction has been assessed for moderating effects using SPSS Process (the SPSS tool for estimating regression models with moderating effects) with the Big Five as the first level analysis and various demographic variables as the second level analysis.

In addition to the Big Five and data related to self-reported job performance, various demographic variables were collected. Specifically, age, gender, ethnicity, education, employment status, living conditions, remote work arrangements, children living at home, and pets were examined as potential moderators of the relationship between personality and job performance. Moderator variables might affect the relationship between two variables by affecting the direction of the correlation or by
impacting the strength of the relationship between the two variables (Baron & Kenny, 1986; Fairchild & MacKinnon, 2009)

Multiple regression analyses were performed using the command PROCESS (Hayes, 2013) in SPSS to determine whether these variables act as moderators of the relationship between personality and task performance, contextual performance, and overall job performance. Multiple regression analyses are commonly used in quantitative studies to determine the effects of moderating variables (Hayes, 2013; Hayes et al., 2012). The output produced a chart that indicated whether the variables of interest had a significant moderating effect on the relationship between the personality variables and overall job performance.

Research has shown that men might have better performance ratings than women (Bowen et al., 2000). In their 2000 meta-analysis of gender bias on job performance, Bowen, Swim & Jacobs (2000) found significant pro-male biases when only men served as raters for performance appraisal. These researchers also found measure-specific gender stereotypicality (perception a job is masculine or feminine) produced gender bias in performance appraisal. Jobs with perceived masculine measures produced pro-male bias, and jobs with perceived feminine measures produced pro-female bias. There is also research that suggests that younger professionals might have lower job performance ratings than older professionals as a result of experience increasing productivity (Waldman & Avolio, 1986; McEvoy & Cascio, 1989; Lee, 2016; Ng & Feldman, 2008). For this reason, gender and age were examined for moderating effects on the personality-job performance relationship.
Research has also suggested that job tenure could influence performance ratings (Schneider, 1987; Ng & Feldman, 2013). “Human capital theory suggests that as knowledge and skill increase with greater tenure, job performance will improve as well. In contrast, the literature on job design suggests that as job tenure increases, employees are likely to become more bored and less motivated at work” (Ng & Feldman, 2013). Therefore, job tenure was also examined for moderating effects on the personality-job-performance relationship. Table 4.11 shows that no significant moderating effects of these variables were found.

As mentioned in the literature review of this dissertation, the person-environment fit theory suggests that the environment in which employees work can have an impact. Living conditions, including whether the employee was working remotely from a house or an apartment, whether the employee had access to outdoor space during the lockdowns of the pandemic, if children were living at home and if employees had a designated separate working space from common or shared spaces, were also examined for moderating effects. (See Table 4.11).

After conducting a correlation and multiple regression analysis on this data, it was determined that only Access to the outside had a significant moderating effect on the relationship between personality and job performance. Access to the outside, whether in a house or apartment, was found to have a significant positive interaction with a p-value of 0.0074. This could be because exercise has been found to have a positive relationship with job performance (Drannan, 2016).
Table 4.11 Moderating Effects

<table>
<thead>
<tr>
<th>Variable</th>
<th>P Value</th>
<th>Interaction P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
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<td>.1101</td>
</tr>
<tr>
<td>Marital Status</td>
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<td>.6832</td>
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<tr>
<td>Education</td>
<td>.0772</td>
<td>.0979</td>
</tr>
<tr>
<td>Language</td>
<td>.9145</td>
<td>.9499</td>
</tr>
<tr>
<td>Living Arrangements</td>
<td>.4781</td>
<td>.4677</td>
</tr>
<tr>
<td>House/Apt</td>
<td>.5188</td>
<td>.2660</td>
</tr>
<tr>
<td>Separate Workspace</td>
<td>.0953</td>
<td>.5831</td>
</tr>
<tr>
<td>Children</td>
<td>.9144</td>
<td>.8293</td>
</tr>
<tr>
<td>Pets</td>
<td>.0579</td>
<td>.6815</td>
</tr>
<tr>
<td>Access</td>
<td>.0570</td>
<td>.0074</td>
</tr>
</tbody>
</table>

4.9 Semi-Structured Interviews Data Analysis

Qualitative methods allow researchers to include detailed information that cannot always be captured in a survey. “Qualitative research is used to explore, uncover, describe, and understand what lies behind any phenomenon about which maybe little is known” (Cypress, 2015). Open-ended interviews are well-suited to providing an in-depth look at how the pandemic impacted employees after transitioning to remote work and what lessons were learned through this experience. This study included 60-minute open-ended qualitative interviews with managers within the Canada Pension Centre conducted via MS Teams. The researcher gained further knowledge of their experience in a fully remote work environment and how remote work changed the way job performance was managed/maintained by management.

The interviews were recorded, with participant consent, and transcribed using MS Teams functionality. While the survey was available in both English and French, interviews were all conducted in English. Because this data collection consisted
of an open-ended interview, the analysis relied on interpretation, summary, and integration of the transcriptions. This narrative approach to qualitative data collection examined the lived experiences of four managers.

Interview responses were analyzed by identifying and coding themes and sub-themes. The researcher examined the participants’ responses to the guiding questions for commonalities. As the sample size is very small, excel was used to perform this data organization. A combination of deductive and inductive coding was used to analyze the data. Primarily, given that the study was examining relationships between personality and job performance, a list of predetermined codes was developed for these areas. Codes include the Big Five and its facets or descriptors and job performance. Second, an inductive approach to coding was used to identify and create codes that did not relate to personality or job performance. This process was repeated until all common themes in the data were identified and coded.

4.10 Semi-Structured Interviews Findings

Four main themes were identified during the interviews with managers: personality, job performance, flexibility, and training. Managers discussed their experiences, challenges and responses related to each of the four themes. The following subsections present the findings.

4.10.1 Personality

Employees who demonstrated higher Conscientiousness, Openness and Agreeableness were the most desirable. All four managers described the personality of ideal employees as flexible, adaptable, disciplined, and independent. When asked to
describe the personality traits they look for in a good employee, Manager 1 replied, “I want somebody who can… be flexible. You have to be adaptable, and you have to able to really recognize that it is not a one-size fits all approach, especially during Covid-19.” To the same question Manager 3 responded, “Somebody I don’t need to babysit.” These traits are descriptors of the Big Five traits of Conscientiousness, Agreeableness, and Openness. Neuroticism was not mentioned as a desirable trait by any manager.

While all managers mentioned the benefits of socialization and connectivity that hybrid work models (coming into the office for some portion of the work week instead of working fully remotely) offer, only one of the frontline service delivery managers mentioned that the trait of being good with people (a descriptor of Extraversion) as a desirable trait in workers. Manager 4 stated, “Ideally, you are a people person. We are a large team. You are not going to be isolated. It’s a difficult environment for an introvert.” One manager of the support functions said the nature of her work drew introverts to the job because it required very little interaction with others. Manager 2 stated:

“I don’t have a lot of extroverts on my team, and I think that’s what leads them to this type of work. You could be on the same case for two or three years, working kind of in isolation. Of course, your colleagues are always there to bounce ideas off, but they have their own cases.”

While managers mention personality traits as desirable qualities they look for in ideal employees, the hiring process for the federal public service does not formally assess personality traits during the hiring process, focusing instead on reviewing previous experience and testing skills and abilities.
4.10.2 Job Performance

Based on analysis performed by the department, it appears job performance at the organizational level was more important than individual job performance. A request for access to secondary source data on performance for two years prior to the pandemic and the two years during the pandemic revealed that job performance was only tracked at the organizational level. It was measured the same in the fully remote environment as in the pre-pandemic traditional office environment. Manager 4 stated, “We didn’t change our performance measures for the simple reason that the case piece doesn’t change regardless of whether you’re at home or in the office. It’s the measurement tool. It doesn’t change what we do.”

The secondary source data showed consistent performance levels for the two years prior to the pandemic as well as the two years during the pandemic. Concrete and quantifiable measures such as number of calls answered within 180 seconds and initial payments to eligible survivors within 30 days (Canada Pensions Centre, 2023), were in place for the frontline service delivery teams, while more soft measures, such as complaints from clients, were used to assess the performance of support team workers. Individual level performance and soft measures data were not available.

According to managers interviewed, barriers to remote work related to technology and childcare that could have negatively impacted job performance were present during the first few months as the organization transitioned to fully remote work and daycares/schools were closed due to lockdowns. The barriers dissipated over time once technology such as MS Teams and VPN networks were in place and daycares/schools
reopened. When asked if there was a notable difference in the time it was taking for employees to complete their work from home, Manager 4 responded:

“I would say in the first few months. Probably was as people adjusted to getting set up at home. Not everybody had the desk or proper setup. Because, as you know, the first few months were trial and error in the sense that people were trying to figure out, you know, OK, where can I work? What’s the best setup? Can I get my desk ordered? Can it be delivered? Things of that nature. But after I would say three, four months, then things kind of really stabilized to a level that was similar to what was seen in the office because other than something that required, I’m going to say a wet signature, or you know something that you had to have the piece of paper to do something with.”

Challenges related to meeting job performance targets were managed through the introduction of new technology and by allowing employees to work around their childcare issues. The Canada Pension Centre also reassigned resources to where the needs were highest to ensure client service standards were not compromised. As a result of these efforts, the organization was able to maintain its job performance standards during its remote work period.

4.10.3 Flexibility

Flexibility with schedules and with work assignments was the primary tool used to combat barriers. Hours of operation for the organization are Monday to Friday, 8 am to 4 pm from any time zone in Canada, meaning there are employees working until 8 pm in the evening at the Shediac call centre. Managers allowed employees to work flexible
hours to ensure employees worked their workday (7.5 hours per day) while caring for
children at home due to lockdowns. Manager 2 stated, “We told people just work around
it. If you miss two hours in the afternoon because you’re kind of doing homework or just
spending time with your kids, just do it later.” Manager 3, a support function manager,
stated, “We are not bound by any hours. We have the flexibility to choose our own
operating hours. Don’t miss deadlines. Find a way. If you’re going to be away, make
sure you’re talking to your team and someone else can maybe pick up a bit of the slide.”

Flexibility of work assignments was also used to ensure that resources were
maximized to meet client service standards. According to Manager 1, “And we are
flexible. I can tell you that flexibility has been the main, main theme throughout the
entire pandemic.” During the transition period and beyond, employees cross-trained in
different functions were reassigned to assist in teams where performance challenges
appeared. When asked about the use of flexibility in his organization, Manager 4 states,
“Ok. You’re trained for this. Can you go help them with that for, you know, a week or
two? Once, you know, things die down, then we will get you back.”

Performance at the organizational level is monitored regularly, and this data was
used to identify the needs. The secondary source data for performance provided by the
organization confirmed consistent organizational performance, both before and during the
pandemic. All performance indicators tracked by the organization (such as calls
answered within 180 seconds and initial payments to survivors within 30 days) met or
exceeded their performance targets over 95 percent of the time (Canada Pensions Centre,
2023).
4.10.4 Training

Three out of the four managers interviewed experienced trouble in engaging trainees to learn new computer systems and standard operating procedures. However, one manager of the support functions found that the privacy of remote work allowed for longer and more personal in-depth training on complex case files and more access to senior staff who could offer coaching and mentoring to trainees. Manager 2 states, “So Teams was just as effective and probably more effective because you’re not disturbing the others around you when you are trying to interact with that person. You’re instantly available by just looking to see if your button is green.”

The other three managers expressed a different experience. They reported training sessions conducted remotely concluded faster due to lower levels of engagement (lack of questions) by trainees. Manager 4 commented, “Typically, training sessions ended up being shorter. And the reason they were shorter is there were fewer questions. Is it because they understand it or is it that they don’t?” They also noted that retention of the information presented in training sessions was low, often requiring trainees to repeat the training more than once. Manager 4 continued, “There were some folks that we had to send a second time.” Manager 1 shares:

“First of all, they have to learn our system. Brand new employees have to learn the system. They know absolutely nothing. They don’t even know how to log on to our system. And they’re all trying to do that remotely. That employee is not on the right screen, but he’s too shy to tell me. But I’ll never know because he’s not following and, like saying, yeah, yeah, yeah. And everybody knows a casual (employee), you know, when you start in the government as a casual, you always
want to like best foot forward or make a good impression. So, if I’m asking too many questions, will they think that I just don’t get it? So, there was a lot of stuff there that, to me, was like there’s a lot of red flags. We don’t get the opportunity to properly support these people so onboarding to me was a huge thing. We have a whole onboarding program, Ok, at pensions and I mean it’s amazing. But some of the parts of the onboarding plan, it’s hard to do remotely.”

Conclusions from these interviews related to training suggest that remote training is better suited for one-on-one training. Group training remotely appears less efficient and less effective when conducted remotely. This may be the case for very technical and specific training such as specialized software. These types of training may be more suitable for in-person learning experiences as part of a hybrid working model.

4.11 Summary and Conclusion

Chapter 4 presented the analysis related to the following research questions: Does personality predict job performance in fully remote work organizations? Does personality predict task performance in fully remote organizations? Does personality predict contextual performance in fully remote organizations? Based on the Pearson correlation performed on the personality and job performance variables, for the first research question the null hypothesis (collectively, the Big Five do not predict job performance in an entirely remote workforce) was rejected, as there was a significant correlation between personality (specifically, Conscientiousness and Openness) and overall job performance. Concerning the second research question, the null hypothesis (collectively, the Big Five do not predict task performance) was rejected, as there was a
significant correlation between personality (specifically, Conscientiousness and Openness) and task performance. As for the third research question, the null hypothesis (collectively, the Big Five do not predict contextual performance) was also rejected, as there was significant correlation between personality (specifically, Conscientiousness, Openness, Agreeableness and Extraversion) and contextual performance.

Findings showed that some of the independent variables are significant predictors of job performance. After conducting correlation and multiple regression analyses on the data collected, it was discovered that, of the five factors, Conscientiousness had the strongest relationship with overall job performance, task performance, and contextual performance. Openness to experiences was found to correlate positively with overall job performance and contextual performance. Openness to experience is also correlated with task performance. Agreeableness correlated with one sub-dimension of contextual performance (organizational conscientiousness, or conscientiousness 2). No significant findings indicated that the demographic variables moderated the relationship between personality and task performance, contextual performance, or overall job performance, except for Access, the variable used to measure employees’ access to exterior spaces such as yards or balconies. These findings suggest that a person who scores high in Conscientiousness and high in Openness would have the highest job performance scores working fully remotely. Access to the outside had a moderating effect on this relationship and suggested that those who had access to the outside would report even higher job performance scores than those who did not.

Semi-structured interviews conducted with managers of the sample group supported the findings of the survey. Managers identified the traits commonly used to
describe Conscientiousness and Openness as the traits they look for in potential candidates during the hiring interview process. The managers also explained that organizational performance was the primary level of performance measurement within the organization and that they used a variety of management tools, such as flexible working hours or reassignment of work, to ensure organizational performance measures were not impacted by remote work although challenges to remote work were identified in the areas of training and onboarding of new employees. Managers were optimistic that these challenges could be overcome with the adoption of hybrid workplace models that have employees reporting to the workplace for some time such as one to two days a week.
Chapter 5: Conclusion

5.1 Introduction

Chapter 5 will discuss the contributions and limitations of this study. Chapter 5 will also present recommendations for future research. A chapter summary includes the conclusions of this research.

The goal of this research is to gain a deeper understanding of the relationship between personality and job performance in a remote work environment. This study builds on the existing theories and research on interpersonal psychology and organizational behavior. Quantitative methodology was the approach used to examine the predictability of personality as it relates to job performance in a fully remote workforce. At the same time, qualitative semi-structured interviews provided enriched context to understand the results better. Additionally, this study is a means to measure the impact of remote work on the significance of personality variables as predictors. Organizational leaders could use the information from this study to redesign their business delivery models to improve productivity, profitability, and workers’ mental health.

5.2 Contributions

Prior to the pandemic, remote work was not an area of large interest among researchers “as the need of technological development and communication through the Internet and workers’ having sufficient knowledge to perform their work duties online had not yet occurred” (Saura et al., 2022). However, the pandemic accelerated the adaptation of remote work and changed the way we work, likely forever. Since the
pandemic, there has been a growing interest in understanding the impacts and challenges on both organizations and employees in fully remote work situations. While the literature is growing, gaps still exist. Chapter 1 introduced three research questions: Does personality predict job performance in fully remote work organizations? Does personality predict task performance in fully remote organizations? Does personality predict contextual performance in fully remote organizations? Answering these questions enriches the prior personality, job performance and remote work literature. In doing so, this research makes many valuable conceptual, theoretical, and practical contributions. The details of these contributions follow below.

5.2.1 Conceptual Contributions:

(1) Existing research in personality and job performance has primarily focused on traditional office settings (Barrick & Mount, 1991). The originality of this study is bridging the gap in previous research by analyzing personality and its impact on worker outcomes (job performance) in a fully remote organization. Personality research in all-remote workforces is limited, as is post-pandemic research related to personality and job performance. This research is one of the earlier studies to assess personality and its impacts on job performance in an all-remote work environment.

(2) This study adds to the literature by further assessing the moderating effect of various demographic characteristics (age, gender, marital status, children, pets, language, ethnicity, tenure) through which personality impacts job performance in remote workforces, thus explaining the mechanism through which personality can influence job performance.
(3) While other research on personality and remote work conducted during the pandemic exists (MacRae & Sawatzky, 2020, Parra et al., 2022, Gavoille & Hazans, 2022), no other personality research on the Canadian federal government, the largest employer in Canada (GovJobs.ca, 2023), could be found. This study provides insight into an industry that is under-represented in research.

(4) This study was conducted during the height of the pandemic public safety measures which included lockdowns. During this time, there was no access to a central workplace for employees during this period. Post-pandemic has seen a push for employees to return to the office at least part of the time or allowing employees to self-select working either from home or the office, thus ending the period for mandatory fully remote workplaces. This research is one of the limited number of studies that took place during this era providing a glimpse into the impacts of fully remote workplaces.

5.2.2 Theoretical Contributions

The present study integrates two theoretical approaches, trait theory (in particular, the Five Factor Theory) and individual differences theory. Trait theory uses the measurement of various aspects of personality to define patterns of behaviour (Novikova, 2013). The theory suggests that people differ from each other based on the strength of basic trait dimensions. This method allows the identification of trends in large amounts of data and produces factors that are continuous, bipolar, and capable of describing individual differences. (Novikova, 2013). Individual differences theory posits that people differ from one another in their likes, dislikes, and interests. “People of all ages and
sexes differ consistently in their tendencies to be neurotic, agreeable, extravert, open and conscientious” (Dall et al., 2004). These differences determine different behaviours (Chamorro-Premuzic, 2016).

The current study extends the research concerning personality and employee-related outcomes (job performance) by integrating trait theory and individual differences theory. In doing, so it adds to the theoretical development by integrating these two theories with personality and how it fosters job performance in a remote work environment.

The theoretical lens for this study also included person-environment fit theory that supports the explanation of a proposed relationship between job performance and the change of worker environment to all remote workplaces. Person-environment fit, as previously discussed in the literature review section of this study, refers to the level of match between the characteristics of individuals and their work environments (Greguras, 2009). This relationship has been found to influence employee job performance outcomes (Tziner, 1987). Therefore, based on person-environment fit theory, the study intends to ascertain the importance of personality in predicting job performance in remote work organizations. This study will add to the theoretical development by integrating person-environment fit theory with personality trait theory and how it predicts performance.

5.2.3 Practical Contributions

This research has practical implications for both the federal government and other organizations. Findings suggest that remote work may not be suitable for all employees. Personality can change how they behave at work when the context of their
work, such as transitioning to remote work, changes (We et al., 2015). This may create unique management challenges within organizations that wish to continue with remote work now that public safety measures have been lifted. For example, employers face unique challenges related to remote work, such as overemployment (Kelly, 2021) and quiet quitting (Stahl, 2022). Overemployment is when employees work two full-time remote jobs simultaneously, while quiet quitting is when employees are no longer willing to go above and beyond, choosing instead to stay within the scope of their job description.

If we define work as the exchange of one’s labour and time for compensation then these organizationally-directed counterproductive work behaviors (overemployment and quiet quitting) have a negative impact on an organization’s productivity and profits (Robinson & Bennett, 1995, Sackett, 2002). These behaviours could prove very costly for the organization. These counterproductive work behaviors are likely to be influenced by individuals’ personality traits because individuals make conscious choices when engaging in these behaviors (Mount et al., 2006). Therefore, organizations must identify individuals who are more likely to participate in such behaviours to ensure a proper return on their salary investment. Prior research has demonstrated that employees high in Conscientiousness would be less likely to engage in organizationally-directed counterproductive work behaviors (Berry et al., 2007; Bolton et al., 2010). This study supports these findings in a remote work environment.

While some organizations are looking at alternative return-to-work models, such as bringing employees back into the office for a portion of the work week, it is likely that remote work will remain in some capacity long after the lifting of public safety measures.
It may be appealing for organizations to select remote workplace models in order to reduce costs related to space. However, hiring can represent a significant investment in some organizations. This study suggests that the need to consider employee personality in return-to-work designs is increasing with the shift in the way we work. Employees low in Openness tend to like a level of routine that some of these hybrid models of work may not provide. These workers may struggle with working models that are not consistent day-to-day, which could negatively impact both individual and organizational performance and pose employee retention challenges for managers. Ensuring the organization selects and retains the right candidates most suited for a remote work model is essential to maximizing hiring investments. The findings may also validate the need for organizations to consider adapting work models to the specific employee to maximize employee productivity.

The federal public service is one such organization that is recalling its employees to the office for two to three days per week (CBC, 2022). Not all employees are happy with this decision to leave fully-remote work for this new hybrid 40 percent in-person / 60 percent remote work version of the workplace. The employer has taken the position that work location is a management right (CBC, 2022). However, the largest union representing federal workers, the Public Service Alliance of Canada (PSAC), has called for a strike vote making remote work a bargaining issue and potentially an employee right through collective bargaining (PSAC, 2023). Should this shift of power related to remote work occur making remote work a right (either now or in the future), it will become critical for the federal government to adjust its hiring practices to assess the fitness of candidates for remote work in addition to its current merit-based criteria. This
research could assist employers, such as the federal government, in determining or defining the fitness of candidates for remote work and the person-environment fit when defining parameters around a remote work policy. It could also be useful in promoting the benefit of using a personality-trait test for hiring and selection for partial and fully remote work.

Lastly, this study contributes to the research on the effects of the Covid-19 pandemic on organizations. As organizations struggle with the return-to-work and hybrid working models, the findings of this study can help employers design the workplace of the future that considers potential future pandemics. Findings from this study suggest that employees who had access to outdoor spaces during the pandemic reported higher job performance. Employers could use this information to build access to outdoor spaces into future workplace designs or arrange for the rental of spaces that already have such access. They could also consider incentive programs for remote workers, such as bicycle allocations or passes to national parks, to encourage remote workers to access the outdoors.

To conclude, while this research focused on workers within the federal public service, it has practical implications and generalizability for employers across industries. Findings can help employers define how to implement remote work and structure organizational objectives for in-office employees versus remote workers by better understanding the people that work there and integrating this knowledge into their workplace designs and business processes. This research will help employers in hiring and training when engaging a remote workforce. It could help identify what training is needed to strengthen the skills of remote workers and managers of remote workers.
5.3 Limitations of the Study

This study has some notable limitations. One such limitation is the sample being used in this study. While the Federal Government of Canada is a national employer, participants from this study are all located in one region of one department of one employer. The study includes participants limited to one federal government organization that conducted only one type of work in a call center. The study could have limited generalizability due to the inclusion of only federal workers who perform similar work and the exclusion of workers with other roles within the federal government (e.g., computer technicians or financial analysts).

Increasing the geographical range of the study and including workers from other federal government departments could provide increased generalizability of the findings. Regional workers have more involvement with front-line service delivery to citizens than headquarters employees. Additionally, employees in different departments operate differently. These elements could have cultural implications that impact the generalizability of this study’s results to other federal departments or headquarters employees. Further research is recommended; including a sample from the private sector or other regions would assist in furthering our understanding of the generalizability of this study.

This study was limited to using a single source for the collection of data for both independent and dependent measures using a survey as the common medium to simultaneously collect the data. “Method biases are likely to be particularly powerful in studies in which the data for both the predictor and criterion variable are obtained from
the same person in the same measurement context using the same item context and similar item characteristics” (Podsakoff et al., 2003). Current research related to common method variance in Big Five questionnaires is limited (Biderman et al., 2011). Further understanding of the influence of common method bias on this questionnaire could contribute to a more profound understanding of the relationship between the dependent and independent variables.

Another limitation of this study is that all but six participants identified their ethnicity as Caucasian or White, which could impact the generalizability of the study, as other ethnic groups were not equally represented in the sample population. Expanding the region of participants to include a region with higher levels of diversity in its population could address this limitation in future studies.

This study was also conducted over the summer of 2021. This may have impacted the number of survey respondents and limited responses to those who did not have the means to take a vacation during the pandemic period due to public health restrictions or otherwise. The cross-sectional approach may have limitations related to self-evaluated job performance. Ratings could be influenced by job fatigue for those completing the survey before their vacation or from client surges due to pandemic responses outside their control. More studies would be needed to obtain a complete picture to understand the relationship between personality and job performance in fully remote work environments.
5.4 Areas of Further Research

As noted in the limitations section, some of the limitations of this study are related to the single geographic location and the single type of work. This could potentially impact the generalizability of the findings. Future research could focus on research that addresses these limitations and increase the generalizability. For example, Barrick and Mount (1991) found personality to be a valid predictor of job performance across five different occupational groups. With the return to in-person work hybrid models having begun in most industries, research on fully remote organizations will be more difficult. Researchers could instead focus future research on the personality and job performance relationship in remote environments across different occupational groups in hybrid (working partly remote and working partly in the office) work environments. This research could further be expanded to include studies in other cultures to assess the impact culture has on this relationship.

This study was cross-sectional instead of longitudinal. This provided a snapshot of results at a single point early in the lifecycle of this fully remote organization. One way in which the hypotheses of the current study could be examined more completely in future research is to conduct a longitudinal study. It would be beneficial to see if the results found in the study continued steadily over time or if considerations such as stress and isolation from remote work impact job performance over time for different personalities. It would also provide evidence to the debate on whether personality is static or dynamic.

The research in this study was conducted on a fully remote organization. Currently, many employers are considering implementing hybrid models, where
employees return to the office for some portion of the week. Findings from this study suggest that those with low Openness to new experiences may struggle with remote work. It is unclear if the results would be the same in hybrid work models. As hybrid work models become more popular, it will become more critical to understand how Openness contributes to employee performance and the success of this model. More research on the contribution of the personality trait of Openness to the success of employees in hybrid workplaces in differing industries is needed. Such research may ultimately differentiate the ideal employee personality traits for remote-style work over in-office work.

Additionally, as hybrid work models become more popular, more research will be needed on their advantages and disadvantages to workers and employers. Research could extend to include client perspectives on such delivery models. Such insights could provide practical and policy implications for the successful implementation of hybrid work models.

Lastly, the semi-structured interviews revealed some interesting findings related to training employees in a remote work environment. More research into the role personality may play in this dynamic, as well as understanding the difference between group training and one-on-one training, would be a significant contribution to the literature.

5.5 Summary

Remote work is a current and relevant topic in organizational research. As people, employees have some individual personality traits that distinguish them from each other. Some of these traits may make employees more or less suited for fully
remote work. Using the Big 5 (Openness to new experiences, Conscientiousness, Extraversion, Agreeableness, Neuroticism), this dissertation focuses on the relationship between personality and job performance in a fully remote work environment, specifically whether personality is a significant predictor of job performance in fully remote workers.

In this current study, a sample of \((N = 201)\) employees in the Canada Pension Centre completed an online survey to assess the potential relationship between personality and job performance. Additionally, gender, age, ethnicity, religious beliefs, education, and job tenure were examined as potential moderators of the relationship between task performance, contextual performance, and overall job performance.

In predicting job performance, Conscientiousness appears to be the best predictor of success, with a \(p\)-value of \(<0.001\). Those who are higher in Conscientiousness report higher job performance than those who are less conscientious. This result appears valid for both overall task and overall contextual performance as well as overall job performance.

Openness also appears to be a significant predictor of overall job performance with a \(p\)-value of 0.005. Neuroticism, Extraversion and Agreeableness were not significant predictors of overall job performance, even though a significant relationship between Agreeableness and contextual sub-dimension Organizational Conscientiousness (also referred to in this paper as conscientiousness 2) was found, with a \(p\)-value of \(p=<0.001\).

Taken together, these results seem to indicate that employees who score high in Conscientiousness and high in Openness to new experiences demonstrate the best overall
job performance in fully remote work environments. Previous research has consistently shown a relationship between Conscientiousness and job performance (Barrick & Mount, 1991). This research study confirms this relationship continues in the environmental context of remote work. This could be related to conscientious persons being highly organized and finishing important tasks quickly. Coupled with a high ability to tackle new challenges and creative ways to try new things, as those who score high in Openness are often described, there appears to be a combination for success in remote workplaces. These traits were also identified as highly desirable by hiring managers within the Canada Pension Centre. The outcomes of this study revealed that the demographic variables did not have significant moderating effects using the standard p-value < .05, apart from Access, the variable to measure employee access to outdoor space such as a balcony or yard. Access was significant with a p-value of 0.0074.

Most meta-analyses have suggested a positive correlation between Conscientiousness and Openness in the relationship between personality in virtually all types of jobs (Barrick & Mount, 1991; Salgado, 1997; Tett et al., 1991). People who report higher levels of Openness to experience are described as intellectually curious and eager to learn new things. They are more willing to engage in learning opportunities (Barrick et al., 2001). This could explain the positive correlation that appears with job performance within the first year of remote work post-pandemic.

Semi-structured interviews with managers of the Canada Pension Centre were also conducted as part of this study. Findings from these interviews confirmed that managers value the traits associated with Conscientiousness, Openness and Agreeableness in their employees and seek these traits in candidates during the hiring
process. This study focused on job performance at the individual level. However, interviews with managers and supporting secondary source data provided by the organization revealed that job performance was measured at the organizational level and that any issues arising at the individual level were managed with flexibility, such as the realignment of cross-trained employees, to ensure organizational performance was not impacted. The interviews found that onboarding and training new employees remotely was less efficient and more challenging.

Further research is recommended, including a sample from the private sector or another region, perhaps in the north where access to the internet is not as readily available or areas where more diversity in the population can be found. This could assist in the generalizability of findings.

5.6 Conclusion

The transition to all-remote workplaces during the Covid-19 pandemic fueled debate on whether employees are more productive working from home or in traditional workplaces. Now that the pandemic is largely behind us, it is essential to consider what has been learned by practitioners and researchers on how organizations can evolve and innovate moving forward. This study found that there is no one-size-fits-all answer to this debate since some employees are more suited for remote work than others.

Understanding the influence of individual differences on organizational performance outcomes can empower employers to design workplaces of the future that are not simply based on short-term goals such as cost savings or having employees return to the workplace. But instead, the focus can shift to designing spaces that acknowledge
and leverage the influence of these differences on individual performance outcomes to allow for optimal productivity. Organizations must focus on creating workplaces for the future that include consideration for individual differences and implement this in the transition to hybrid workplace models today.
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Appendices

Appendix A  List of Measures

A.1  Personality

Neuroticism (5-point scale of agreement)

\(N(1)\) Anxiety

1. Worry about things.
2. Get stressed out easily.

\(N(2)\) Anger

3. Get angry easily.
4. Lose my temper.

\(N(3)\) Depression

5. Often feel blue.
6. Dislike myself.
N(4) Self-consciousness

7. Find it difficult to approach others.
8. Am easily intimidated.

N(5) Immoderation

9. Rarely overindulge.
10. Am able to control my cravings.

N(6) Vulnerability

11. Remain calm under pressure.
12. Am calm even in tense situations.

Extraversion (5-point scale of agreement)

E(1) Friendliness

E(2) Gregariousness

15. Love large parties.

E(3) Assertiveness

17. Take charge.
18. Try to lead others.

E(4) Activity Level

19. Am always busy.
20. Am always on the go.

E(5) Excitement Seeking

22. Seek adventure.

E(6) Cheerfulness

23. Have a lot of fun.
24. Love life.
Openness (5-point scale of agreement)

O(1) Imagination

25. Have a vivid imagination.
26. Love to daydream.

O(2) Artistic Interests

27. Believe in the importance of art.
28. Do not like art.

O(3) Emotionality

29. Experience my emotions intensely.
30. Am not easily affected by my emotions.

O(4) Adventurous

31. Prefer to stick with things that I know.
32. Don’t like the idea of change.

O(5) Intellect

33. Avoid philosophical discussions.
34. Am not interested in theoretical discussions.
O(6) Liberalism

35. Tend to vote for liberal political candidates.
36. Believe in one true religion.

Agreeableness (Five-point scale of agreement)

A(1) Trust

37. Trust others.
38. Believe that others have good intentions.

A(2) Morality

39. Cheat to get ahead.
40. Take advantage of others.

A(3) Altruism

41. Love to help others.
42. Am concerned about others.

A(4) Cooperation

43. Insult people.
44. Get back at others.
A(5) Modesty

45. Believe that I am better than others.

46. Think highly of myself.

A(6) Sympathy

47. Sympathize with the homeless.

48. Feel sympathy for those who are worse off than myself.

Conscientiousness (Five-point scale of agreement)

C (1) Self-efficacy

49. Handle tasks smoothly.

50. Know how to get things done.

C(2) Orderliness

51. Like to tidy up.

52. Leave a mess in my room.

C(3) Dutifulness

53. Tell the truth.

54. Break my promises.
C(4) Achievement Striving

55. Work hard.
56. Set high standards for myself and others.

C(5) Self-Discipline

57. Carry out my plans.
58. Have difficulty starting tasks.

C(6) Cautiousness

59. Make rash decisions.
60. Act without thinking.
A.2 Performance Measures

The following items were used to assess the performance under two dimensions, task and contextual. Task performance was broken down into three subdimensions, and five sub-dimensions assessed contextual performance. Each item had seven response options, with the middle being neutral.

Task performance

Job knowledge

1. If I need to perform a task that I’m not familiar with, I seek information that allows me to perform it better.
2. I don’t think I could execute my tasks effectively if I didn’t have a certain amount of experience.
3. The way I perform the basic tasks required in my job is not always in agreement with what I’m capable of doing.
4. The way I perform the basic tasks required in my job corresponds completely to the performance that the organization where I work asks from me.

Organizational skills

5. It is not always easy for me to perform tasks on time.
6. When I have a deadline to perform a certain task, I always finish it on time.
7. If I had to perform a task in conjunction with other workers, I would probably be responsible for the planning, organizing, and monitoring of the work to be done.
8. I always leave my tasks to the last minute.
9. I am always aware when there is a lack of the resources (material or human) needed for the efficient performance of the organization.

Efficiency

10. Sometimes, I feel disappointed with my performance at work because I know I could have done better.

11. I consider myself a fundamental worker to the organization I work for due to the high quality of my performance.

12. Receiving feedback (from my subordinates, my colleagues, my supervisor or from the organization) is fundamental in order for me to continue performing my duties with dedication.

Contextual performance

Persistent effort

13. When something is not right at work, I don’t complain because I am afraid that others won’t agree with me.

14. Usually, I take the initiative to give constructive feedback in order to improve the performance of other workers (subordinates, colleagues, supervisor, or workgroups).

15. In the event the organization did not provide the training that I consider necessary to perform my duties effectively, I would seek information from other sources.

16. I’m still able to perform my duties effectively when I’m working under pressure.
17. As soon as I arrive at work, I set aside all my personal problems, so that my performance is not harmed.

**Cooperation**

18. Usually, I dedicate less effort to work when performing a task in conjunction with other people.
19. I am always willing to assist other workers from the organization, even when I don’t have much time available.
20. Usually, I also perform tasks that are not related to my specific duties.

**Organizational conscientiousness**

21. Frequently, I arrive late at work.
22. It’s really difficult for me to miss work, even when I’m feeling sick.
23. I would never adopt actions that could harm the well-being of the other workers.
24. When I think that the goals of the organization conflict with my personal goals, my dedication to work decreases.
25. I take my job really seriously, so I always comply with the rules and procedures imposed (by my supervisor or by the organization), even when no one is around.

**Interpersonal and relational skills**

26. My communication skills are so good that I’m always able to capture everyone’s attention.
27. Communication inside organizations, even in workgroups, is fundamental so that people can perform their tasks effectively.
28. When I write a message to others (other workers or students), I feel a certain difficulty in expressing what I’m thinking.

29. When someone has a different opinion from mine, I usually convince them that my opinion is the best.
A.3 Demographic Measures

1. Gender – What is your gender?
   Male
   Female
   Other

2. Age – Which category below includes your age?
   20 – 30
   31 – 40
   41 – 50
   Over 50

3. Marital Status – What is your marital status?
   Single
   Common-law
   Married
   Separated
   Divorced
   Widowed

4. Education – What is the highest level of school you have completed?
   Highschool
   College diploma
Bachelor’s degree

Master’s degree

Doctorate

5. Ethnicity – Are you a member of a visible minority group? (This group may be defined as someone who is non-white in colour or race, regardless of place of birth. For example, Black, Chinese, Filipino, Japanese, Korean, person of mixed origin (with one parent in one of the viable minority groups on the list), or other visible minority group.

Yes

No

6. You indicated that you are a member of a visible minority. Please select the box(es) that apply to you. (Mark all that apply.)

Black

Chinese

Filipino

Japanese

Korean

South Asian/east Indian

Southeast Asian

Non-white west Asian, North African, or Arab
Non white Latin American
Person of mixed origin
Other visible minority group. Please specify:

7. Language – Which language profile best describes you?
   Anglophone
   Francophone
   Other

8. Working Conditions – Which of the following best describes your living environment?
   Live in apartment without access to outdoor space (i.e. balcony or yard)
   Live in apartment with access to outdoor space (i.e. balcony or yard)
   Live in house

9. Which of the following best describes your remote working arrangement?
   Live alone
   Live with roommates
   Live with partner only
   Live with partner and children
   Live with children only
10. Which best describes your remote office space?
   - Separate office space for each person
   - Shared office space
   - Office in a common space

11. Age of children – What age are you children living at home with you?
   - Boys:
   - Girls:
   - I have no children living at home

12. Pet – How many pets do you have?
   - Dogs:
   - Cats:
   - Other:

13. Employment Status - In total, how many years have you been working in your current position?
   - Less than one year
   - If one or more years, please indicate number of years:

14. In total, how many years have you been working in your current position?
   - Less than one year
   - If one or more years, please indicate number of years:
15. What is your current employee status?

- Indeterminate
- Seasonal
- Term
- Casual
- Student
- Contracted (via temporary help services agency)
- Other (i.e. Minister’s exempt staff). Please specify.

16. Experience working remotely (including telework) in the past – Have you worked remotely in the past?

- Yes, full time
- Yes, part-time
- No, not at all
Appendix B  Participant Communication Material

B.1  Email Invitation and Consent

Subject: Invitation to participate in a research project on personality and job performance in a remote workforce

(date)

Hello,

My name is Sandra Wright, Director General, Modernization within the Receiver General and Pensions Branch, and I am a Ph.D. student in the School of Business at Carleton University. I am working on a research project under the supervision of Prof. Ruth McKay.

I am writing to you today to invite you to participate in a study entitled *Personality and Job Performance in Remote Workforces*. This study aims to assess how transitioning to remote workforces impacts personality’s ability to predict job performance.

This study involves a 20-minute questionnaire related to personality, job performance, and demographic information about workers. We do not anticipate any risks from taking
the survey, nor do we anticipate that you will derive any benefit. Care will be taken to protect your identity. This will be done by keeping all responses anonymous.

Participation in the study is voluntary. You will have the right to end your participation in the study at any time throughout the survey. If you choose to withdraw, all the information you have provided will be destroyed. The results of this study may be published, but the data will be presented so that it will not be possible to identify you. All research data will be encrypted [or password-protected], and any hard copies of data will be kept in a locked cabinet.

By continuing to complete the survey, you acknowledge that you have read and understood this agreement and that you have executed this agreement voluntarily.

Thank you for your support.
Certificate of Completion

This document certifies that

Sandra Wright

has completed the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans Course on Research Ethics (TCPS 2: CORE)

Date of Issue: 2 October, 2018
Appendix D  Linear Regression Model Summaries

D.1 Overall Job Performance

Overall Job Performance

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<th>Model</th>
<th>R</th>
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<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Durbin-Watson</th>
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a. Predictors: (Constant), Conscientiousness, Openness, Agreeableness, Extraversion, Neuroticism
b. Dependent Variable: Overall Job Performance

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<tr>
<th>Model</th>
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a. Dependent Variable: Overall Job Performance
b. Predictors: (Constant), Conscientiousness, Openness, Agreeableness, Extraversion, Neuroticism

Overall Task Performance

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<tr>
<th>Model</th>
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<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
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a. Predictors: (Constant), Conscientiousness, Openness, Agreeableness, Extraversion, Neuroticism
b. Dependent Variable: Overall Task Performance

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<th>Mean Square</th>
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a. Dependent Variable: Overall Task Performance
b. Predictors: (Constant), Conscientiousness, Openness, Agreeableness, Extraversion, Neuroticism
Overall Contextual Performance

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<th>Model</th>
<th>R</th>
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<th>Durbin-Watson</th>
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\(^a\) Predictors: (Constant), Conscientiousness, Openness, Agreeableness, Extraversion, Neuroticism
\(^b\) Dependent Variable: Overall Contextual

ANOVA\(^a\)

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<th>Model</th>
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\(^a\) Dependent Variable: Overall Contextual
\(^b\) Predictors: (Constant), Conscientiousness, Openness, Agreeableness, Extraversion, Neuroticism

D.2 Task Performance

Task Performance 1: Job Knowledge

<table>
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<tr>
<th>Model</th>
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<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Durbin-Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.242(^a)</td>
<td>.059</td>
<td>.034</td>
<td>2.977</td>
<td>1.78</td>
</tr>
</tbody>
</table>

\(^a\) Predictors: (Constant), Conscientiousness, Openness, Agreeableness, Extraversion, Neuroticism
\(^b\) Dependent Variable: Job Knowledge

ANOVA\(^a\)

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Regression</td>
<td>104.088</td>
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<td>20.818</td>
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<td>.043(^b)</td>
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<td>Total</td>
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\(^a\) Dependent Variable: Job Knowledge
\(^b\) Predictors: (Constant), Conscientiousness, Openness, Agreeableness, Extraversion, Neuroticism
Task Performance 2: Organizational Skills

**Model Summary**

<table>
<thead>
<tr>
<th>Model</th>
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<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Durbin-Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.528&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.279</td>
<td>0.260</td>
<td>3.454</td>
<td>2.066</td>
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</tbody>
</table>

a. Predictors: (Constant), Conscientiousness, Openness, Agreeableness, Extraversion, Neuroticism
b. Dependent Variable: Organizational Skills

**ANOVA**

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
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</thead>
<tbody>
<tr>
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<td>178.338</td>
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</table>

a. Dependent Variable: Organizational Skills
b. Predictors: (Constant), Conscientiousness, Openness, Agreeableness, Extraversion, Neuroticism

Task Performance 3: Efficiency

**Model Summary**

<table>
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<tr>
<th>Model</th>
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<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Durbin-Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.402&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.161</td>
<td>0.140</td>
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<td>1.978</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Conscientiousness, Openness, Agreeableness, Extraversion, Neuroticism
b. Dependent Variable: Efficiency

**ANOVA**

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
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<th>F</th>
<th>Sig.</th>
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</thead>
<tbody>
<tr>
<td>1</td>
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</table>

a. Dependent Variable: Efficiency
b. Predictors: (Constant), Conscientiousness, Openness, Agreeableness, Extraversion, Neuroticism
### D.3 Contextual Performance

#### Contextual Performance 1: Persistent Effort

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Durbin-Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>.261</td>
<td>.242</td>
<td>3.260</td>
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</table>

<sup>a</sup> Predictors: (Constant), Conscientiousness, Openness, Agreeableness, Extraversion, Neuroticism  
<sup>b</sup> Dependent Variable: Persistent Effort

#### ANOVA<sup>a</sup>

<table>
<thead>
<tr>
<th>Model</th>
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<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
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<tbody>
<tr>
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<td>Total</td>
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</table>

<sup>a</sup> Dependent Variable: Persistent Effort  
<sup>b</sup> Predictors: (Constant), Conscientiousness, Openness, Agreeableness, Extraversion, Neuroticism

#### Contextual Performance 2: Cooperation

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Durbin-Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.389&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.151</td>
<td>.129</td>
<td>2.461</td>
<td>2.117</td>
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</tbody>
</table>

<sup>a</sup> Predictors: (Constant), Conscientiousness, Openness, Agreeableness, Extraversion, Neuroticism  
<sup>b</sup> Dependent Variable: Cooperation

#### ANOVA<sup>a</sup>

<table>
<thead>
<tr>
<th>Model</th>
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<tr>
<td>1</td>
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<td>1377.196</td>
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<sup>a</sup> Dependent Variable: Cooperation  
<sup>b</sup> Predictors: (Constant), Conscientiousness, Openness, Agreeableness, Extraversion, Neuroticism
Contextual Performance 3: Organizational Conscientiousness

Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
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<th>Durbin-Watson</th>
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<tr>
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a. Predictors: (Constant), Conscientiousness, Openness, Agreeableness, Extraversion, Neuroticism
b. Dependent Variable: Organizational Conscientiousness

ANOVA

<table>
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<tr>
<th>Model</th>
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<th>Sig.</th>
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a. Dependent Variable: Organizational Conscientiousness
b. Predictors: (Constant), Conscientiousness, Openness, Agreeableness, Extraversion, Neuroticism

Contextual Performance 4 and 5: Interpersonal and Relational Skills

Model Summary

<table>
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<tr>
<th>Model</th>
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<th>Durbin-Watson</th>
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<tr>
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a. Predictors: (Constant), Conscientiousness, Openness, Agreeableness, Extraversion, Neuroticism
b. Dependent Variable: Interpersonal and Relational Skills

ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
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<th>Mean Square</th>
<th>F</th>
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</table>

a. Dependent Variable: Interpersonal and Relational Skills
b. Predictors: (Constant), Conscientiousness, Openness, Agreeableness, Extraversion, Neuroticism