The Employee Wellbeing in Face-to-face and Virtual work: An Exploration of the Role of SMART Work Design

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Compulsory Declaration:

This work has not been previously submitted in whole, or in part, for the award of any degree. It is my own work. Each significant contribution to, and quotation in, this dissertation from the work, or works of other people has been attributed, cited and referenced.

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Abstract

The purpose of this study was to assess to what degree SMART work design and its individual dimensions can predict wellbeing, and the relative importance of the five dimensions (stimulation, mastery, agency, relationship, tolerable demands) in predicting wellbeing, amongst individuals working either mostly face-to-face or virtually. The descriptive, online-survey study recruited participants ($N = 160$) with purposive and snowball sampling techniques. Regression results, as expected, revealed that SMART work design was a significant predictor for wellbeing in both working modes. Only mastery and tolerable demands predicted unique variance in the wellbeing of employees working mostly face-to-face ($N = 109$) and tolerable demands was the only predictor explaining unique variance in mostly virtually working employees' wellbeing ($N = 51$). Relative weight analysis revealed that these differences resulted from the different sample sizes as the relative importance of the five SMART work design dimensions did not differ significantly across the two working modes. The study results suggested that it might be beneficial for organisations to allocate appropriate resources to create work which meets SMART work design standards regardless of employees' working mode to improve employee wellbeing.

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Chapter 1: Introduction

The Covid-19 pandemic has rapidly changed the work landscape. The number of employers who allowed office workers to work remotely in the virtual space through advanced technology increased substantially (Klonek & Parker, 2021; Venkatesh, 2020). Many more virtual team members that are geographically dispersed can now work anytime from anywhere (Klonek & Parker, 2021). European Foundation for the Improvement of Living and Working Conditions (2020) reported that in Europe 50 percent of workers have at least worked one day per week on which they work remotely. Virtual work is not a new phenomenon, of course. Virtual work arrangements, such as computer-mediated work and virtual teams, have been increasing steadily over the last 20 years (Klonek & Parker, 2021). In 2016, 85 percent of global workers engaged in some sort of virtual teamwork (Solomon, 2016). Online tools, such as email, instant messages, and video calls, allow virtual team members to cooperate and perform tasks, communicate, and interact remotely (Ågerfalk et al., 2020; Bailey & Breslin, 2021; Waizenegger et al., 2020).

The adoption of technology-facilitated remote work had been found to provide many advantages. It had reduced burnout, increased job satisfaction and worker autonomy (Felstead, & Henseke, 2017; Thompson, 2018; Vartiainen, 2012). This might explain why recent research suggests that only 37% of all employees who worked virtually during the Covid-19 pandemic wish to return to the office permanently (Alexander et al., 2021). It is important to note, however, that virtual work also creates challenges for virtual teams and psychological risks for workers (Parker, 2022). Scholars had indicated even pre-Covid, for example, that compared to working face-to-face (FTF), less attention has been paid to the effects of socio-emotional aspects which might be different in virtual teams, such as trust, shared responsibility, collaboration, communication, social isolation and wellbeing (Aritz et al., 2018; Wei et al., 2018, Yu et al., 2012).

Evidence exists that virtual team members tend to behave in a more hostile, inhibited and impersonal manner as a result of social isolation, feelings of exclusion, a lack of clarity, misunderstanding, mistrust, increased work demands and a tendency of low empathy (Gamero et al., 2021; Parker, 2022; Yu, et al., 2012). A recent study conducted in the United Kingdom (UK) revealed that mistrust is problematic as it poses health risks (Breakwell, 2020). Further research suggested that individuals may experience guilt and overwork to reciprocate their permitted flexibility when working remotely. This might be one of the reasons as to why

employees have reported feeling burnt out, overloaded with work, less engaged, lonely and isolated when fully working remotely (Gamero et al., 2021). Working remotely has also blurred the boundaries between work and non-work life. When individuals receive and attend to work messages or emails after working hours, emotional exhaustion and stress may be the result (Chesley, 2014; Tedone, 2022). Therefore, working virtually via information and communication technology can create stressors that impact negatively on employees' mental health and wellbeing (Gilson et al., 2015; Tarafdar & Stich, 2021). It is, thus, not surprising that approximately 9% of people wanted to commit suicide, 20% of people reported moderate to severe anxiety symptoms, and 26% of people reported moderate to severe depression symptoms in a UK study during the Covid-19 pandemic in 2020 (O'Connor et al., 2021). Employers should be aware of employees' wellbeing, as this can affect their productivity, performance and absenteeism in the workplace (Isham, et al., 2021; Soane et al., 2013; Warr & Nielsen, 2018).

It is possible that part of the negative consequences of virtual work on employees' wellbeing could be ameliorated if greater emphasis was placed on how virtual workplaces are designed. This is because in physical workplaces specific elements of work design have been found to relate to higher employee performance and wellbeing. Klonek and Parker (2021), for example, found that work needs to be designed "SMART", that is work needs to be perceived as stimulating, promoting mastery, allowing people agency, fostering relationships and as having tolerable demands. The SMART framework was developed through reviewing the literature on existing work design factors and models (Klonek & Parker, 2021; Parker, 2022). This makes the SMART work design model the most comprehensive work design model.

However, to date, research has only established that SMART work design is related to employee wellbeing and performance across employees in government organisations and public healthcare institutions (Hay, et al., 2020; Klonek & Parker, 2021). Thus, this study sought to examine if SMART work design also relates to wellbeing amongst employees working across industries. This study focused only on employee wellbeing, not on performance, as it would be unlikely that organisations would disclose employees' performance data to external researchers, and as subjective performance judgements tend to be inaccurate (Beget al., 2021; Gong et al, 2021).

Although all five features of the SMART framework are seen as indispensable when designing work that creates conducive conditions for employee wellbeing, Klonek and Parker (2021) suggested that the relative importance of each indicator might differ across industries. The same is likely to be the case in different working modes, i.e. whether work is conducted

mostly FTF, or virtually, as outlined above. Given this context, the following research question was developed.

1.1 Research Question

> To what extent do the five dimensions of SMART work design together and individually predict wellbeing amongst employees working predominantly virtually compared to those working mostly face-to-face?

1.2 Structure of the Dissertation

This chapter introduced the study, provided its rationale and research question. The following chapter provides an in-depth review of the SMART work design framework and related research findings which were used to derive tentative answers to the research question. These are presented in the form of hypotheses at the end of the chapter. Subsequently, the Methods chapter outlines the research design, the sampling approach and participants, the measures used to collect data and the statistical analyses adopted. It also includes a discussion of ethical considerations in relation to the study. The Results chapter presents the empirical research findings. The results are interpreted against existing literature in the Discussion chapter and plausible reasons for the findings obtained are provided. The chapter concludes with an overview of the study's practical and theoretical implications, followed by an outline of the study's limitations and recommendations for future research. The dissertation ends with an overarching conclusion.

Chapter 2: Literature Review

The following literature review provides a general overview of existing models on effective work design. The SMART work design model (Parker & Klonerk, 2021) and its individual dimensions are presented in greater depth as the model forms the theoretical foundation for this research. Subsequently, an overview of the wellbeing construct is provided, and research relating to wellbeing is reviewed. A specific focus is placed on research which considered wellbeing as an outcome of SMART work design. Finally, differences between working FTF and virtually are outlined, followed by a review of the relative importance of the five individual dimensions of SMART work design in predicting wellbeing across individuals working in either of the two work modes. This chapter concludes with the conceptual framework for this study and the associated study hypotheses.

2.1 Models of "Good" Work Design

Parker (2014) refers to work design as the organisation and content of a person's work responsibilities, activities, tasks, and relationships. Theoretical work design models and empirical research have identified multiple key job characteristics that define well-designed work and the positive outcomes which arise from these job characteristics for both, organisations and employees. Outcomes can include but are not limited to wellbeing, harm prevention, and increased productivity (Klonek & Parker, 2021). This shows that the way in which work is designed can impact how individuals feel and behave at work. According to Knight et al. (2021), good work design refers to jobs that are designed with high levels of specific job characteristics, such as autonomy, feedback and social support, and with moderate job demands, such as role conflict, ambiguity and workload. Good work design may result in work outcomes such as organizational commitment, wellbeing, job satisfaction, and job performance.

In their 2017 article on one hundred years of work design research, Parker, Morgeson and Johns outlined Autonomous Work Groups (AWGs; Cummings, 1978), the Job Characteristic Model (JCM; Hackman & Oldham, 1976), the Job Demand-Control model (JDC; Karasek, 1979), and the Job Demand-Resource model (JDR; Demerouti et al., 2001) as the most influential work design models in history. Each of these is briefly outlined in the following sections.

2.1.1 Autonomous Work Group

AWGs refer to self-managing teams or semiautonomous groups. These teams perform tasks with autonomy over how and when work is completed and how members' various skills are used. Another key feature found in AWGs is interdependence, meaning that team members work together and rely on each other to carry out a whole task (Cummings, 1978; Kiggundu, 1983). Although some research suggested that AWGs may have positive outcomes, such as increased satisfaction and wellbeing (e.g. Church et al., 2013; Gallie, 2013), other studies found undesirable outcomes, such as a decrease in productivity (Wall et al., 1986). Despite mixed results regarding AWGs, the concept of AWGs is still widely spread across the globe (e.g. Church et al., 2013; Gallie, 2013; Miranda, 2015; Parker et al., 2017; van den Tooren & de Jong, 2014; Yu et al., 2018).

2.1.2 Job Characteristics Model

Parker et al. (2017) described Hackman and Oldham's (1975, 1976, 1980) JCM model as the most influential work design model thus far. JCM was the most dominant work design model for many years and Hackman and Oldham's article (1975) is the 2nd most highly cited article in the Journal of Applied Psychology (JAP) where it was published (Parker et al., 2017).

Hackman and Oldham (1976) suggested that skill variety, task identity, task significance, autonomy, and feedback from the job itself are five key characteristics, which lead to critical psychological states that can result in a set of work and individual outcomes (Hackman & Oldham, 1975). Skill variety refers to the diversity of skills one is required to perform to complete a task (Hackman & Oldham, 1980). Task identity refers to an individual being able to perform an intact task, for instance providing a complete unit of service, instead of pieces or parts of it (Hackman & Oldham, 1980). Task significance refers to the extent to which one's job impacts others' lives or work, whether outside or inside an organisation (Hackman & Oldham, 1975). Autonomy refers to the degree of independence and freedom one has about how to carry out one's tasks (Hackman & Oldham, 1975). Feedback from the job refers to the degree to which the job itself provides clear information regarding how well tasks have been executed (Hackman & Oldham, 1976). These job characteristics can lead to three psychological states, namely experiencing work meaningfulness, being responsible of the work outcomes, and having knowledge of the actual results of their work activities. The outcomes of these psychological states include intrinsic motivation, job performance, and satisfaction (Fried & Ferris, 1987; Humphrey et al., 2007; Loher et al., 1985; Morgeson et al., 2012).

2.1.3 Job Demand-Control Model

Karasek (1979) argued that AWGs and the JCM considered how to design jobs to be motivating, but ignored work demands and their impact on mental and physical health. Thus, Karasek (1979) proposed the JDC model. The JDC model used the interaction between job control and demands to predict job strains. Job control refers to one's potential control over tasks and conducts during work, such as creativity, allowing freedom, and making decisions (Karasek, 1979). Job demands refer to the work features, such as high workload and time pressure, that can become psychological stressors when finishing a task (Karasek, 1979). The model suggested that when a job has high demands and low control, it is a high-strain job. When a job includes high control and low demands, it is a low-strain job. Job control can reduce the negative impacts that job demands can cause, such as stress and burnout, meanwhile, strain increases when job demands increase and one's control decreases (Crawford et al., 2010; Karasek, 1979). Subsequently, Karasek and Theorell (1990) discerned that social support at work also buffers the effect that job demands cause.

2.1.4 Job Demand-Resource Model

In 2001, Demerouti et al. introduced the JDR model, which suggested that there are specific risk factors associated with job stress. These factors can be separated into two general categories, job resources and job demands. Job demands, such as work pressure, refer to the jobs' psychological, social, or physical aspects that require sustained psychological or physical effort or skills and are, therefore, related to certain psychological or physiological costs. Job resources, such as feedback and autonomy, refer to aspects of the job that either stimulate personal growth, are functional in achieving work goals or reduce job demands.

The JDR model is widely used in work design research (e.g. Schaufeli & Taris, 2014). According to Parker et al. (2017), Demerouti et al.'s (2001) article is the 9th most highly cited JAP work design article of all time. The JDR model advances the JDC model in two ways (Parker et al., 2017). The JDR model does not only consider control but also other work features, such as autonomy and feedback, which serve as resources to enable achievements, stimulate growth and counter negative effects from job demands (Demerouti et al., 2001; Nahrgang et al., 2011). Secondly, the JDR model actively incorporated both, motivation and strain, into explaining job and organisational-related outcomes. This model pinpointed that job resources enable motivation, which leads to high performance, whereas job demands cause strain, which impairs health (Demerouti et al., 2001).

2.2 SMART Work Design

Drawing on the extensive literature on key work design theories and job characteristics, Parker (2022) introduced the SMART work design model. It is a theoretical framework that synthesises good work design practices and literature, based on a higher-order factor analysis of more than 20 job characteristics, comprising five higher-order elements: Stimulating work, Mastery, Agency, Relational aspects, and Tolerable demands. An overview of each dimension is provided in Sections 2.2.1 to 2.2.5.

The SMART work model is an elaboration of Bakker and Demerouti's (2007) JDR model and proposes strategies on how to expand job resources and reduce job demands (Klonek & Parker, 2021). Key strategies to expand job resources are creating jobs which enable stimulation, mastery, agency, and are relational. These are also the first four letters in the SMART work design model. The last letter "T" stands for tolerable demands, that is that time, physical, emotional and cognitive demands must be kept at adequate levels. SMART work design optimises work design to enable work to become meaningful, motivating and interesting, which are psychological states explained by Hackman & Oldham (1976), that can benefit both, employers and employees, such as through employees being more engaged and innovative (Klonek & Parker, 2021). It is also specifically related to positive effects by preventing harm, enhancing wellbeing and increasing productivity (Parker, 2014). The following sections outline the five core components of the SMART work design model in detail.

2.2.1 Stimulation

The first letter in the SMART framework stands for "stimulation". Stimulation refers to the extent that a job includes task variety, skill variety, and creativity (Klonek & Parker, 2021). Stimulating jobs require individuals to carry out multiple tasks to fulfil their goals, utilize different skills to finish their work and be creative when solving problems (Klonek & Parker, 2021). If jobs are not stimulating, individuals are more likely to get bored as jobs then tend to be repetitive, require solving unchallenging problems, and lack opportunities to utilise one's skills (Centre For Transformative Work Design, n.d.a). When work is unstimulating, boring and repetitive, employees may have lower job satisfaction, become disengaged or have lower opportunity for personal development (Parker, 2014). Employees can feel demotivated, sad, and anxious, in unstimulating roles that is acquire "bore-out", which leads to depression and burnout (Centre For Transformative Work Design, n.d.a; Loukidou et al., 2009). Organisations with repetitive, passive, or narrow work may be at risk of wasting talents, of

impaired performance, and high turnover and absenteeism rates (Bakker et al., 2003; Centre For Transformative Work Design, n.d.a).

2.2.2 Mastery

The second letter in the SMART work design model stands for "mastery". Mastery refers to jobs that have task identity, role clarity and provide feedback through the tasks performed (Klonek & Parker, 2021). In line with Hackman and Oldham's (1975) conceptualisation, task identity is defined as the degree that an individual can execute a task from the beginning to end (Centre For Transformative Work Design, n.d.b). High levels of task identity may allow one to finish a job with visible outcomes, in contrast, a low level may allow one to only work on fragments of a job without identifiable outcomes (Centre For Transformative Work Design, n.d.b).

Role clarity refers to the degree that an individual understands what is expected from them, the things that need to be done and why (Centre For Transformative Work Design, n.d.b). High role clarity in a team means that there is no confusion on how the work needs to be accomplished, who is doing what part of the work, what is expected from each team member, and whether all members have sufficient information to perform their role (Klonek & Parker, 2021). Guidelines can help team members to achieve a high level of role clarity (Klonek & Parker, 2021). In other words, ambiguous roles result from a lack of information, which leads employees to be uncertain about the job objectives, their roles and associated responsibilities (Schmidt et al. 2014). Research has shown that trust and coordination can be enhanced when the level of role clarity is high in teams (Klonek & Parker, 2021).

According to Klonek and Parker (2021), feedback can come from not only the clients, peers or supervisors who recognize the work but also from the job itself providing clear information on performance, which may allow the individual to know which strategies are effective and to gain comprehensive skills and knowledge. In their article, they suggested that regular feedback provides a positive effect on team functioning in both virtual and non-virtual teams. Instead of just giving out overall performance scores, detailed sources of the error would enable a team to improve, which eventually increases performance. For instance, when feedback from peers is provided to virtual team members on how they plan, communicate and set goals, it relates to higher performance and better strategies for conflict management. In summation, for individuals, low-mastery jobs can result in job dissatisfaction, poor wellbeing, job stress, turnover or even failure to learn. For organisations, this may impair their

performance, have a lack of agility, and causes inefficiency (Centre For Transformative Work Design, n.d.b).

2.2.3 Agency

The third letter in the SMART work design model stands for "agency". Agency refers to the degree to which an individual has the autonomy to schedule their work, make decisions about their tasks, and choose the method to finish the tasks. Agency and autonomy can be used interchangeably (Klonek & Parker, 2021). In the SMART model the word "agency" was used as in western Australia, where the SMART work design model was developed, people often use the term autonomy to refer to autonomous mining instead of human autonomy (Parker, 2022a).

Teams with high levels of autonomy are referred to as self-managed teams, in which members coordinate their own responsibilities, such as evaluating their own progress and performance, and distributing their own tasks. Teams with high levels of autonomy can make decisions and plan work activities in their preferred way, which enables them to feel more empowered. Contrarily, teams with a low level of autonomy may experience less flexibility (Centre For Transformative Work Design, n.d.c; Klonek & Parker, 2021). Team members may not be able to provide input on their tasks and schedule their courses of action to finish the tasks. Research has shown that overly restricted autonomy for an individual may possess a higher risk of affecting mental health, decreased employee engagement, lower productivity and proactivity (Parker, 2014).

2.2.4 Relational

The fourth letter in SMART work design stands for "relational". According to Klonek and Parker (2021), and Centre For Transformative Work Design (n.d.d), relational refers to the extent that a team collectively experiences a sense of support, social contact and purpose. In their studies, they suggested that it reflects the levels of tasks that are interdependence and relationship-building within a team in the social work environment. Interdependence stands for the degree that a workflow is designed in a way that team members need to coordinate and get critical resources from each other to finish their own tasks. Interdependent work encourages members within a team to cooperate, communicate, and support each other, which enhances the collective perception of team efficacy and identity Social support can come from different parties, such as team leaders, or other members. Relationship building means that members of a team encourage contributions from individuals, help others frequently, and recognize

accomplishments from a team. Teams with high levels of relationship building can allow members to feel that they are having chances to meet others, developing friendships with others, and getting support from others.

2.2.5 Tolerable Demands

The last letter in the SMART work design model represents "tolerable demands". Tolerable demands refer to job demands that are tolerable for employees (Klonek & Parker, 2021). In line with Karasek's (1979) and Demerouti et al.'s (2001) conceptualisations, job demands refer to the continuous psychological or physical efforts, such as emotional demands, time pressure, and role conflicts. Time pressure refers to the amount of time required to complete adequate work (Klonek & Parker, 2021). Emotional demands stem from situations that are emotionally and cognitively demanding (Centre For Transformative Work Design, n.d.e). Role conflict arises when there are inconsistent feedback, instructions, and demands (Centre For Transformative Work Design, n.d.e).

It is important to ensure that work demands are at a tolerable level as work demands can have psychological costs, such as emotional stress, and physical cost, such as being physically tired (Klonek & Parker, 2021). This component is included in the SMART work design model because when demands exceed one's tolerance, there may be negative consequences, such as individuals feeling burnt out and strained, that decrease productivity and performance (Centre For Transformative Work Design, n.d.e; Parker, 2014). For instance, high psychological demands may be experienced in customer service teams as employees may experience frequent client complaints, meanwhile, high physical demands may be seen in car manufacturing companies as employees require physical strength for an extended time (Klonek & Parker, 2021). Thus, it is critical for managers to ensure that job demands should not excessive in the work environment.

To sum up, the SMART work design model was chosen as work design framework for this study as it is the most comprehensive work design model and considers the most job characteristics that constitute a good work design. It is also a work design model that was formed to ensure meaningful, motivating and interesting work which can ultimately increase employees' wellbeing (Parker, 2014). The concept of wellbeing is outlined in the following section.

2.3 Wellbeing

There is an agreement among practitioners and researchers that workplace well-being should be valued, as it is important not only for the employee but also for organisational success (Kowalski & Loretto, 2017). Empirical research on wellbeing is concerned with individuals' subjective experiences of their lives (Kusier & Folker, 2020). It is based on the assumption that wellbeing can be defined by people's conscious experience in terms of their emotions and cognitive satisfaction, and that individuals can evaluate the extent to which they experience wellbeing (Angner, 2010; Deci & Ryan, 2008). Thus, wellbeing, in this context, is defined by individuals' subjective judgements and emotions, rather than by objective circumstances, such as nature of employment, living conditions, or income (Kusier & Folker, 2020). Hence, regardless of potential disabilities or dysfunctions, people are still able to report positive wellbeing. In psychology, wellbeing is predominantly studied and measured as a psychological state and is often referred to as "subjective wellbeing" (Kusier & Folker, 2020).

To date, the definition and concept of wellbeing are still controversial as there is no one single construct that is agreed-upon by scholars (Kusier & Folker, 2020). There are two dominant contemporary philosophical views that explain wellbeing: hedonism and eudaimonism (Kahneman et al., 1999). Hedonism suggested that wellbeing consists of the experiences of pleasant emotions and feelings, such as happiness. Research on emotional wellbeing reflected on the affective aspects of hedonism, but it includes the satisfying cognitive appraisal of life and the positive balance of affects which can range from pleasant to unpleasant (Dodge et al., 2012; Diener et al., 1999; Keyes, 2009). Eudaimonism focused on the optimal functioning of social and individual life, which are the psychological and social aspects of wellbeing that individuals consider when they see evaluate if they are functioning well and have purpose in their life (Keyes, 1998; Waterman, 1993).

Affiliated with the philosophical principles are different constructs and approaches of psychological and subjective wellbeing. Diener (1984) proposed that subjective wellbeing is a construct comprising three components, namely life satisfaction - related to functioning, positive affect and negative affect - related to emotions. Ryff (1989) proposed that psychological wellbeing constitutes six dimensions, namely autonomy, positive relations with others, self-acceptance, personal growth, environmental mastery, and purpose in life. Seligman (2011) proposed that wellbeing comprises five dimensions, namely positive emotions, engagement, relationships, meaning and accomplishments. The World Health Organisation (WHO) (2021) proposed that wellbeing is a positive state experienced by individuals and

societies. It is a resource for daily life and is determined by economic, environmental, and social conditions.

As the WHO's definition of wellbeing is the most contemporary and it considers the contextual factors in which affective states of positive or negative emotions are more sensitive to, such as social relations and job-related pressures (Kusier & Folker, 2020), the current study will, thus, adopt the concept proposed by the WHO. Moreover, it is important to note that wellbeing derives from the pleasure obtained from pleasant things - not the pleasant things themselves. For instance, eating ice cream may be pleasant, however, eating ice cream may not be intrinsically good. It is the pleasure experience derived from eating ice cream that contributes to one's wellbeing. Similarly, the current study considered if work designs that are SMART would enable people to feel the pleasure that can contribute towards their perceived wellbeing.

2.4 SMART Work Design and Wellbeing

A body of literature has linked the job characteristics included in the SMART work design model to well-being. This subsection first outlines the different associations found in empirical studies regarding each dimension and wellbeing, followed by the relationship between SMART work design and wellbeing.

2.4.1 Stimulating and Wellbeing

Based on the SMART work design model, stimulating jobs, that is jobs which offer skill variety, task variety, creativity or require problem-solving skills, can prevent harm in work and, thus, increase employees' wellbeing (Klonek & Parker, 2021). According to Hackman and Oldham's (1976) JCM, individuals working with various tasks and different skills tend to find meaningfulness in work, which increases their wellbeing. Research has supported the concept that task and skill varieties do, indeed, increase employees' overall wellbeing (e.g. Binder & Blankenberg, 2022; Humphrey et al., 2007). Helzer and Kim's (2019) research demonstrated initial evidence of creativity on solving problems as a resource for wellbeing and they advocated for organisations to promote creativity among employees to maintain their wellbeing. Moreover, Cameron et al. (2013) found a similar result that the more employees participated or engaged in creative activities, the more likely it was to lead to well-being. Although empirical evidence demonstrated that skill variety, task variety, and creativity

individually relate to wellbeing, respectively, there is still no evidence that stimulating work as a higher construct combining skill variety, task variety and creativity to wellbeing.

2.4.2 Mastery and Wellbeing

Wellbeing may be enhanced when employees feel mastery at their work, such as being able to complete a task from start to finish (task identity), being clear of one's role, and getting feedback (Centre For Transformative Work Design, n.d.b). Although no research has explicitly looked at the relationship between mastery as a higher construct comprising task identity, role clarity and feedback, with wellbeing, there is empirical evidence that each individually are linked with wellbeing. According to Hackman and Oldham's (2005) JCM, high levels of task identity may also allow individuals to experience meaningfulness in their job, and thereby, increase their wellbeing. Miranda (2015) demonstrated that task identity predicted wellbeing. In other research, task identity was identified to negatively relate to negative psychological consequences that decrease wellbeing, such as burnout (Adebayo & Ezeanya, 2011; Carrière, & Bremner, 2011). Research has found consistently that high levels of role clarity at work may enhance individuals' wellbeing, whereas low levels of clarity may become a stressor, which predicts negative health outcomes, such as depression and burnout (Cuéllar-Molina et al., 2018; Frögéli et al., 2019; Jarden et al., 2021; Jones & Guthrie, 2016; Schmidt et al., 2014). Lastly, based on the JDR, feedback from supervisors, peers, and the job itself, are resources that can buffer the negative effects of work demands (Demerouti et al., 2014). Studies suggested that feedback enables an enjoyable workplace that can enhance wellbeing and reduce illness (Bond et al., 2021; Carless et al., 2012; Miller & Hendrickse, 2016; Miranda, 2015). Hence, there is empirical evidence that the job characteristics in the mastery dimension are components of individuals' well-being.

2.4.3 Agency and Wellbeing

Based on the SMART work design model, agency, or autonomy, is a resource that can enhance employees' wellbeing at work (Centre For Transformative Work Design, n.d.c; Klonek & Parker, 2021). Gagné and Bhave (2011) and Wheatley (2017) also suggested that increasing autonomy in the workplace means increasing a resource that can enhance one's wellbeing. Wheatly's (2017) UK study provided evidence that different forms of autonomy, namely job and schedule control, can predict wellbeing; with job control having a higher degree of association to wellbeing compare to schedule control. Autonomy has been found positively related to wellbeing across countries, such as Japan, the U.S., China, Peru, and Belgium

(Church et al., 2013; Gallie, 2013; Miranda, 2015; van den Tooren & de Jong, 2014; Yu et al., 2018). Autonomy has even been referred to as a psychological need. It is thus a critical component for managers to promote and to maintain wellbeing among team members (Poulsen & Ipsenb, 2017).

2.4.4 Relational and Wellbeing

According to Parker (2022), jobs that foster relationships, such as having support, and that are interdependent, predict wellbeing. Again, the variables as components of a higher-order construct, have not yet been conducted. Scholars have demonstrated that social support from supervisors or co-workers at work increases wellbeing, however (Galletta et al., 2011; Miranda, 2015; Nielsen, & Randall, 2009; van den Tooren & de Jong, 2014). An Australian study demonstrated that when work design was changed by increasing support and interdependence, such as experienced nurses assisting junior doctors, it decreased junior doctors' uncertainty and increased their wellbeing (Breakwell, 2020). Other studies suggested that support from different levels, including individual, group, leader, and organisation, may affect individuals' affective wellbeing (Luchman & González-Morales, 2013; Nielsen et al., 2017).

2.4.5 Tolerable Demands and Wellbeing

Parker's (2022) SMART work design model suggested that providing tolerable demands, such as psychological and physical demands, may reduce individuals' health risk and promote wellbeing. Based on the JDR model (Demerouti et al., 2001), job demands can buffer the positive effect that job resources have on employees' well-being. When demands exceed individuals' tolerance, it may negatively impact these individuals' wellbeing, which results in a higher risk of stress-related outcomes, such as insomnia, anxiety, and depression (Ardito et al., 2012; Dahl, 2011; Harvey et al., 2017). More specifically, high job demands are negatively associated with wellbeing and low job demands can enhance one's wellbeing (Ardito et al., 2012). However, scholars have argued that the relationship between work demands and well-being depends on the nature of the demands: Daily hindrance demands , namely excessive bureaucracy, role ambiguity, role conflict, and hassles, are especially detrimental to wellbeing (Tadić et al., 2015).

2.4.6 SMART Work Design and Wellbeing

Although there is no research yet which considered the effect of all five SMART dimensions together on wellbeing, all the individual job characteristics included in the model have been found to predict wellbeing. According to Parker (2022), the first four dimensions in the SMART model, namely stimulating, mastery, autonomy, and relational, are resources that can increase employees' wellbeing, and the last dimension, tolerable demands, represents job demands. This aligns with the JDR model (Demerouti et al, 2001). As working modes have been adapted due to the Covid-19 pandemic, Klonek and Parker (2021) suggested that greater emphasis should be placed on the design of virtual work: If jobs for employees that work mostly virtually are designed SMART, wellbeing will increase. An overview of different ways in which to work virtually and FTF is outlined in the following section.

2.5 Working Modes: Virtual and Face-to-face work

There is growing consensus that work should not be considered as either FTF or virtual, but that virtual work falls onto a continuum from exclusively to minimal virtually. Minimally virtual teams mostly have FTF interactions which take place in physical proximity. Examples are medical teams that work closely with patients. Teams with high levels of virtuality work predominantly online through the use of telecommunication technologies, such as online meeting platforms and email, to accomplish their goals. In these cases, team members typically work in different geographic locations or even different time zones (Klonek & Parker, 2021).

As virtual work has increased rapidly since 2020, more research on virtual team settings is required to gain a deeper understanding of its possible positive and negative consequences. Wellbeing appears to be a topic that is salient to employees that work virtually in some form but has not yet received much attention (Gilson et al, 2015). Thus, this research will focus on how SMART work design relates to wellbeing in both, individuals who work mostly FTF and those who work mostly virtually. Nevertheless, as the nature of the people who opt to work mostly FTF is likely to differ from those who opt to work mostly virtually, the effect that the individual dimensions of SMART work design could have on wellbeing may differ in both working modes. The following section provides further details on this.

2.6 Relative Importance of SMART Dimensions on Wellbeing in mostly Face-to-face and mostly Virtual Work Environments

Parker et al. (2001) suggested that although there is no one job characteristic that is necessarily the most important, it is likely that different work characteristics will be more or less relevant in different contexts and jobs. Research has suggested that a socioemotionally supportive environment is effective in supporting communications and building social relationships in the workplace (Yu et al., 2012). The capabilities of technologies to provide social environments and socio-emotional richness, including social presence and verification, are limited. Instead, online work platforms mostly merely serve to accomplish certain tasks (Yu et al., 2012). Moreover, Wei et al. (2018) argued that there is a time lag in information sharing and the venture to establish a shared understanding takes a longer time when working virtually which can result in a structural difference in how a team work. For instance, temporal, spatial, and organisational structure are more dispersed in virtual teams, in which members rely on electronic spaces to communicate and structure common understandings, relationships, and behaviours. More specifically, as virtual team workers require more effort to create mastery and relations in virtual work, the relative importance of mastery and relational work design in predicting wellbeing could differ. As it requires more effort, it might also mean that virtual workers perceive lower levels of mastery and relations than FTF worker - the importance of these two dimensions on predicting wellbeing, might, thus, be higher. As the nature of the structure and the socioemotional environment differ amongst employees working mostly virtually and FTF, the relative importance of the individual dimensions of the SMART work design on predicting wellbeing is, thus, likely to differ across the two working modes.

Following from the literature presented in this chapter, the following hypotheses have been developed as tentative answers to the research question:

H1: The more SMART the work design, the greater employees' wellbeing.

H2: The relative importance of each of the SMART elements for employee wellbeing differs in employees working predominantly virtually compared to those working mostly face-to-face.

Chapter 3: Method

The research design, sampling technique and participants, the measures employed in this study, data collection and analysis procedures, and ethical considerations, are presented in the following chapter.

3.1 Research Design

The research employed a cross-sectional, descriptive design to investigate the research question. The study is descriptive in nature as its intention is to understand the naturally occurring relationship between the variables of interest, rather than manipulating them to infer causality (Rosnow & Rosenthal, 2013). Data were collected at a single point in time as the research questions required a cross-sectional design to be answered. The data was collected using a self-report survey since the variables to be assessed indicate subjective phenomena and the most effective method to evaluate them is to evaluate respondents' feelings directly (Veenhoven, 2012). Quantitative data was gathered as it enables to gather a large sample in a short period of time, which is in line with my resource constraints.

3.2 Sampling Technique and Participants

Non-probability sampling, namely purposive and snowball sampling, was employed in this study. The population of interest were working adults that worked either predominantly face-to-face (FTF) or virtually (WV). To minimise confounding variables, participation was limited to office workers as they generally could work either FTF or virtually. Thus, a purposive sampling approach was followed (Terre Blanche et al., 2006). While FTF work is also completed by non-office workers, for example, by employees providing retail or cleaning services, their work design might differ in fundamental ways from that of office workers, so that possible differences found between employees working FTF and individuals not working exclusively FTF might be due to aspects other than the work modality if they had been included in the sample. Due to time and resource constraints, I made use of snowball sampling to source a sufficiently large sample to perform the required statistical analyses (Bless et al., 2013; Mouton & Babbie, 2001; Rosnow & Rosenthal, 2013).

A total of 270 participants accessed the survey. Of these, 110 did not complete the survey, leaving a final sample size of $N = 160$. The participants' ages ranged from 19 to 75 years old ($M = 39.35$, $SD = 12.76$). Of these, one quarter each (26.90%, $n = 43$) were between

19 and 29 years and between 30 and 39 years old, 16.40% (n = 26) ranged in age from 40 to 49 years, 20.30% (*n* = 32) from 50 to 59 years old, and 6.80% (*n* = 11) from 60 to 75 years old. The remaining 3.10% (*n* = 5) did not indicate their age. Approximately two thirds of the sample (68.20%, *n* = 109) worked mostly FTF and the remaining third (31.90%, *n* = 51) worked mostly virtually. Participants that worked mostly FTF meant that less than 50% of their work time do they work virtually from home, which meant they worked mostly in person in the office. Meanwhile participants that worked predominantly virtually meant that more than 50% of their time do they work virtually from home. The number of people in the team that participants were a member of ranged from 0 to 650 (*M* = 20, *SD* = 4.81). An overview of the countries and industries that the participants were working in is given in Tables 1 and 2.

Table 1

Sample Demographics: Countries of Work

Countries of Work	Number of Participants mostly Working FTF	Percentage (%)	Number of Participants mostly WV	Percentage (%)
Australia	3	2.80	0	.00
Cambodia	1	.90	0	.00
Canada	0	.00	2	3.90
China	3	2.80	1	2.00
Hong Kong (S.A.R.)	2	1.80	0	.00
Indonesia	1	.90	0	.00
South Africa	35	32.10	26	51.00
Taiwan	57	52.30	20	39.20
United Kingdom and Northern Ireland	1	.90	1	2.00
United States of America	6	5.50	1	2.00

Note. Participants mostly Working Face-to-Face *N*=109; Participants mostly WV *N*= 51

Table 2

Sample Demographics: Field of Work

Field of work	Number of Participants	Percentage (%)
Arts, Culture & Entertainment	4	2.50
Business (Administration, Marketing, Management Consulting, etc).	38	23.80
Engineering & Architecture	21	13.10
Education	15	9.40
Finance	16	10.00
Health Care	9	5.60
Legal	7	4.40
Telecommunication & Information Technology	15	9.40
Other	35	21.90

Note. N =160

3.3 Measures

The online survey utilised in this study has been provided in Appendix A. The survey was provided in English only as the scales employed were developed in English. Although it may be beneficial to translate the survey so that participants can respond in their mother tongue, translations can be subjective, and the mother tongue of participants was unpredictable as the survey was distributed online without geographic restriction. Participants were required to provide information regarding their age, field of work, country of employment, highest academic qualification, working style, and the number of people in their team for sample description purposes before they started answering the scales that were utilised to measure the variables of interest. Details on each of the scales is provided in the following sections.

3.3.1 SMART Work Design

The SMART work design scale comprises 40 items and it was developed for the purpose of this study. Participant responses were collected on a 5-point Likert scale with (1) strongly disagree and (5) strongly agree as the scale anchors. SMART work design was assessed through adapted subscales from Morgeson and Humphrey's (2006) Work Design Questionnaire (WDQ) as this is the measure recommended by S. Parker (personal communication, May 3, 2022). Moreover, WDQ's subscales, namely Task Variety, Skill Variety, Problem Solving, Task Identity, Feedback from others, Feedback from job, Work

Scheduling Autonomy, Work Methods Autonomy, Decision-making Autonomy, Social Support, Initiated Interdependence, Received Interdependence, and Physical Demands, had shown to be reliable measures ($.80 < \alpha < .95$, see Table 3) in a sample of job incumbents that had worked in their current job for more than 15 years (Morgeson & Humphrey, 2006).

In addition, Psychological Job Demand (PJD) subscale from Karasek's (1998) Job Content Questionnaire was included to measure Tolerable Demands dimension because Karasek (1998) developed the job demand concept and the WDQ does not have a subscale assessing PJD. This subscale was employed as it had found to have acceptable internal consistency ($\alpha = .70$, see Table 3) in a sample of employees working in a large teaching hospital (Sale & Kerr, 2002). To ensure a more uniform response set throughout the survey, PJD's response format was adapted from a 4-point to a 5-point scale. Two of the self-reflexive judgement items in this questionnaire, "My job requires working very fast" and "My job requires working very fast", were reverse coded to ensure that higher scores meant that job demands were more tolerable.

Bowling et al.'s (2017) Role Ambiguity (RA) measure was added as a role clarity measure, as it is a job characteristic included in the Mastery dimension by Klonek and Parker (2021). This was deemed appropriate as the internal consistency had found to be good ($\alpha = .70$, see Table 3) in a sample of employed adults. Moreover, there were no items relating to role clarity in the WDQ and the questions asked, for example, "I know what my responsibilities are." and "Explanation is clear of what has to be done.". To ensure the response format throughout the survey is consistent, the RA measurement's response format was adapted from a 7-point scale to a 5-point Likert scale.

To sum up, these items together were employed to measure the degree to which a participant perceived their work design as SMART since they measure the components comprising each dimension and had shown acceptable to excellent internal consistency in prior studies as demonstrated in Table 3.

Table 3

Scales used to measure each SMART dimension

SMART Dimensions	Items	Scales	Items	Cronbach Alpha (α)
Stimulation	8	Task Variety	2	.95
		Skill Variety	2	.86
		Problem Solving	4	.84
Mastery	8	Role Clarity	2	.87
		Task Identity	2	.88
		Feedback from others	2	.84
		Feedback from job	2	.86
Agency	6	Work scheduling autonomy	2	.85
		Work methods autonomy	2	.88
		Decision-making autonomy	2	.85
Relational	10	Social support	6	.82
		Initiated interdependence	2	.80
		Received interdependence	2	.84
Tolerable Demands	8	Psychological Job Demand	5	.70
		Physical Demand [1]	3	.95

Source. Adapted from "The Work Design Questionnaire (WDQ): developing and validating a comprehensive measure for assessing job design and the nature of work." (Morgeson, & Humphrey, 2006, p. 1327), "The psychometric properties of the Karasek's demand and control scales within a single sector: data from a large teaching hospital." (Sale & Kerr, 2002, p. 148), & "Building better measures of role ambiguity and role conflict: The validation of new role stressor scales." (Bowling et al., 2017, p. 5).

[1] As the physical demand scale does not apply to office workers the items were not considered in this study.

3.3.2 Wellbeing

Employees' wellbeing was assessed using the World Health Organization's (five) Wellbeing Index (WHO-5), which consists of 5 positively worded items (World Health Organization, 1998). It was selected as it is one of the most widely used scales to assess subjective wellbeing. It has been translated into 30 different languages (Brähler et al., 2007; Topp et al., 2015; Ong et al., 2021). The scale is a unidimensional scale measuring subjective wellbeing (Topp et al., 2015). The scale has also demonstrated excellent psychometric properties in multiple studies, for instance, Brähler et al.'s (2007) study (α = .92) and Allgaier

et al.'s (2012) study (α = .85). The WHO-5 Wellbeing Index was initially measured on a 6-point Likert scale, however, to ensure the consistency of the various measurements in this study, it was adapted into a 5-point Likert scale. The scale label was as follows: At no time (1) to All the time (5). Higher scores mean better wellbeing.

3.4 Data Collection Procedure

The questionnaire was created in Qualtrics (2020), an online survey tool. Once ethics approval had been received from the University of Cape Town's Commerce Faculty Ethics in Research Committee (ERC) (see approval letter in Appendix B), the study was advertised on the researcher's personal and professional social media accounts, such as WhatsApp, Facebook, and LinkedIn. The advertisement included an URL link, which directed potential participants to the online survey's cover page. The cover page, presented in Appendix C, stated that participation could contribute to understanding how we could create better working conditions to improve working individuals' wellbeing in the post-Covid era. The online format was deemed appropriate as the population of interest were office workers who were likely to have access to the internet. The survey was also mobile-friendly, which allowed participants to complete the survey at ease on their mobile devices.

The study invitation included that participant must be working professionals with office jobs to be eligible. A forced response format was applied to ensure that participants could only continue to the next survey page when the current page had been completed. This served to reduce non-response bias. After a participant completed the survey, they were thanked for their participation and my and my supervisor's contact information were presented again should they have any further questions. Lastly, I asked participants to share the link with other office workers in their network. The data was gathered in June and July 2022.

3.5 Statistical Analysis Procedure

The data collected was imported into the IBM Statistical Software for Social Sciences (SPSS). First, the scales' reliability and validity were determined. Pearson product-moment correlation was utilised to determine the correlations between the five SMART work design dimensions and the five dimensions' relationship to employees' wellbeing. Multiple Regression was employed to explore the degree that SMART work design predicts wellbeing amongst all participants. Thereafter, multiple regression and relative weight analysis (RWA) were utilised separately among participants working predominantly FTF and working

predominantly virtually to determine the relative relevance of each predictor variable for predicting participants' wellbeing scores. The RWA was performed using the RWA-web, a programme developed by Tonidandel and LeBreton (2014). Lastly, the results for the two groups were compared to determine whether the relative importance of each SMART dimension in predicting wellbeing differed.

3.6 Ethical Considerations

The ethical guidelines stipulated by the ERC and American Psychological Association were adhered to (American Psychological Association, 2019). These included that all participants should be respected and protected from any physical and psychological harm. Although the researcher anticipated no harm given the research topic and materials used, the following was still done:

The cover page (presented in Appendix C) included the study purpose, that participation was voluntary, that the data provided would be confidential and anonymous, and the contact information of the researcher and her supervisor. It also stated that by submitting their responses, participants would be considered as consenting to participate in this study. Although wellbeing was a variable of interest, this study was not related to physical or mental health because participants were not required to specify any physical or psychological information, but only a general self-assessed state of being, relating to positive emotions and feelings. However, there is always a chance that participants experience concerns about their physical or mental health after participating in research. Thus, I provided the contact number of *Lifeline*, which is a 24-hour telephonic service to assist people experiencing social and psychological stresses and trauma, on the cover page and at the end of the survey.

Data collection only started after the researcher had received approval from the ERC. The researcher and the researcher's supervisor are the only ones that have access to the study's data. The collected data is stored in a password-protected laptop to ensure confidentiality throughout the study.

Chapter 4: Results

In this chapter, the results of the study are presented in four sections. The construct validity, internal consistency, and descriptive statistics for each scale will first be outlined, followed by the result of the bivariate correlation analysis, and the multiple regression and relative weight analyses for testing the hypotheses.

4.1 Structure of Measurements

Explorative Factor Analysis (EFA) was conducted to ascertain whether the scales utilised in the study measured the constructs they were intended to measure (Field, 2018; Tabachnick & Fidell, 2014). To determine the structure of scales, factor analysis it typically used. Researchers can choose between confirmatory or exploratory factor analysis. Confirmatory factor analysis (CFA) serves to assess if a pre-determined factor structure is likely given participants' responses to scale items. Its purpose is to confirm specific theoretical constructs or predetermined factors. Through Exploratory Factor Analysis (EFA), on the other hand, the researcher seeks to explore how many factors the items fall onto given the responses obtained in a particular sample, and which items are associated with which factor. It can then be compared if the factor structure emerging from the sample data corresponds to that found in other studies, and thus if the measure worked as had been intended. As the purpose was not to test a specific theoretical construct empirically but to explore the sample data, EFA was chosen as it allowed the researcher to identify the extent to which the variables of interest are denoted by the identified factor (Field, 2018). Principal Axis Factoring (PAF) was utilised to extract factors as it emphasized the latent variables underlying the data while focusing on the shared variance between the variables (Henson & Roberts, 2006). An oblique rotation method, namely direct oblimin, was employed to clarify the extracted factor structure as it was assumed that the work design factors were correlated (Field, 2018). Factor loadings were interpreted using the pattern matrix.

Two assumptions of PAF, namely the sample was adequate to perform an EFA and the scale items, overall, were correlated, were tested using the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity, respectively. According to Field (2018), the KMO score should exceed .50 to be deemed adequate. A significant result in Bartlett's test of sphericity ($p < .05$) indicates that the items in each scale adequately correlate with others (Bartlett, 1950).

Kaiser's (1960) criterion was employed to interpret the factors. Thus, only factors with eigenvalues exceeding one were retained. Items with factor loading exceeding .30 were considered to load significantly on the factor (Field, 2013; Tabachnick & Fidell, 2014). However, if an item loaded onto more than one factor and the absolute difference was less than .25, the item was omitted from further analysis as it was cross-loading. This made it impossible to determine which factor best represented the item (Tabachnick & Fidell, 2014). If an item loaded onto two factors, but the absolute difference in loadings was greater than .25, it was retained and allocated to the factor on which it loaded more strongly (Tabachnick & Fidell, 2014).

4.1.1 SMART Work Design Scale

The SMART Work Design scale consists of 40 items and was conceptualised to belong to five subscales, namely Stimulation, Mastery, Agency, Relational and Tolerable Demand scale. According to Nunnally (1978), a general rule of thumb is to have at least ten participants for each item on the scale to conduct factor analysis. As there are only 160 participants in the study sample, running the factor analysis across all items would have resulted in an unstable outcome. Thus, separate PAFs were performed for the items making up each subscale and the results are shown below.

4.1.1.1 Stimulating Work Scale. The stimulating work design component included three constructs, task variety, skill variety, and problem-solving. However, two factors emerged rather than the three expected factors in this study's data after two rounds of EFA had been performed.

4.1.1.1.1 First PAF. The KMO value was .83 with a significant Bartlett's test (X^2 = 439.09, $p < .001$) indicating that it was suitable to conduct PAF with direct oblimin rotation across the eight scale items. Two factors emerged (Factor 1: unrotated eigenvalue 1 = 3.74, explained variance = 46.77%; Factor 2: unrotated eigenvalue 2 = 1.15, explained variance = 14.35). After rotation, one item ("The job requires unique ideas or solutions to problems") loaded on both factors with an absolute difference of .17 in loadings (see Appendix D, Table D1 for item loadings). As this difference was lower than .25, the item was removed and the PAF rerun without this item.

4.1.1.1.2 Second PAF. The seven remaining items produced a KMO value of .81 along with a significant Bartlett's test (X^2 = 328.95, $p < .001$). Again, two relevant factors emerged (Factor 1: eigenvalue 1 = 3.25, variance explained = 46.49%; Factor 2: eigenvalue 2 = 1.14, variance explained = 16.28%). The five task and skill variety items loaded on one factor, the

problem-solving items on the second factor. The factor loadings are shown in Appendix D, Table D2.

Mean scores representing participants' *skill and work variety*, and *problem solving* were computed. The two new resulting variables were then included as two items into an EFA analysis. It was deemed appropriate to conduct EFA as the KMO value was .50 with a significant Bartlett's test of (X^2 = 28.78, p < .001). One factor emerged with an eigenvalue exceeding 1 (eigenvalue = 1. 41; explained variance = 40.77%), and both variables loaded significantly onto this factor (skill and work variety = .64; problem-solving =.64). Thus, the participants' scores for *skill and work variety* and for *problem solving* were averaged into an overall score, assumed to indicate the dimension, *stimulating work*.

4.1.1.2 Mastery Scale. The Mastery scale comprised four dimensions, role clarity, task identity, feedback from the job, and feedback from others. Two rounds of EFA were required to develop a clear factor solution.

4.1.1.2.1 First PAF. The KMO value was .77 along with a significant Bartlett's test (X^2 = 335.73, p < .001) for the eight mastery items. Two factors with eigenvalues above one emerged (Factor 1: eigenvalue 1 = 3.22, explained variance = 40.23%; Factor 2: eigenvalue 2 = 1.33, explained variance = 16.62%). Two items ("The work activities themselves provide direct and clear information about the effectiveness (e.g., quality and quantity) of my job performance.", "Explanation is clear of what has to be done.") loaded on both factors (Item 1 factor loadings: .54 and .34; Item 2 factor loadings: .35 and .46; see Appendix D, Table D3). As the absolute difference in loadings was smaller for the item assessing role clarity than for the other item, a second PAF was conducted with just this item removed.

4.1.1.2.2 Second PAF. The KMO score of .74 for the reduced seven item scale was acceptable and the Bartlett's test (X^2 = 256.90, p < .001) was significant, thus indicating the appropriateness of factor analysis to be run with the dataset. Two factors emerged (Factor 1: eigenvalue 1 = 2.81, explained variance = 40.07; Factor 2: eigenvalue 2 = 1.29, % explained variance = 18.48). All items loaded significantly on one of the two factors as shown in Appendix D, Table D4. Item 7 again loaded significantly on both factors; however, the absolute difference in loadings was greater than .25, and, thus, it could clearly be allocated to the factor on which it loaded higher. Based on the item wordings the two factors were labelled *task identity* (2 items), and *role clarity and feedback from others and job* (5 items)

Another PAF was performed to determine if the two factors could present one underlying factor as theorised by Klonek and Parker (2021). Mean scores for *task identity*, and

for *role clarity and feedback from others and job* were computed. The two new variables were then included as two items in a new PAF. It was deemed appropriate to conduct EFA as the KMO value was .50 with a significant Bartlett's test of (X^2 = 15.87, p < .001). One factor emerged with an eigenvalue exceeding one (eigenvalue = 1. 31; % of explained variance = 65.47). Both variables loaded significantly onto this factor, each with a loading of .56. Thus, participants' scores on the two variables *task identity* and *role clarity and feedback from others and jobs* were averaged into an overall score, assumed to indicate the dimension mastery.

4.1.1.3 Agency Scale. The 6-item Agency scale included three dimensions, work method autonomy, work scheduling autonomy, and decision-making autonomy. However, the PAF revealed one relevant factor (eigenvalue = 4.08, explained variance = 68.04%; KMO = .88; Bartlett's test of sphericity: X^2 = 585.00, p < .001). All items loaded significantly on this factor as shown in Appendix D, Table D5.

4.1.1.4 Relational Scale. The Relational scale was designed to include three factors, *social support*, *initiated interdependence*, and *received interdependence*. As expected the PAF revealed three relevant factors (eigenvalues: 3.10 (explained variance: 31.01%), 1.60 (explained variance: 15.97 %), 1.27 (explained variance: 12.66%) ; KMO = .69; Bartlett's test of sphericity: X^2 = 394.87, p < .001). The items did not load as expected on these factors, however (see Appendix D, Table D6). The social support items loaded on two separate factors and the initiative and received interdependence items on one instead of separate factors. The factors were thus labelled as *social emotional support*, *initiated and received interdependence*, and *social network support* .

After mean scores had been computed to represent *social emotional support*, *social network support*, and *initiated and received interdependence,* a PAF was computed across these three variables. It was deemed appropriate to conduct this EFA as the KMO value was .62 and Bartlett's test significant (X^2 = 35.51, p < .001). One factor emerged with an eigenvalue greater than one (eigenvalue = 1.57; explained variance = 52.40%) and all variables loaded significantly onto this factor with loadings of .60 (*social emotional support*), .56 (*social network support*) and .45 (*initiated and received interdependence*). Thus, the participants' scores on the three variables were averaged into an overall Relational score.

4.1.1.5 Tolerable Demands Scale. The *Tolerable Demands* scale included items indicating psychological demands. Instead of the one expected factor, the PAF across the eight items revealed two factors with eigenvalues above one, though (Factor 1: eigenvalue 1 = 2.37, explained variance = 47.43%; Factor 2: eigenvalue 2 = 1.12, explained variance = 22.44; KMO

= .67; Bartlett's test: X^2 = 186.97, p < .001). Based on the wording of the items loading on each of the two factors, these were labelled as *self-induced psychological demands* and *externally set psychological demands*. The items loadings are shown in Appendix D, Table D7.

Another round of PAF was conducted to check if the two factors represented one underlying factor, tolerable demands, as initially theorised. The scores on the items loading on each of the two factors were summarised into one mean score indicating *self-induced psychological demands* and *externally set psychological demands,* respectively. A PAF was then run across the resulting two variables. EFA was appropriated to be conducted as the KMO value was .50 with a significant Bartlett's test (X^2 = 21.12, p < .001). The resulting factor had an eigenvalue of 1.35; and explained 67.71% of the variance in the items. Both variables loaded significantly onto this factor, each with a loading of .59. Thus, participants' scores on the two variables were averaged into an overall tolerable demands score.

4.1.2 World Health Organization (five) Wellbeing Index

The World Health Organization (five) Wellbeing Index (WHO-5) consists of five items which had been conceptualised to belong to one factor (Topp et al., 2015). As expected, the PAF revealed one factor in the data (eigenvalue = 3.05, explained variance = 61.00%). The KMO score of .80 had been acceptable and the Bartlett's test of sphericity (X^2 = 330.38, p < .001) significant). All items loaded on the factor with significant factor loadings as shown in Appendix D, Table D8.

4.2 Internal Consistency

Cronbach's alpha (α) was used to assess the internal consistency of all scales after the factor structure of the Stimulating, Mastery, Agency Relational, Tolerable Demand scales and WHO-5 Wellbeing Index had been confirmed. Cronbach alpha (α) can determine the degree that the items are related in each group. Cronbach's alpha estimates were interpreted in line with Nunnally's (1978) guidelines: α > .90 = excellent internal consistency; .80 > α > .70 = good internal consistency; .70 > α > .60 = acceptable internal consistency; .60 > α > .50 = questionable internal consistency; and α < .50 = unacceptable internal consistency. As shown in Table 4, all scales demonstrated good to excellent internal consistency (see Appendix E, Table E1- 6 for more details of the corrected item-total correlations for each scale).

To sum up, all the scales, namely Stimulating, Mastery, Agency, Relational, Tolerable Demand scales, and WHO-5 Wellbeing Index, are valid and reliable measures that are

appropriate to utilise for further analyses in this study. Moreover, it is appropriate to compute the mean score of all scales by averaging the scores.

Table 4

Results for the Reliability Analyses

Scale	No. of items	Cronbach Alpha (α)	Corrected Item Total Correlation
Stimulating	7	.80	.35 < r < .64
Mastery	7	.74	.30 < r < .61
Agency	6	.90	.66 < r < .79
Relational	10	.74	.20 < r < .60
Tolerable Demands	5	.71	.33 < r < .61
WHO-5 Wellbeing Index	5	.84	.53 < r < .76

4.3 Descriptive Analysis

The descriptive statistics, namely the mean scores, standard deviations, minimum and maximum scores, skewness and kurtosis, for each scale were examined. An overview of these descriptive statistics is given in Table 5. The scale mean scores from each scale were compared to the scales' midpoint, which is three as all scales were measured on 5-point Likert scales. As demonstrated in Table 5, all scales except the *Tolerable Demands* scale (M = 2.95) had a mean score above the midpoint, which indicates that participants, on average, perceived their work as more or less tolerable. Participants experienced their work as stimulating (M = 3.72), it made them experience mastery (M = 3.78), agency (M = 3.85), and positive relations (M = 3.68). The wellbeing mean score (M = 3.05) is around the scale midpoint, which indicated that participants experienced their wellbeing as average.

The skewness and kurtosis of the data distribution were assessed to determine the data distribution. Skewness refers to the symmetry of the data distribution, while kurtosis refers to the distribution height (Field, 2018; Hair et al., 2010; Tabachnick & Fidell, 2014). Values that are higher or below zero indicate a deviation from normality, that is from the Gaussian curve (Field, 2018; Hair et al., 2010). In other words, the closer the values of skewness and kurtosis are to zero the more normally distributed are the data points.

As demonstrated in Table 5, the data distributions for all work design dimensions were negatively skewed which indicated that the scores were clustered to the right. The score distribution for wellbeing was close to symmetric as it was relatively close to zero. The height of the distribution scores of stimulating, mastery, relational and tolerable demands, were more

leptokurtic than the Gaussian curve as indicated by positive kurtosis values. The distribution score of wellbeing was more platykurtic compared to the Gaussian curve. Moreover, the score distribution for agency did not greatly deviate from the Gaussian curve. It should be noted, however, that skewness and kurtosis between -1 and 1 can be considered approximately normal. Pallant (2016) also argued that the statistical analysis techniques utilised in SPSS are robust enough to account for the data that are not normally distributed. This is why parametric analytical procedures were employed in the data analysis.

Table 5

Descriptive Statistic of the Scales

					Skewness		Kurtosis	
	M	*SD*	*Min*	*Max*	Statistic	*SE*	Statistic	*SE*
Stimulating	3.72	.67	1.00	5.00	-.76	.19	1.06	.38
Mastery	3.78	.56	1.71	4.86	-.91	.19	1.47	.38
Agency	3.85	.79	1.83	5.00	-.59	.19	-.02	.38
Relational	3.68	.54	1.83	4.75	-.64	.19	.73	.38
Tolerable Demands	2.95	.67	1.00	4.60	-.60	.19	.68	.38
Wellbeing	3.05	.78	1.00	4.80	-.14	.19	-.65	.38

Notes. $N = 160$; *M* = mean; *SD* = standard deviation; *Min* = minimum; *Max* = maximum; *SE* = standard error.

The Pearson product-moment correlations between each variable were examined and interpretations were made according to Cohen's (1988) guidelines: .10 indicates weak relationships, .30 represents moderate relationships, .50 or greater indicates strong relationships. As demonstrated in Table 6, stimulation had statistically significant positive relationships with mastery, agency, and the relational aspect of work design but a negative relationship with tolerable demands. It was not related significantly with wellbeing. Mastery had moderate to strong statistically significant relationships with agency, the relational aspect of work design, and wellbeing, but not with tolerable demands. Agency was moderately to strongly related with the relational aspect of work design and wellbeing, but not with tolerable demands. The Relational dimension had a statistically significant negative relationship with tolerable demands and positive relationship with wellbeing. Lastly, tolerable demands had a moderate, statistically significant positive relationship with wellbeing. In sum, the results indicated that the more participants perceived their work as providing mastery, agency, a relational component, and having tolerable demands, the more wellbeing they felt. Stimulation was the only work design element not related to wellbeing.

Table 6

Pearson Product-moment Correlations between Each Variable

	Stimulation	Mastery	Agency	Relational	Tolerable Demands
Stimulation					
Mastery	**.23****				
Agency	**.41****	**.50****			
Relational	**.53****	**.39****	**.41****		
Tolerable Demands	**-.20***	.15	.01	**-.26****	
Wellbeing	.11	**.39****	**.33****	**.16***	**.41****

Notes. $N = 160$; Significant correlations are provided in boldface.
$^{*}p < .05$, $^{**}p < .001$

4.4 Hypotheses Testing

The two study hypotheses were that greater SMART work design relates to greater employee wellbeing and that the relative importance of each of the SMART elements for employee wellbeing differs depending on whether employees are working predominantly virtually or mostly face-to-face.

Multiple regression analysis was employed to assess the first hypothesis. After determining the same regression analysis separately for employees working predominantly virtually and predominantly FTF, relative weight analyses were performed to compare the relative importance of the five dimensions in predicting wellbeing in both groups. A brief description of the assumptions which data need to fulfil for the analyses to yield interpretable results is provided first.

4.4.1 Multiple Regression Analyses

4.4.1.1 Assumption of Multiple regression Analysis. To determine if it is appropriate to conduct multiple regression on the data, multiple assumptions were first assessed.

4.4.1.1.1 Level of Measurement. In linear multiple regression predictor variables should be measured on interval or categorical scales and criterion variables should be measured on ratio or interval scales (Field, 2018). This assumption was satisfied as Stimulating Work, Mastery, Agency, Relational and Tolerable Demands as predictor variables, and Wellbeing as criterion variable were all measured on interval scales.

4.4.1.1.2 Adequate Sample Size. To determine the adequacy of the sample size in multiple regression analyses, Field (2018) recommends following this formula: $N > 50 + 8m$ where m = number of predictors. In this study, there were five predictors, and, thus, there should

be more than 90 participants. As there were 160 participants in total with 109 participants in the FTF group, the sample sizes were adequate. There were only 51 participants in the WV group, however, which suggested that this group was too small to conduct a regression analysis with five predictor variables. However, according to Field (2018), a general rule of thumb for sample size is to have 10 participants for each predictor. The group of working mostly virtually does meet this requirement.

4.4.1.1.3 Additivity and Linearity. This assumption suggested that the relationship between independent and dependent variables should be a linear straight line (Field, 2018). Scatterplots between the independent variables and the dependent variable were utilised to determine if this assumption was met. As shown in Appendix F, Figure F1-15, all independent and dependent variables are linearly related and showed a pattern of straight lines across the three groups (overall sample, mostly FTF, mostly virtual), thus, the assumption of additivity and linearity was met.

4.4.1.1.4 Independent Residuals. Residuals indicate the degree of disparity between the criterion values predicted by the regression model and the observed criterion data. In multiple regression analysis, the residuals should be uncorrelated (Field, 2018; Pallant, 2016; Tabachnick & Fidell, 2014). The Durbin-Watson statistic was employed to test this assumption as it tests for serial correlations between residuals. The Durbin-Watson value can range between zero and four with one to three demonstrating independence (Field, 2018). As the Durbin-Watson value was 1.85 (overall sample), 1.71 (mostly FTF), and 2.02 (mostly virtual), this assumption was met.

4.4.1.1.5 Homoscedasticity. Homoscedasticity means that the residuals have variances that are consistent across all independent variables' values (Field, 2018). Scatterplots of the standardized predicted values were plotted against the standardised observed residual values to determine if this assumption was met. As the data points shown in Appendix G, Figure G1 - G3, were all evenly dispersed and did not form a cone-shape, which will suggest heteroscedasticity, the assumption of homoscedasticity was upheld (Field, 2013; Tabachnick & Fidell, 2014).

4.4.1.1.6 Normally distributed residuals. A histogram can determine whether the residuals were normally distributed (Field, 2018). As shown in Appendix H, Figure H1- H3, the histograms demonstrated bell-shaped curves in all three groups, which suggested that the residuals in this model are normally distributed. Thus, this assumption was not violated.

4.4.1.1.7 Multicollinearity. Multicollinearity suggests that the independent variables are highly correlated (r >.90; Field, 2013; Pallant, 2016). To evaluate if this assumption was

violated, the average variance inflation factors (VIF) of each independent variable was assessed. There would be multicollinearity in the regression model if a VIF is larger than 1 substantially (Bowerman & O'Connell, 1990). The average VIF values in all three groups were not substantially greater than one as shown in Table 7. The predictor variables were thus not highly correlated with each other. Thus, this assumption was not violated.

Table 7

Multicollinearity Statistics for the Multiple Regression Model

Predictor Variables	VIF		
	Overall Sample	Mostly FTF	Mostly Virtually
Stimulation	1.51	1.62	1.53
Mastery	1.51	1.62	1.36
Agency	1.55	1.66	1.26
Relational	1.71	1.60	1.91
Tolerable Demands	1.18	1.08	1.37
Average	1,49	1.52	1.48

Notes. Outcome Variable: Wellbeing; VIF = variance inflation factor; FTF = face-to-face.

4.4.1.1.8 Model bias. Model bias is likely if there are outliers in the data set which would unduly pull the model parameters. According to Tabachnick and Fidell (2014), cases are problematic if their standardised residual values are less than -3.30 or greater than 3.30. As shown in Appendix G in Figures G1 and G2, there is one case each in the group of the overall sample and the working mostly FTF sample that has a standardised residual value less than -3.30. However, Stevens (2002) suggested that researchers should use Cook's distance to first assess if influential cases are presented before removing the data. Only if the value of Cook's distance is greater than one, does the data unduly skew the model (Cook & Weisberg, 1982). The maximum Cook's distance is .08 in the overall sample and .15 in the working mostly FTF sample, which indicated that the outlier in the two samples did not distort the results of the regression analyses. Hence, it was assumed that the regression models for the three groups would be accurate.

All the assumptions were evaluated and none of them was severely violated in all three groups. Thus, multiple regression analyses were performed. The results are illustrated in the following sections.

4.4.1.2 Multiple Regression Results. In order to test hypothesis 1, multiple regression analysis was performed across the entire sample to explore the relationship between the five independent variables, namely Stimulating, Mastery, Agency, Relational, Tolerable Demands, and the dependent variable, namely wellbeing. All five predictors were entered simultaneously into the model.

The overall model was statistically significant, $F(5, 154) = 14.10$, $p < .001$, with 31.4% ($R^2 = .314$) of the variances in wellbeing explained by the five dimensions of SMART work design. If this model were to derive from the office workers' population, it would account for approximately 2% less variance as the adjusted R^2 value is .292. This suggested that the model had strong generalisability as the R^2 and adjusted R^2 were relatively close (Field, 2018). Three of the five dimensions, namely mastery ($\beta = .19$, $p < .05$), agency ($\beta = .17$, $p < .05$) and tolerable demands ($\beta = .41$, $p < .001$), accounted for a significant proportion of unique variance in wellbeing (see Table 8). In addition, all three predictors contributed positively towards wellbeing with tolerable demands contributing the most. However, the degree of stimulation ($\beta = .02$, $p = .79$) and relations ($\beta = .11$, $p = .21$) did not explain variance in wellbeing which had not already been explained by the other work design elements. This result was expected as the bivariate correlations between stimulating work design and wellbeing had not been significant, either. Even though, the bivariate relationship between the relational dimension and wellbeing had been significant, the relational aspect was also significantly correlated with mastery, agency, and tolerable demands. This explains why the relational aspect explained no unique variance in wellbeing which was also explained by mastery, agency, and tolerable demands. The results indicated that mastery, agency, and tolerable demands in work design are particularly important contributors to wellbeing for office workers.

Table 8

Multiple Regression Results with SMART as Independent Variables and Wellbeing as Dependent Variable for Overall Sample

					95% CI	
	b	*SE b*	*β*	*t*	LL	UL
Intercept	-.693	.528		-1.313	-1.737	.350
Stimulation	.026	.095	.022	.273	-.162	.214
Mastery	.265	.115	.189	2.299*	.037	.493
Agency	.171	.083	.172	2.072*	.008	.335
Relational	.159	.126	.110	1.260	-.090	.408
Tolerable Demands	.473	.084	.408	5.635***	.307	.639
R^2			.314			
Adjusted R^2			.292			

Notes. *N* = 160; *b* = unstandardised beta coefficient; *SE b* = standard error of the unstandardised beta coefficient; " = standardised beta coefficient; CI = confidence interval for unstandardised beta coefficients; LL = lower limit; UL = upper limit; Significant factor loadings are indicated in boldface.
*$p < .05$, ***$p < .001$

Subsequently, the same standard multiple regression analysis was performed separately on sample working mostly FTF and virtually. In mostly FTF working sample, the model was statistically significant F (5, 103) = 10.99, $p < .001$, with 34.8% of the variance in wellbeing explained by the five dimensions of SMART work design (R^2 = .348). If the model were to derive from the population of office workers that work predominantly FTF, it would account for approximately 3% less variance in predicting wellbeing (adjusted R^2 = 31.6%). As the R^2 and adjusted R^2 are relatively close, this indicates a high generalisability of the model. (Field, 2018). As shown in Table 9, two of the five predictors accounted for a significant proportion of the unique variance in wellbeing: mastery (β = .20, $p < .05$) and tolerable demands (β = .51, $p < .05$), but not agency (β = .12, p = .25) which had been a significant unique predictor in the overall sample. As in the overall sample, stimulating work was not uniquely related to wellbeing (β = -.02, p = .81), neither was the relational dimension (β = .20, p = .06) did not significantly contributes towards predicting wellbeing.

Table 9

Multiple Regression Results with SMART as Independent Variables and Wellbeing as Dependent Variable for mostly FTF sample

					95% CI	
	b	*SE b*	*β*	*t*	LL	UL
Intercept	-.895	.582		-1.538	-2.048	.259
Stimulation	-.028	.118	-.024	-.239	-.263	.206
Mastery	.282	.140	.204	2.015*	.004	.560
Agency	.112	.096	.119	1.161	-.079	.303
Relational	.283	.146	.195	1.938	-.007	.573
Tolerable Demands	.508	.103	.407	4.925***	.303	.712
R^2			.348			
Adjusted R^2			.316			

Notes. *N* = 109; *b* = unstandardised beta coefficient; *SE b* = standard error of the unstandardised beta coefficient; " = standardised beta coefficient; CI = confidence interval for unstandardised beta coefficients; LL = lower limit; UL = upper limit; Significant factor loadings are indicated in boldface.
*$p < .05$, ***$p < .001$

In sample working mostly virtually, the model was also statistically significant F (5, 45) = 3.72, $p < .05$. The $R^2 = .292$ signified that the model explained 29.2% of the variance in wellbeing scores. However, if the model were to derive from the population of office workers that work mostly virtually, it would account for merely 21.4% (adjusted $R^2 = .214$) of variance in wellbeing, which is approximately 8% less variance. This suggested a relatively low generalisability for the model in this population. Only tolerable demands ($\beta = .38$, $p < .05$) accounted for a significant proportion of unique variance in wellbeing and contributed positively towards wellbeing as shown in Table 10.

Table 10

Multiple Regression Results with SMART as Independent Variables and Wellbeing as Dependent Variable for Sample Working mostly Virtually

					95% CI	
	b	*SE b*	*β*	*t*	LL	UL
Intercept	-.974	1.240		-.785	-3.471	1.524
Stimulation	.257	.206	.193	1.247	-.158	.671
Mastery	.370	.214	.253	1.733	-.060	.800
Agency	.316	.178	.249	1.772	-.043	.675
Relational	-.203	.247	-.142	-.822	-.700	.294
Tolerable Demands	.383	.148	.380	2.590*	.085	.680
R^2			.292			
Adjusted R^2			.214			

Notes. *N* = 51; *b* = unstandardised beta coefficient; *SE b* = standard error of the unstandardised beta coefficient; " = standardised beta coefficient; CI = confidence interval for unstandardised beta coefficients; LL = lower limit; UL = upper limit; Significant factor loadings are indicated in boldface.
*$p < .05$, ***$p < .001$

4.4.2 Relative Weight Analysis

To test hypothesis 2, RWA was performed to assess the difference of the relative importance of each SMART work design dimension between individuals working mostly F2F and individuals working mostly virtually. Bootstrapping with 10,000 replications was employed as suggested by Tonidandel et al. (2009). In addition, the bias-corrected accelerated (BCa) method was employed to ensure a better coverage accuracy when obtaining the confidence intervals (Tonidandel et al., 2009). To evaluate whether there was a significant difference in the beta-values between the two groups, 95% confidence intervals were constructed. If the confidence intervals included the value zero, the corresponding null hypothesis was not rejected.

The RWA results are summarised in Table 11. The results revealed that the five individual dimensions of SMART work design explained a 35.5% (R^2 = .355) variance in wellbeing in the group of office workers that worked predominantly FTF. This result was very similar to the result of the multiple regression analysis (R^2 = .348). Meanwhile, the five SMART work design dimensions explained 29.6% (R^2 = .296) of the variance in wellbeing scores in the group of office workers that worked predominantly virtually. Again, this result was equivalent to the multiple regression result (R^2 = .292).

Differences in the explained variances arose as the traditional analysis of simple regression tends to only consider the incremental importance of the predictors, while, RWA accounts for multicollinearity between predictors. This might supplement information about

the predictors that can result in different outcomes (Nathans et al., 2012; Tonidandel & LeBreton, 2011). In other words, RWA provides results with non-trivial variance, while traditional regression analysis tends to only consider incremental predictions (Tonidandel & LeBreton, 2011). Additionally, the difference between the RWA and simple multiple regression results is greater when multicollinearity is greater (Tonidandel & LeBreton, 2011). As the bivariate correlations between the predictor variables had been low there was little overlap between the predictors, and, thus, similarity in the explained percentage of variance determined via the multiple regression analyses and via the RWA.

It is evident from Table 11 that none of the five SMART work dimensions differed significantly between the two groups when predicting wellbeing, as the 95% confidence intervals all included zero. It should, however, be noted that the relative importance differences of agency and tolerable demand dimensions between the two groups were sizable. Thus, the non-significant result of these two dimensions may be due to the small sample size of employees working mostly virtually.

Table 11

Results for the Relative Weight Analysis Comparison Between predominantly Face-to-Face (n = 109) and predominantly virtually working employees (n = 51)

	Face-to-face		Virtual		95% CI	
	RW	RS-RW	RW	RS-RW	LL	UL
Stimulation	.007	2.07	.012	4.2	-.088	.025
Mastery	.081	22.89	.071	24	-.139	.135
Agency	.043	12	.074	25.03	-.184	.071
Relational	.046	13.07	.021	7.14	-.041	.124
Tolerable Demands	.177	49.96	.117	39.63	-.134	.246
R^2	.355		.296			

Notes. N = 160; Criterion Variable: Wellbeing; RW = raw relative weight (within rounding error raw weights will add up to R^2); CI-L = lower bound of confidence interval used to test the statistical significance of the difference in RW between the two groups; CI-U = upper bound of confidence interval used to test the statistical significance of the difference in RW between the different groups; RS-RW = relative weight rescaled as a percentage of predicted variance in the criterion variable attributed to each predictor (within rounding error rescaled weights sum to 100%).

4.5 Results Summary

The findings supported the first hypothesis that the more SMART the work design is, the greater employee wellbeing for office workers. However, it was unexpected that none of the relative importance of the five predictors from SMART work design differed between people that worked predominantly virtually and mostly FTF. Thus, the second hypothesis was not supported.

Chapter 5: Discussion

The study sought to test how the five dimensions in SMART work design, namely work that is stimulating, promotes mastery, allows people agency, fosters relationships, and has tolerable demands, predict employees' wellbeing individually and together. It also explored if the SMART dimensions would hold different relevance as predictors of employee wellbeing among employees working mostly FTF and those working predominantly virtually. The results revealed that all five SMART dimension together predict employee wellbeing for virtual and FTF working individuals. Among FTF working individuals SMART work design predicted roughly a third of the variance in wellbeing scores, for virtually working individuals approximately one fifth of the variance. Among FTF working employees, Mastery and Tolerable Demands predicted unique variance in wellbeing, among virtually working employees, only Tolerable Demands predicted variance in wellbeing not explained by the other work design dimensions. The relative importance of the five predictors was assumed to be significantly different across employees work mostly FTF and those working virtually. The results suggested that there was no significant difference across the two groups, however.

In this chapter reasons for the results will be discussed and the results themselves compared to existing literature. Subsequently, the theoretical and practical implications are presented followed by the limitation of this study and recommendations for future research.

5.1 Interpretation of Findings

The main findings are first compared to existing literature.

5.1.1 SMART Work Design as a Predictor for Wellbeing

The results revealed that all five SMART work design dimensions together predict wellbeing. This was anticipated as Parker (2022) proposed that, in order to increase wellbeing, all five dimensions in the SMART work design are indispensable. More specifically, mastery, agency, and tolerable demands contribute to wellbeing in ways that none of the other dimensions do. Knight et al. (2021) described the process which links adequate work design to higher wellbeing as follows: work design that increases resources and lowers demands enables work to be more motivating, meaningful, and interesting, which leads to employees experience more wellbeing. Similarly, Ardito et al.'s (2012) finding that a highly straining work context with high job demands, including psychological, cognitive and emotional demands, and low

control results in low psychological wellbeing aligns with this study's results. This is also aligned with Asif et al.'s (2018) and van den Tooren and de Jong's (2014) studies that JDC and JDCS models are indicators of employees' wellbeing. Moreover, the result is also consistent with previous research conducted by Park et al. (2021), Cañibano et al. (2021), and Wang et al. (2021) which suggested that different individual and interpersonal resources, especially social support and autonomy, affect virtual workers' wellbeing.

The degree to which work was perceived as stimulating was not associated with wellbeing when only stimulation and wellbeing were considered. To date there are no other studies, which have explored the relationships between stimulating work and wellbeing. The results are consistent, however, with in which task and skill variety, two of the components of stimulating work in Parker's model, did not predict wellbeing. However, the result of the current study is inconsistent with other research which suggested that skill or task variety (eg. Binder & Blankenberg, 2022; Humphrey et al., 2007) or creativity (Cameron et al., 2013) can contribute towards promoting overall wellbeing. The reason for this may be because that the relationship may not be linear, but curvilinear: there might be a positive relationship between stimulation and wellbeing up to a medium level of stimulation - which turns into a negative relationship when stimulation is at very high levels.

Mastery contributed to wellbeing in ways that none of the other four dimensions contributed in mostly FTF working employees but not in mostly virtually employees. This is likely to be the case as there were only half as many participants working virtually than FTF as the regression weight for Mastery were comparable in both groups. The result that Mastery at work is relevant for employee wellbeing is consistent with research which has found that the elements that comprise Mastery in this study relate to wellbeing. For example, scholars have found that jobs with task identity (Miranda, 2015), role clarity (Cuéllar-Molina et al., 2018) and feedback from the job itself or others (Bond et al., 2021; Carless et al., 2012; Miranda, 2015) predicted wellbeing respectively. It, however, contradicted Das and Gope's (2017) study in which feedback from the job itself did not predict employee wellbeing.

The result of work with agency, in which employees have autonomy over their work method, scheduling, and decisions, predicting wellbeing is aligned with research conducted by Church et al. (2013), Gallie (2013), Miranda, (2015), van den Tooren and de Jong's (2014), and Yu et al. (2018) across different countries, such as U.S., Australia, Japan and China. It also aligns with Wheatly's (2017) study conducted with a UK sample, which provides-evidence that different forms of autonomy, namely job control and schedule control, predict wellbeing. However, this result contradicts Das and Gope's (2017) research that autonomy was not a

significant predictor of employee wellbeing in India. This may be due to the way of how Das and Gope conducted their research, which they collected data exclusively through personal visits and FTF, which are different from this study.

Relationships are considered as resources that increases wellbeing according to Parker (2022). However, it was hard to locate findings of interpreting task interdependence and relationship from supervisors and peers as one factor, namely relational, in predicting wellbeing due to the novelty of it. Nonetheless, the result of the current study aligns with the findings that suggested social support at work from supervisors and co-workers increases wellbeing (Galletta et al., 2011; Miranda, 2015; Nielsen, & Randall, 2009; van den Tooren & de Jong, 2014). As having support from others and relying on each other can act as a way for people to face and tackle problems in a more positive manner, it can, thus, increases wellbeing.

Tolerable demands are particularly important in wellbeing for both employees working mostly FTF and virtually as almost half of all explained variance in wellbeing was explained by tolerable demands in RWA analysis. The result of tolerable demands predicts wellbeing in this study aligns with Parker's (2022) proposition, which job demands buffer the effect that resources provided, so only when jobs are more tolerable will the employee have better wellbeing. The result of this study also aligns with other research conducted by Love and Edwards (2005), Pisanti (2012), De Lange et al. (2003), Cañibano et al.'s (2020), Park et al. (2021) and Caligiuri et al. (2020). This may be because that job demands can cause strained effects, such as stress and burnout. Thus, employees may feel burdened, which drains employees and negatively affects their wellbeing. While employees that work virtually are often limited in terms of the resources that they can get as they are geographically dispersed and isolated from the rest of the team when working from home (Townsend et al., 1998). The only part that became apparent when working mostly virtually is the demands that are required from the job. This may also explain why tolerable demands plays such an important role on affecting one's wellbeing, especially when working virtually.

5.1.2 SMART Work Design effect on Wellbeing Comparison across Different Working Modes

While there were no statistically significant differences in the relative importance of the five SMART dimensions for employee wellbeing in mostly FTF and mostly virtually working individuals, there were trends. These are briefly discussed in this section.

For both, mostly FTF and mostly virtually working employees, stimulation and mastery were similarly relevant predictors for wellbeing. This may be because the job characteristics

that the two dimensions represent are task-based, which means they are closely related to the job itself but not necessarily affected by the work mode, that is if the tasks are completed at a virtual or FTF workplace.

Agency was twice as relevant for wellbeing for employees who worked mostly virtually compared to employee working mostly FTF. A possible reason for this result is that people who work mostly virtually are more likely to be isolated and it may take longer for them to receive feedback from other members. It might also be more difficult to coordinate tasks than when working in a shared space. This could become additional sources of stress. In such situations, having the authority to make decisions, indicated through greater autonomy, might be particularly relevant for wellbeing.

The relational aspect is slightly more important for predicting wellbeing among employees working mostly FTF. This may be because for individuals who work mostly FTF it is likely more difficult to shut out conflictual or toxic relationships. In virtual working environments, the technology used for interaction might create a protective barrier and allow the individual to remove themselves from negative relationships and, thus, affect wellbeing less.

Tolerable demands predicted wellbeing no matter which working mode the employee adopted. It was also the most important predictor in both working modes, but for participants who worked virtually it was less important for wellbeing than for mostly FTF working employees. As the virtual space can create a buffer between work and the person themselves, individuals might not let work get to their wellbeing as much as when they work FTF as there tends to be less of a feeling of accountability when working virtually. In addition, individuals who work virtually might find that other benefits of virtual work, such as saved time due to not having to commute or savings on transport cost, outweigh the demands placed by a high workload. This might make intolerable demands less detrimental to individuals' wellbeing.

5.2 Theoretical Contributions

This current study also contributes to the literature on good work design and, more specifically, SMART work design by determining the interdependence between the five individual SMART work design dimensions. This study provided empirical evidence that these five individual dimensions are distinct and important no matter which working mode was adopted. This may be because the five dimensions each accounted for a part of the content and

structure of a job, and, thus, the five dimensions are distinct and only when all five of them are considered will there be a wholistic view towards a job.

Study showed empirical support for Parker's SMART model in a context different from where empirical research had taken place until then - and in a sample drawing from across industries. SMART work design showed to be related to wellbeing amongst both employees working mostly FTF and virtually with quite a large proportion of wellbeing variance explained (35% for FTF workers, 30% for virtual workers). Moreover, tolerable psychological demands are especially relevant as it makes up almost half of the variance explained in wellbeing in both working modes. Although there were trends shown in the data regarding the relevancy of each dimension to wellbeing in the employees working mostly virtually, but only the tolerable demands dimension revealed as a significant predictor. This might be because of the relatively small sample size of employees working mostly virtually, having only half of the sample of employees working mostly FTF.

The result of the current study supplements existing literature as it provides evidence that good work design with the right job characteristics predicts wellbeing amongst both groups of employees, those who work mostly FTF and mostly virtually. This is noteworthy as limited researchers have employed the most comprehensive SMART work design model as an antecedent for predicting wellbeing (Klonek & Parker, 2021). This is particularly important as since 2020 the number of virtually working employees has increased substantially, yet most research focusing on the relationship between work and wellbeing has considered individuals working in shared physical workspaces. However, it is unlikely that the results can be applied in virtual work too as the structure and socioemotional aspects, such as flexibility, work interactions, and proximity between people, of working virtually are different.

Another theoretical implication that the current study provided resides in examining the relative importance of the five individual dimensions of SMART work design on predicting wellbeing and testing the difference between the two groups of participants working mostly FTF and virtually. It established that no matter which working style participants adopted, tolerable demands was always the strongest predictor of wellbeing. Stimulating work was the least important for wellbeing across both working modes.

5.3 Practical Implications

This study revealed potential ways in which organisations could design their work to contribute to employees' wellbeing, regardless of whether their employees work FTF or

virtually. Redesigning work is a process that changes the nature of employees' work activities, tasks, responsibilities, and relationships in an organisation, which, in turn, can make employees perceive their work in a more positive manner (Andrei & Parker, 2018; Knight & Parker, 2021). Based on the results obtained, organisations should focus on creating work that meets all five SMART dimensions, but especially on ensuring employees' work demands are tolerable. Moreover, managers need to be deliberate about proactively creating certain conditions when shifting working modes as working conditions differ between working FTF and virtually.

There are possible ways for employers to ensure that their employees have SMART work that can maintain or increase wellbeing. To ensure that tasks are stimulating, organisations could let employees get involved in complex projects, which needs them to work on a variety of different tasks, instead of repetitive tasks. This can ensure employees utilise a variety of their skills. In virtual teams, it is not only important to ensure that employees get involve in complex projects but also encourage them to exchange different ideas on solving problems.

In order to increase employees' mastery level of their job, it is important to ensure that the jobs provided to employees are clear and employees understand what is expected of them in both working modes. This could be done through listing out job guidelines, policies, and goals. Additionally, organisations can implement a wholistic and accessible feedback system, such as 360-degree feedback, that could allow employees receive feedback of their job from different people and angles. Thus, different people, such as supervisors, managers, clients and colleagues, that have worked with the employee could provide specific feedback about his or her job performance.

To ensure employees have autonomy when working, employers should not micro-manage their employees and give them enough discretion on decision making. It is also recommended to remove unnecessary boundaries in the organisation, such as permission to access certain files or folders. Ensure that employees working mostly virtually have enough autonomy in making decisions, scheduling, and managing their own work is especially important as negligence to do so may result in affecting their wellbeing. For instance, managers can allow virtual team members to decide when to carry out certain tasks, especially when they are living in a different time zone.

Relational aspect, which is slightly more critical for employees working mostly FTF, could be ensured by designing work that required information exchanges between team members and increase interdependence. Relationship building activities that require team members to support each other could also be a way to increase employees' relationships. For

employees working mostly virtually, managers can organise regular virtual meetups, implement social support channels on virtual platforms, such as creating supporting groups on social media, and give positive feedback when someone does so.

Lastly, it is especially important to ensure that employees have tolerable demands in both working modes. Organisations should ensure that employees have adequate time to complete their tasks and the workload for employees should be manageable. For employees working virtually across different teams, it is even critical to ensure that employees do not have intensive deadlines from different project or teams that overlap as this may cause psychological demands that can affect one's wellbeing. A strategy that can prevent this from happening is to build an open communication culture, such as encouraging employees to speak up when overlapping deadlines occur, so that the manager can think of backups when employees have intensive overlapping deadlines.

5.4 Limitations and Recommendations for Future Research

Recommendations for future studies on good work design arise from acknowledging the limitations of the current study. The study aim was not to infer causality but rather to understand the naturally occurring relationship between SMART work design and employees' wellbeing for employees' working mostly FTF and virtually. Thus, caution should be taken when interpreting the study results as correlation findings may pose unclear inferences. It is not possible to know from correlation whether SMART work design promotes wellbeing or if employees with greater wellbeing perceive their work as SMARTer.

Another limitation of this study is that participants could be unwilling to disclose their wellbeing information as topics related to wellbeing (or perceived to be related to mental health) are often stigmatised. Thus, this can result in them providing inflated responses. Moreover, participants could also have predetermined mindset towards wellbeing as a topic that is irrelevant in the workplace. Thus, it is likely that participants could eventually become impatient and give arbitrary responses, which result in imprecise outcomes.

The sampling techniques, namely purposive and snowball sampling, poses another limitation. Since participants were not selected randomly, selection bias might have emerged. This is especially likely as I recruited participants via my social media accounts, and it is common that followers on these accounts would be followers due to commonalities with me. This could be in terms of education level, gender, age, language etc. and thus meaning that the sample is not representative of the population (Rosnow & Rosenthal, 2013; Terre Blanche et

al., 2006). Thus, caution should be taken when generalising this result to the broader population of office workers, as not all office workers had equal opportunities to participate in this study, which could result in bias. Although it would be recommended for future studies to employ random sampling techniques, non-random sampling techniques are more feasibly in this study, especially when trying to only recruit office workers that work either mostly FTF or virtually (see Section 3.2).

In addition, as the sample size for employees working mostly virtually is relatively small, with only half of the number compare to employees working mostly FTF. This may be the reason that there were no significant differences between the SMART individual dimensions on predicting wellbeing between the two groups, even though the relative importance differences of agency and tolerable demands dimensions between the two groups were sizable. Thus, it is recommended that future researchers recruit a larger sample and have even sample size between the employees working mostly virtually and FTF.

5.5 Conclusion

Given that the Covid-19 pandemic has rapidly changed the work landscape and to date research considering how engaging in virtual works can affect wellbeing is sparse, the study assisted in surfacing what line managers should pay attention to ensure wellbeing in virtual versus FTF teams. The current study demonstrated that SMART work design and its individual dimensions can maintain or even promote wellbeing when working FTF and virtually. This points to the relevance for organisations to pay attention on the work design. The findings emphasized that ensuring demands are tolerable are key in both, face-to-face and virtual work environments. The study also demonstrated trends in which dimensions of the SMART work design would be more relevant depending on the working modes that is adopted. This, thus, provided insights and directions on how to allocate appropriate resources to the SMART work design dimensions depending on the working modes or when working modes are being adjusted in the post-pandemic era.

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Appendix A

Online Survey

What is your age?

Which country are you currently working in?

What is your highest academic qualification?
National Senior Certificate (Matric/Grade 12)
Higher Certificate or Advanced National Certificate
National Diploma and Advanced Certificate
Bachelor's degree or Advanced Diploma or Post Graduate Certificate
Honours degree or Post Graduate Diploma
Master's degree
Doctor's degree
Other (Please Specify)

What is your field of work?
Arts, Culture & Entertainment
Business (Administration, Marketing, Management Consulting, etc).
Communications
Engineering & Architecture
Education
Finance
Health Care
Legal
Telecommunication & Information Technology
Other

How many days per week do you work?

How many days per week do you work from home?

How many people work in your team?

Below are a series of statements that describe how you feel about your job. Using the following scale, please indicate your level of agreement or disagreement to each statement. (1 = Strongly disagree, 2 = Disagree, 3 = Somewhat agree, 4 = Agree, 5 = Strongly agree)

	Strongly Disagree	Disagree	Somewhat Agree	Agree	Strongly Agree
The job requires me to utilize a variety of different skills in order to complete the work.	1	2	3	4	5
The job requires me to use a number of complex or high-level skills.	1	2	3	4	5
The job involves doing a number of different things.	1	2	3	4	5
The job requires me to be creative	1	2	3	4	5
The job requires unique ideas or solutions to problems.	1	2	3	4	5
The job requires the performance of a wide range of tasks.	1	2	3	4	5
The job often involves dealing with problems that I have not met before.	1	2	3	4	5
The job involves solving problems that have no obvious correct answer.	1	2	3	4	5
The job is arranged so that I can do an entire piece of work from beginning to end.	1	2	3	4	5
The job allows me to complete work I start.	1	2	3	4	5
Other people in the organization, such as managers and coworkers, provide information about the effectiveness (e.g., quality and quantity) of my job performance.	1	2	3	4	5
Explanation is clear of what has to be done.	1	2	3	4	5
The job itself provides feedback on my performance.	1	2	3	4	5
I know what my responsibilities are	1	2	3	4	5
The work activities themselves provide direct and clear information about the effectiveness (e.g., quality and quantity) of my job performance	1	2	3	4	5
I receive feedback on my performance from other people in my organization (such as my manager or coworkers).(	1	2	3	4	5
The job allows me to make a lot of decisions on my own.	1	2	3	4	5
The job allows me to make my own decisions about how to schedule my work.	1	2	3	4	5
The job allows me to plan how I do my work.	1	2	3	4	5
The job gives me considerable opportunity for independence and freedom in how I do the work.	1	2	3	4	5
The job allows me to make decisions about what methods I use to complete my work.	1	2	3	4	5
The job gives me a chance to use my personal initiative or judgment in carrying out the work.	1	2	3	4	5
I have the opportunity to meet with others in my work.	1	2	3	4	5
Unless my job gets done, other jobs cannot be completed.	1	2	3	4	5
People I work with are friendly.	1	2	3	4	5

The job activities are greatly affected by the work of other people.	1	2	3	4	5
I have the chance in my job to get to know other people.	1	2	3	4	5
My job cannot be done unless others do their work.	1	2	3	4	5
My supervisor is concerned about the welfare of the people that work for him/her.	1	2	3	4	5
I have the opportunity to develop close friendships in my job.	1	2	3	4	5
People I work with take a personal interest in me.	1	2	3	4	5
The job requires me to accomplish my job before others complete their job.	1	2	3	4	5
The job requires a lot of physical effort.	1	2	3	4	5
I have enough time to get the job done.	1	2	3	4	5
The job requires a great deal of muscular strength.	1	2	3	4	5
I am not asked to do an excessive amount of work.	1	2	3	4	5
My job requires working very fast.	1	2	3	4	5
My job requires working very hard.	1	2	3	4	5
I am free from conflicting demands that others make.	1	2	3	4	5
The job requires a great deal of muscular endurance.	1	2	3	4	5

Please indicate for each of the five statements which is closest to how you have been feeling over the last two weeks. (1 = At no time, 2 =Some of the time, 3 = Half of the time, 4 = Most of the time , 5 = All the time)					
	Never	Rarely	Sometimes	Often	Always
I have felt active and vigorous.	1	2	3	4	5
My daily life has been filled with things that interest me.	1	2	3	4	5
I have felt calm and relaxed.	1	2	3	4	5
I have felt cheerful and in good spirits.	1	2	3	4	5
I woke up feeling fresh and rested.	1	2	3	4	5

Appendix B

Ethics Approval Letter

Faculty of Commerce

Private Bag X3, Rondebosch, 7701
2.26 Leslie Commerce Building, Upper Campus
Tel: +27 (0) 21 650 4375/ 5748 Fax: +27 (0) 21 650 4369
E-mail: jacques.rousseau@uct.ac.za
Internet: www.uct.ac.za
@Commerce UCT **UCT Commerce Faculty Office**

08 06 2022

Ashley Tsai

School of Management Studies

University of Cape Town

REF: REC 2022/06/015

The Role of SMART Work Design in Wellbeing amongst Employees working in Face-To-Face and Virtual Teams

We are pleased to inform you that your ethics application has been approved. Unless otherwise specified this ethical clearance is valid until 31-Dec-2023 .

Your clearance may be renewed upon application.

Please be aware that you need to notify the Ethics Committee immediately should any aspect of your study regarding the engagement with participants as approved in this application, change. This may include aspects such as changes to the research design, questionnaires, or choice of participants.

The ongoing ethical conduct throughout the duration of the study remains the responsibility of the principal investigator.

We wish you well for your research.

Signed by candidate 2022.06.15 23:00:42 +02'00'

Jacques Rousseau
Commerce Research Ethics Chair
University of Cape Town
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Appendix C

Cover Page

UNIVERSITY OF CAPE TOWN

FACULTY OF COMMERCE

Igniting Knowledge and Opportunity

Dear Participant,

If you have an office job, I invite you to participate in the research project that I am completing as part of my Master's degree in Industrial/ Organisational Psychology at the University of Cape Town (UCT).

This study seeks to understand if certain job characteristics can predict your wellbeing in face-face and virtual teams. Your experience at work is a valuable source of information for this research which I seek to contribute to the creation of better working conditions for all working individuals' wellbeing in the post-Covid era.

The survey shall take you approximately 3 - 8 minutes to complete. There are no right or wrong answers. Try to answer the questions as quickly as possible. The first answer that comes to your mind is usually the one that is closest to your real opinion. Your responses will be kept anonymous and confidential. Your participation is completely voluntary, and you can choose to sto p your study participation at any time. The wellbeing information gathered in this research does not relate to your personal health, but rather just how you feel in the past two weeks.

By completing and submitting the questionnaire, you are providing consent for me to use your responses for my dissertation. Should you require further information, or would like to follow up on the results of the research, do not hesitate to contact me (TSXASH001@myuct.ac.za) or my supervisor, Dr Ines Meyer (ines.meyer@uct.ac.za).

Thank you for your time – I really appreciate your participation! 😊

Ashley Tsai
Master's in Industrial and Organisational Psychology Student

***If you do not feel well and would like to speak to someone about it you can contact LifeLine on 0861 322 322**

Survey Completion

0% 100%

Start Survey

Appendix D

Table D1

Rotated Factor Loadings of the Stimulation Scale

Item Description	Factor Loadings		Communalities
	1	2	
S3. The job involves doing a number of different things.	.780		.503
S1. The job requires me to utilize a variety of different skills in order to complete the work.	.736		.369
S2. The job requires me to use a number of complex or high-level skills.	.646		.446
S6. The job requires the performance of a wide range of tasks.	.598		.414
S7. The job often involves dealing with problems that I have not met before.		.698	.360
S8. The job involves solving problems that have no obvious correct answer.		.576	.251
S4. The job requires me to be creative.		.502	.500
S5. The job requires unique ideas or solutions to problems.	.324	.495	.500

Notes. Extraction method: Principal Axis Factoring; 6 iterations required.

Table D2

Rotated Factor Loadings of the Stimulation Scale

Item Description	Factor Loadings		Communalities
	1	2	
S3. The job involves doing a number of different things.	.78		.50
S1. The job requires me to utilize a variety of different skills in order to complete the work.	.74		.36
S2. The job requires me to use a number of complex or high-level skills.	.70		.44
S6. The job requires the performance of a wide range of tasks.	.61		.39
S4. The job requires me to be creative.	.40		.35
S7. The job often involves dealing with problems that I have not met before.		.87	.36
S8. The job involves solving problems that have no obvious correct answer.		.54	.24

Notes. Extraction method: Principal Axis Factoring; 4 iterations required.

Table D3

Rotated Factor Loadings of the Mastery Scale

Item Description	Factor Loadings		Communalities
	1	2	
M5. The job itself provides feedback on my performance.	.662		.416
M3. Other people in the organization, such as managers and coworkers, provide information about the effectiveness (e.g., quality and quantity) of my job performance.	.603		.327
M8. I receive feedback on my performance from other people in my organization (such as my manager or coworkers).	.594		.277
M7. The work activities themselves provide direct and clear information about the effectiveness (e.g., quality and quantity) of my job performance.	.540	.339	.462
M6. I know what my responsibilities are.	.525		.351
M2. The job allows me to complete work I start.		.687	.294
M1. The job is arranged so that I can do an entire piece of work from beginning to end.		.618	.320
M4. Explanation is clear of what has to be done.	.354	.460	.400

Notes. Extraction method: Principal Axis Factoring; 8 iterations required.

Table D4

Rotated Factor Loadings of the Mastery Scale

Item Description	Factor Loadings		Communalities
	1	2	
M5. The job itself provides feedback on my performance.	.67		.41
M3. Other people in the organization, such as managers and coworkers, provide information about the effectiveness (e.g., quality and quantity) of my job performance.	.60		.30
M8. I receive feedback on my performance from other people in my organization (such as my manager or coworkers).	.60		.26
M7. The work activities themselves provide direct and clear information about the effectiveness (e.g., quality and quantity) of my job performance.	.57		.45
M6. I know what my responsibilities are.	.53		.29
M1. The job is arranged so that I can do an entire piece of work from beginning to end.		.72	.32
M2. The job allows me to complete work I start.		.62	.26

Notes. Extraction method: Principal Axis Factoring; 5 iterations required.

Table D5

Factor Loadings of the Agency Scale

Item Description	Factor Loadings	Communalities
A6. The job gives me a chance to use my personal initiative or judgment in carrying out the work.	.85	.47
A4. The job gives me considerable opportunity for independence and freedom in how I do the work.	.83	.53
A3. The job allows me to plan how I do my work.	.82	.66
A5. The job allows me to make decisions about what methods I use to complete my work.	.81	.63
A2. The job allows me to make my own decisions about how to schedule my work.	.71	.61
A1. The job allows me to make a lot of decisions on my own.	.69	.66

Notes. Extraction method: Principal Axis Factoring; 5 iterations required.

Table D6

Rotated Factor Loadings of the Relational Scale

Item Description	Factor Loadings			Communalities
	1	2	3	
R8. I have the opportunity to develop close friendships in my job.	.62			.42
R9. People I work with take a personal interest in me.	.62			.46
R3. People I work with are friendly.	.50			.16
R7. My supervisor is concerned about the welfare of the people that work for him/her.	.45			.19
R6. My job cannot be done unless others do their work.		-.79		.40
R4. The job activities are greatly affected by the work of other people.		-.66		.40
R2. Unless my job gets done, other jobs cannot be completed.		-.52		.26
R10. The job requires me to accomplish my job before others complete their job.		-.49		.26
R1. I have the opportunity to meet with others in my work.			-.83	.46
R5. I have the chance in my job to get to know other people.			-.75	.51

Notes. Extraction method: Principal Axis Factoring; 5 iterations required.

Table D7

Rotated Factor Loadings of the Tolerable Demands Scale

Item Description	Factor Loadings		Communalities
	1	2	
T4. I am not asked to do an excessive amount of work.	.85		.43
T2. I have enough time to get the job done.	.64		.44
T7. I am free from conflicting demands that others make.	.49		.17
T5. My job requires working very fast. (reverse code)		.80	.35
T6. My job requires working very hard. (reverse code)		.65	.30

Notes. Extraction method: Principal Axis Factoring; 5 iterations required.

Table D8

Factor Loadings of the WHO-5 Wellbeing Index

Item Description	Factor Loading	Communalities
W4. I have felt cheerful and in good spirits.	.87	.56
W5. I woke up feeling fresh and rested.	.81	.63
W3. I have felt calm and relaxed.	.70	.51
W2. My daily life has been filled with things that interest me.	.61	.35
W1. I have felt active and vigorous.	.57	.35

Notes. Extraction method: Principal Axis Factoring; 5 iterations required.

Appendix E

Table E1

Item-total Statistics for Stimulating Scale

Scale	Item Description	Corrected Item-Total Correlation
Stimulating Scale	S1. The job requires me to utilize a variety of different skills in order to complete the work.	.51
	S2. The job requires me to use a number of complex or high-level skills.	.60
	S3. The job involves doing a number of different things.	.64
	S4. The job requires me to be creative.	.54
	S6. The job requires the performance of a wide range of tasks.	.57
	S7. The job often involves dealing with problems that I have not met before.	.53
	S8. The job involves solving problems that have no obvious correct answer.	.35

Table E2

Item-total Statistics for Mastery Scale

Scale	Item Description	Corrected Item-Total Correlation
Mastery Scale	M3. Other people in the organization, such as managers and coworkers, provide information about the effectiveness (e.g., quality and quantity) of my job performance.	.47
	M5. The job itself provides feedback on my performance.	.54
	M6. I know what my responsibilities are.	.49
	M7. The work activities themselves provide direct and clear information about the effectiveness (e.g., quality and quantity) of my job performance.	.61
	M8. I receive feedback on my performance from other people in my organization (such as my manager or coworkers).	.36
	M1. The job is arranged so that I can do an entire piece of work from beginning to end.	.41
	M2. The job allows me to complete work I start.	.30

Table E3

Item-total Statistics for Agency Scale

Scale	Item Description	Corrected Item-Total Correlation
Agency	A1. The job allows me to make a lot of decisions on my own.	.66
	A2. The job allows me to make my own decisions about how to schedule my work.	.67
	A3. The job allows me to plan how I do my work.	.78
	A4. The job gives me considerable opportunity for independence and freedom in how I do the work.	.77
	A5. The job allows me to make decisions about what methods I use to complete my work.	.77
	A6. The job gives me a chance to use my personal initiative or judgment in carrying out the work.	.79

Table E4

Item-total Statistics for Relational Scale

Scale	Item Description	Corrected Item-Total Correlation
Relational Scale	R3. People I work with are friendly.	.20
	R7. My supervisor is concerned about the welfare of the people that work for him/her.	.25
	R8. I have the opportunity to develop close friendships in my job.	.46
	R9. People I work with take a personal interest in me.	.60
	R2. Unless my job gets done, other jobs cannot be completed.	.42
	R4. The job activities are greatly affected by the work of other people.	.46
	R6. My job cannot be done unless others do their work.	.40
	R10. The job requires me to accomplish my job before others complete their job.	.43
	R1. I have the opportunity to meet with others in my work.	.35
	R5. I have the chance in my job to get to know other people.	.48

Table E5

Item-total Statistics for Tolerable Demands Scale

Scale	Item Description	Corrected Item Total Correlation
	T2. I have enough time to get the job done.	.61
	T4. I am not asked to do an excessive amount of work.	.58
	T7. I am free from conflicting demands that others make.	.33
	T5. My job requires working very fast.	.47
	T6. My job requires working very hard.	.39

Table E6

Item-total Statistics for WHO-5 Wellbeing Scale

Scale	Item Description	Corrected Item-Total Correlation
Wellbeing	W1. I have felt active and vigorous.	.53
	W2. My daily life has been filled with things that interest me.	.57
	W3. I have felt calm and relaxed.	.62
	W4. I have felt cheerful and in good spirits.	.76
	W5. I woke up feeling fresh and rested.	.73

Appendix F

Figure F1

The Linear Relationship between Stimulation and Wellbeing in Group 1

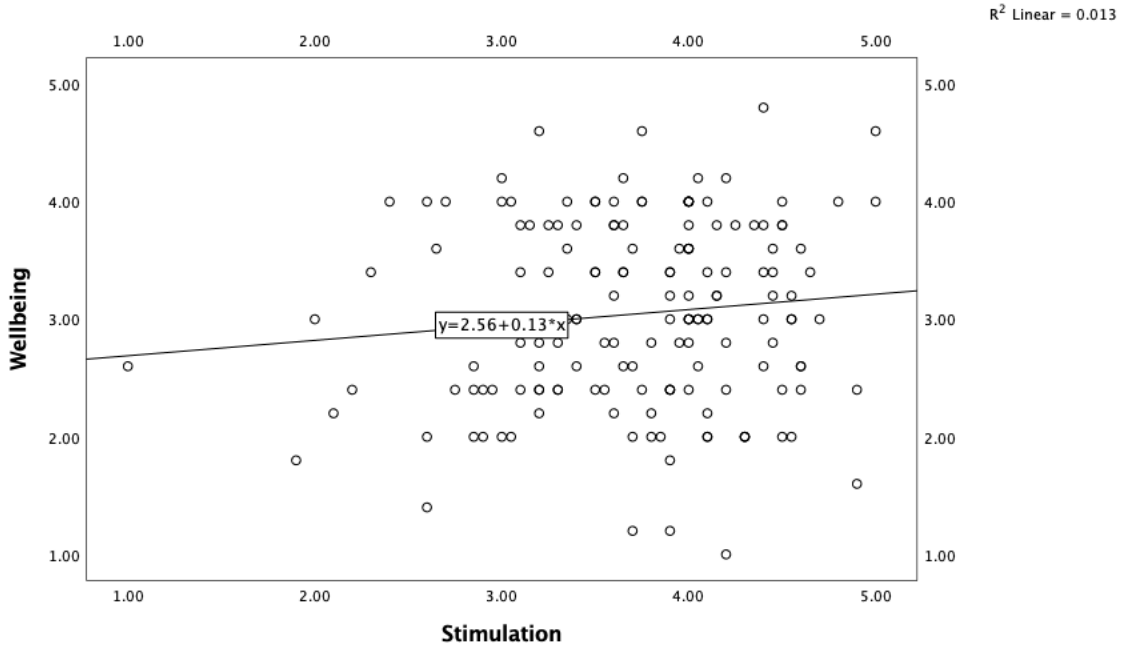


Figure F2

The Linear Relationship between Mastery and Wellbeing in Group 1

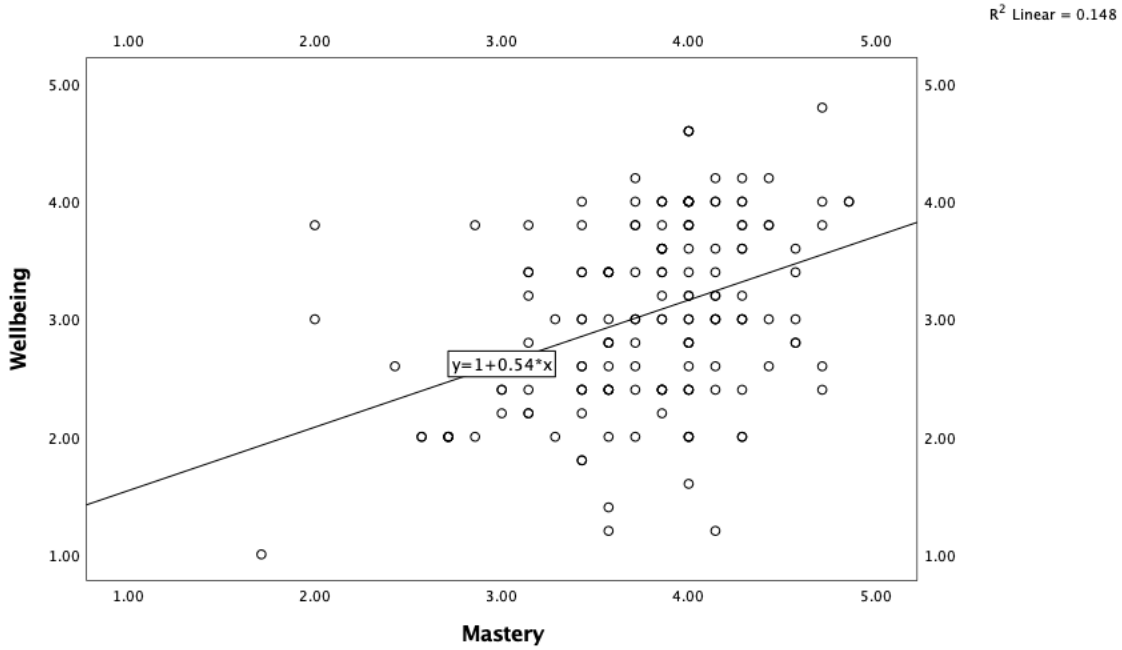


Figure F3

The Linear Relationship between Agency and Wellbeing in Group 1

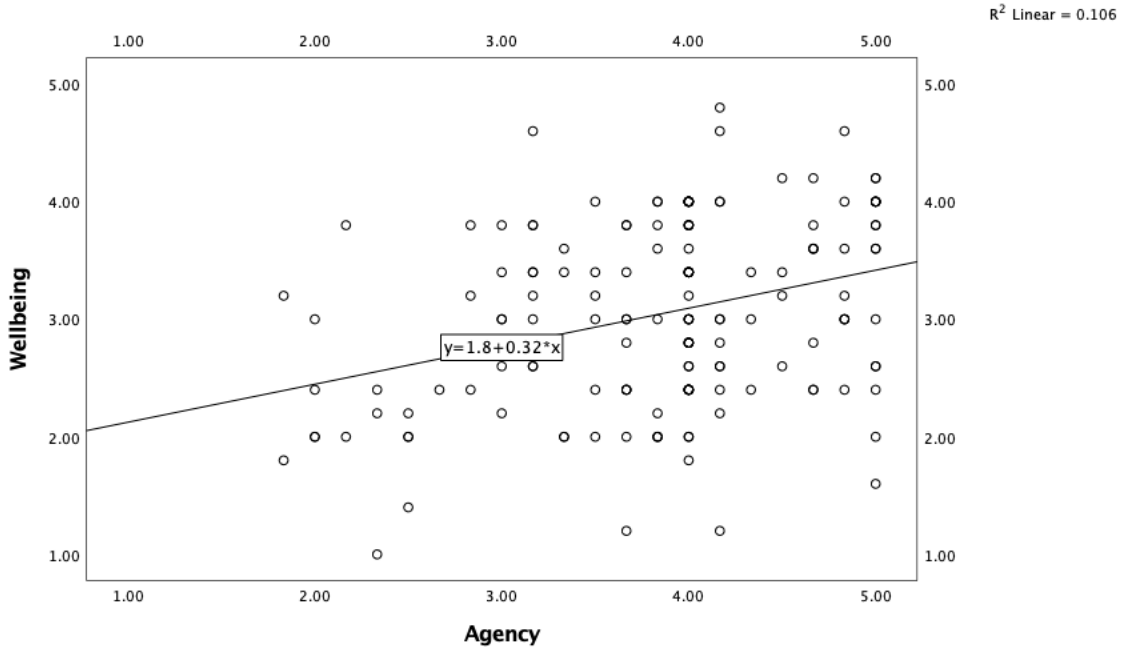


Figure F4

The Linear Relationship between Relational and Wellbeing in Group 1

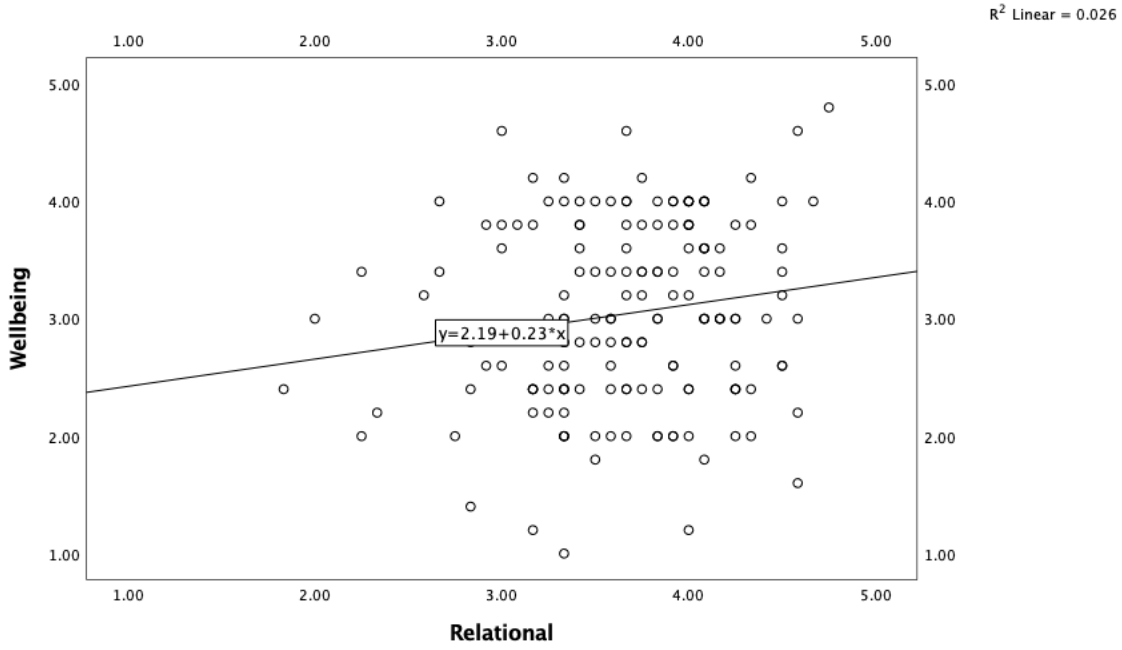


Figure F5

The Linear Relationship between Tolerable Demands and Wellbeing in Group 1

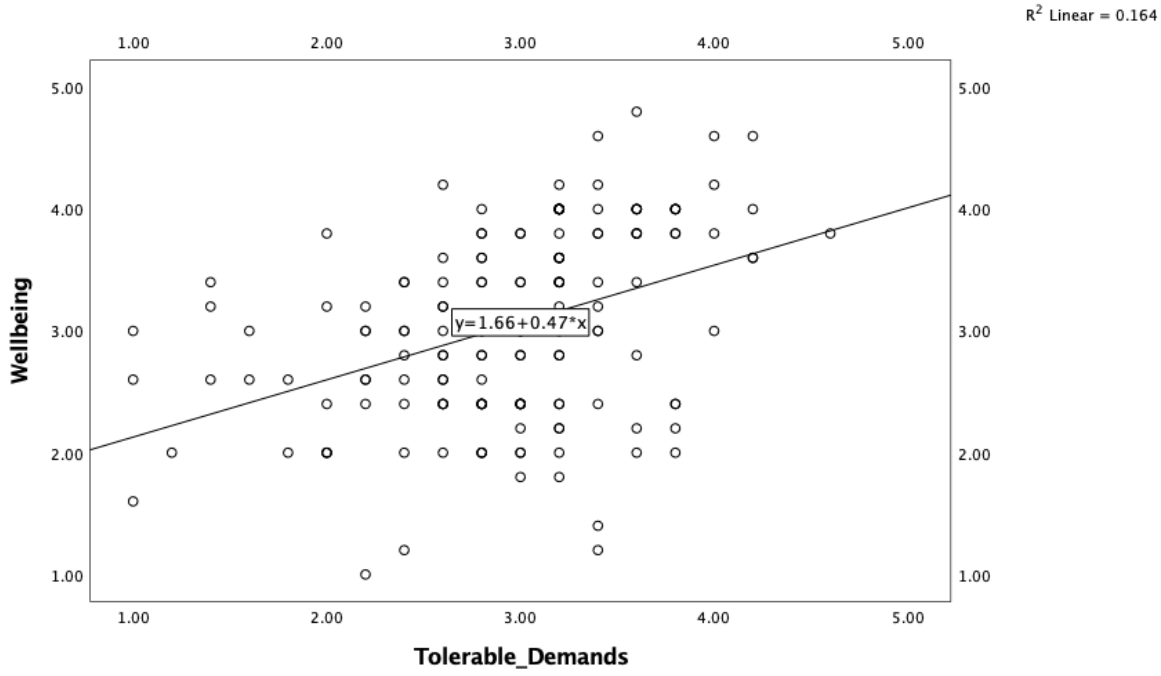


Figure F6

The Linear Relationship between Stimulation and Wellbeing in Group 2

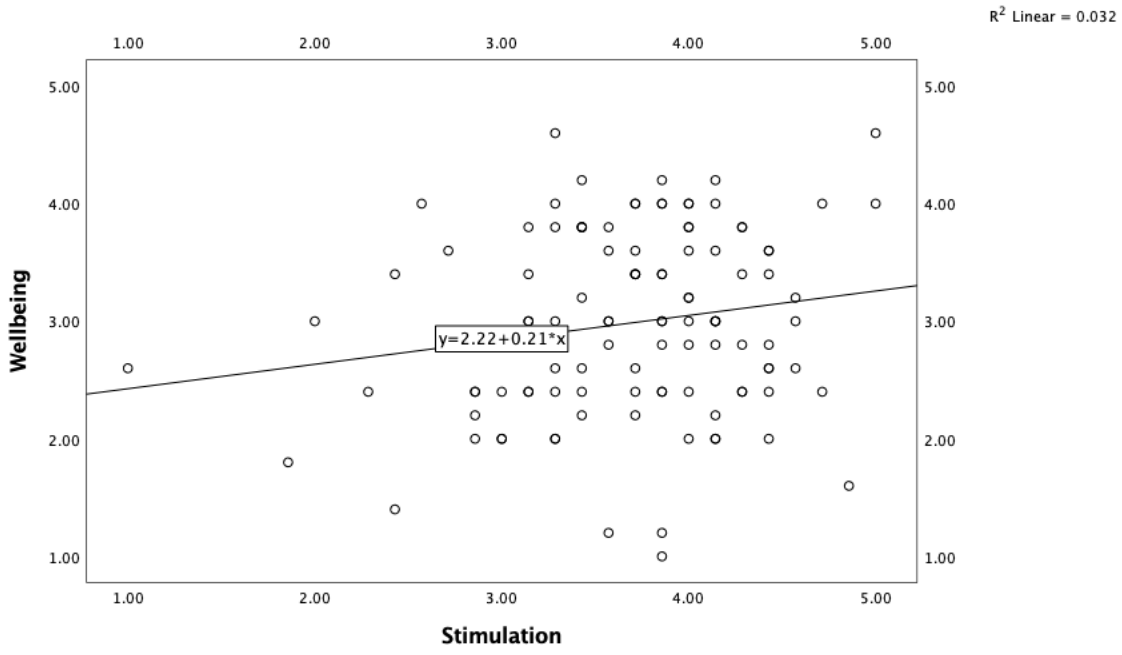


Figure F7

The Linear Relationship between Mastery and Wellbeing in Group 2

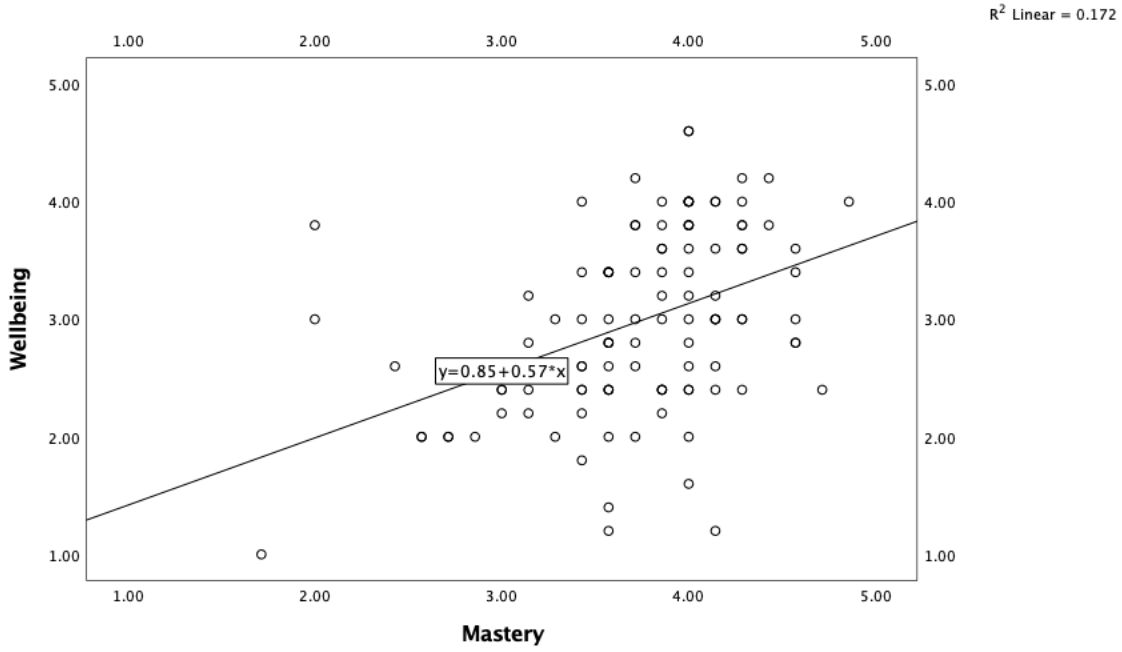


Figure F8

The Linear Relationship between Agency and Wellbeing in Group 2

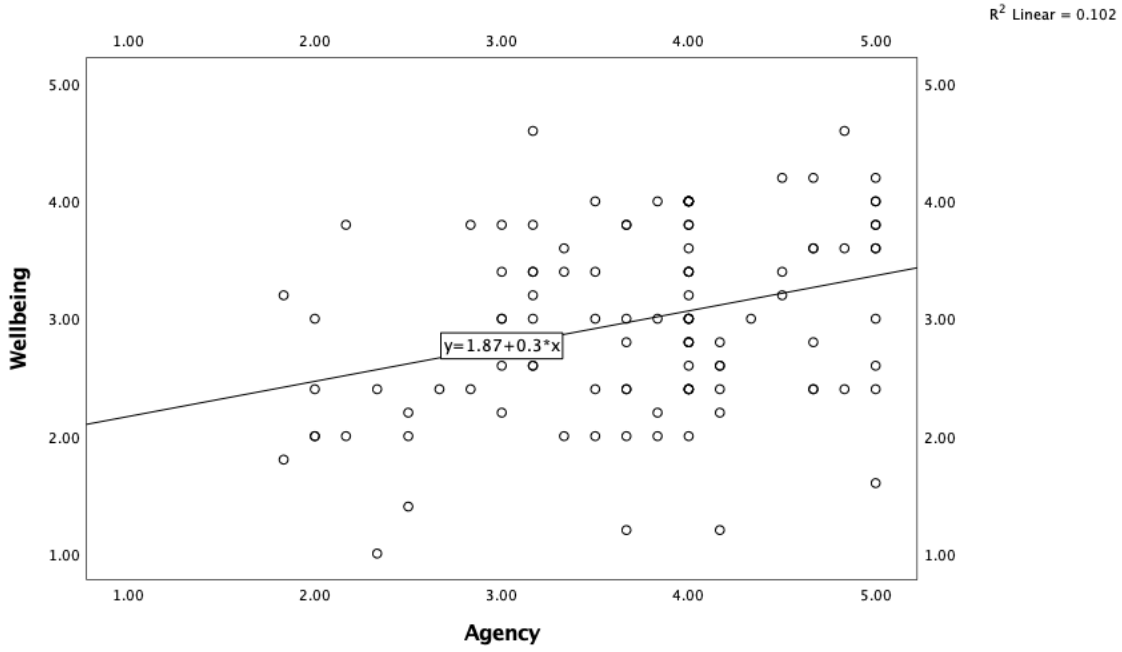


Figure F9

The Linear Relationship between Relational and Wellbeing in Group 2

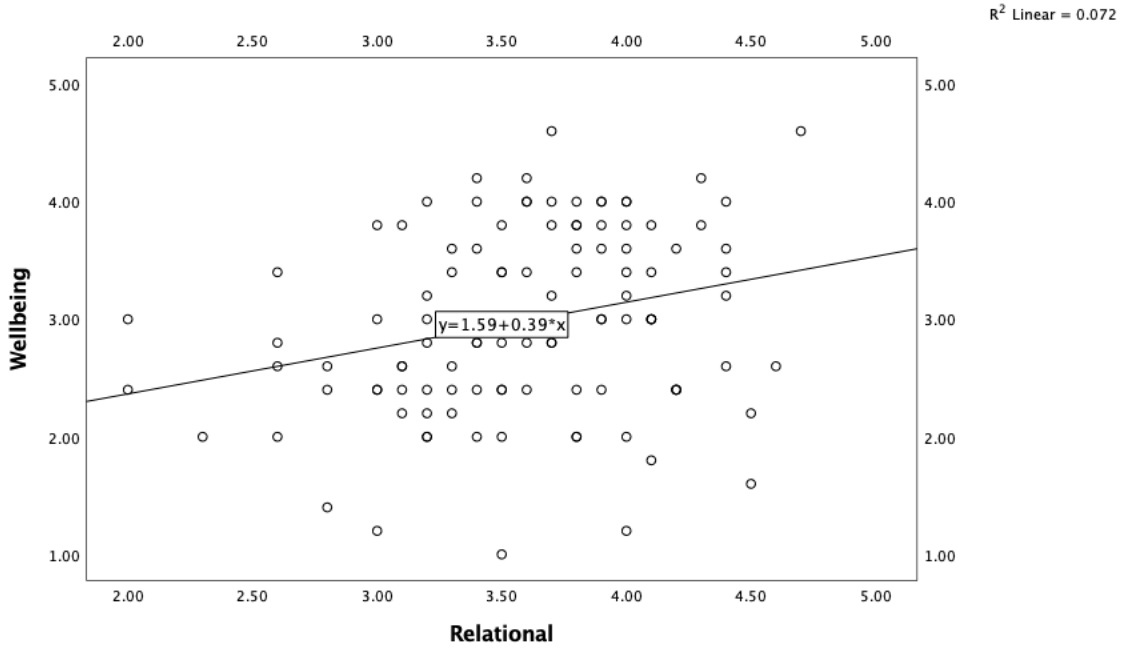


Figure F10

The Linear Relationship between Tolerable Demands and Wellbeing in Group 2

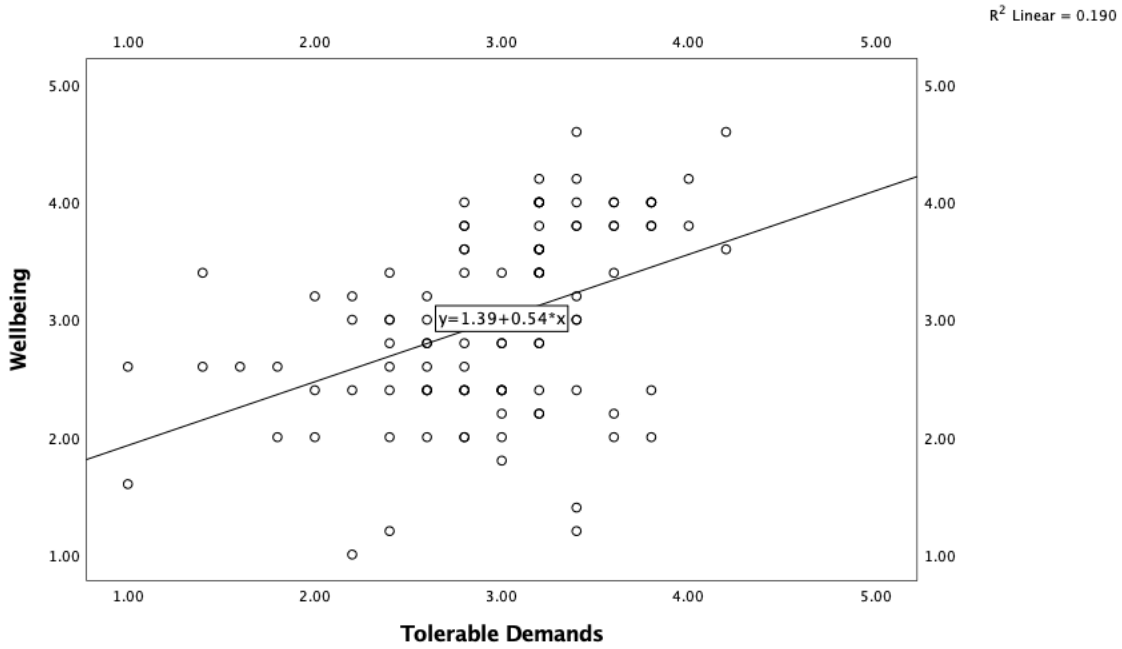


Figure F11

The Linear Relationship between Stimulation and Wellbeing in Group 3

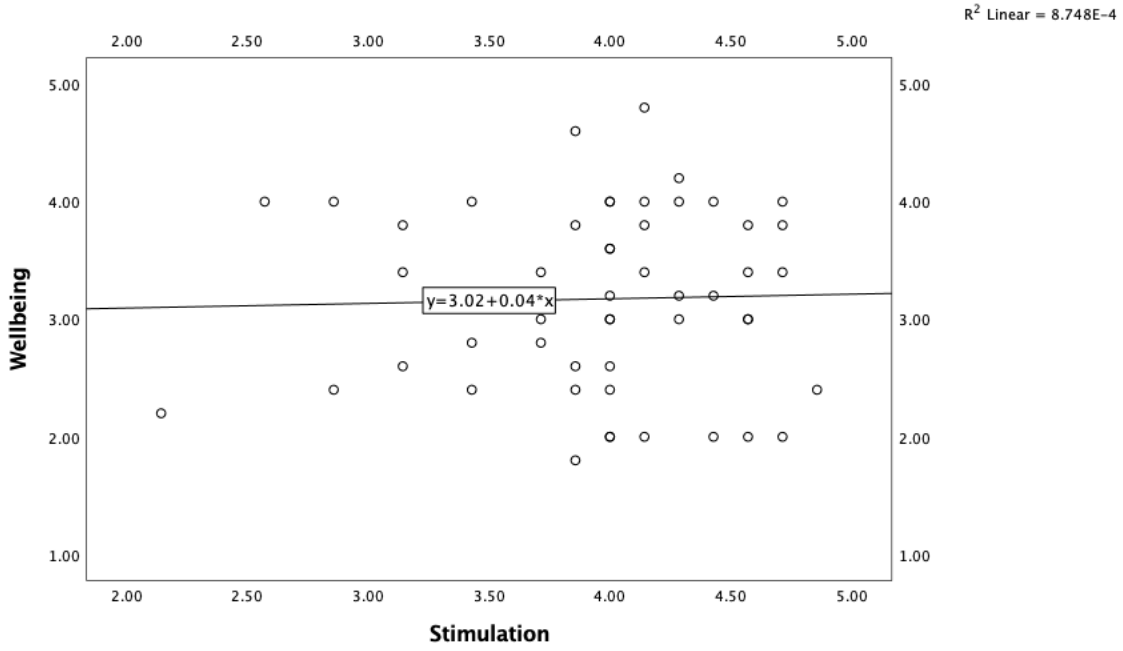


Figure F12

The Linear Relationship between Mastery and Wellbeing in Group 3

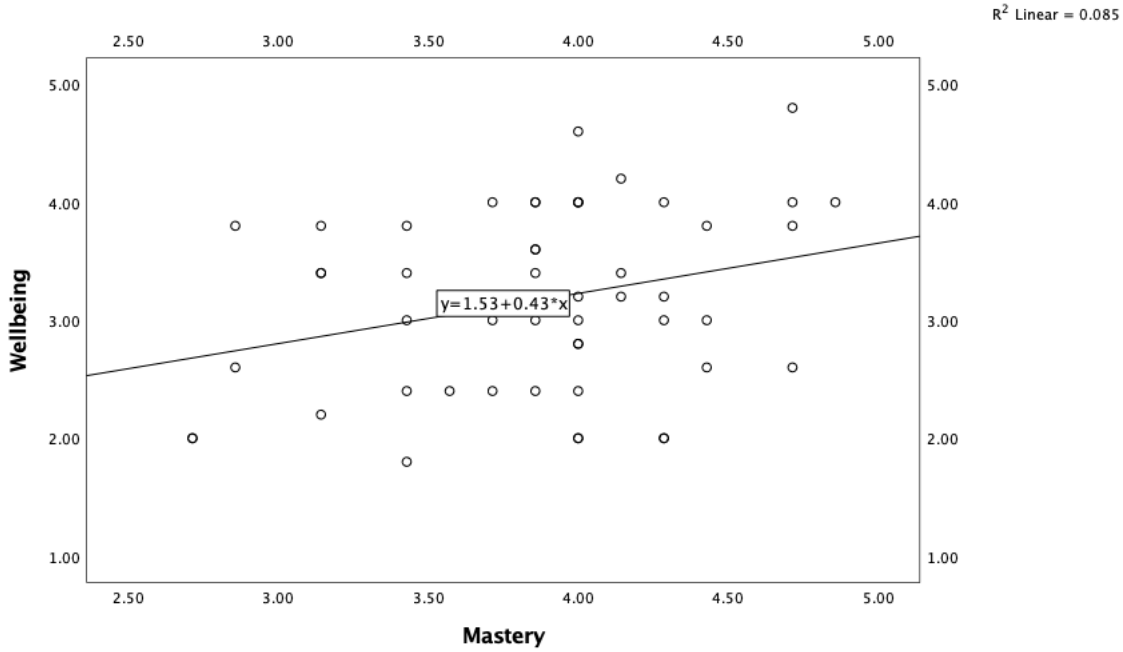


Figure F13

The Linear Relationship between Agency and Wellbeing in Group 3

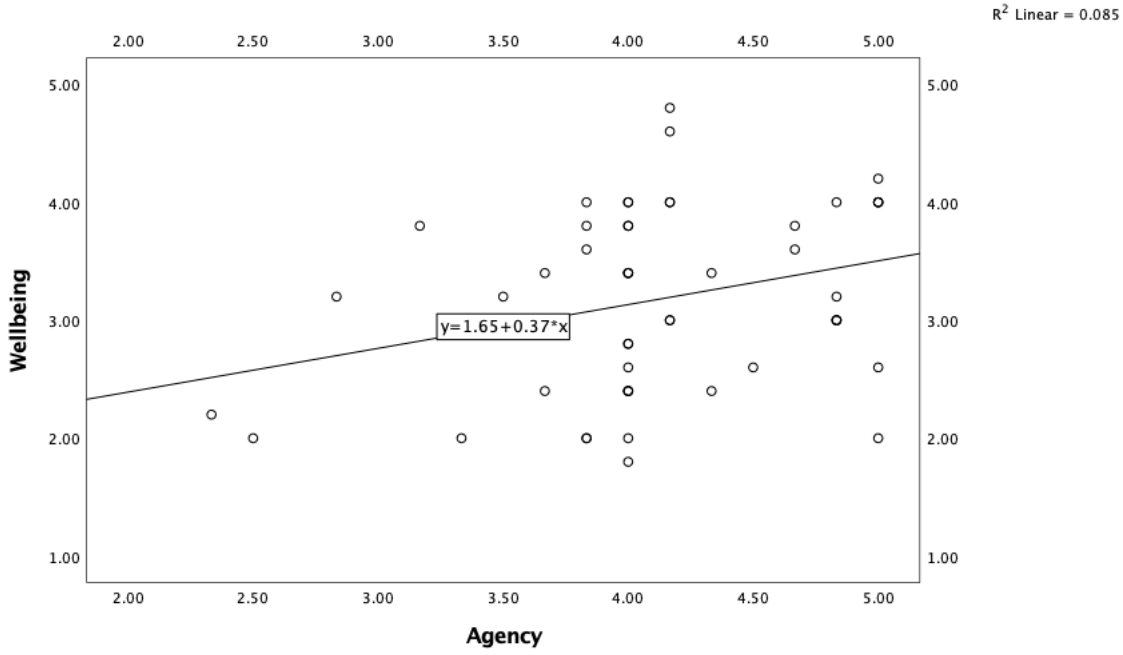


Figure F14

The Linear Relationship between Relational and Wellbeing in Group 3

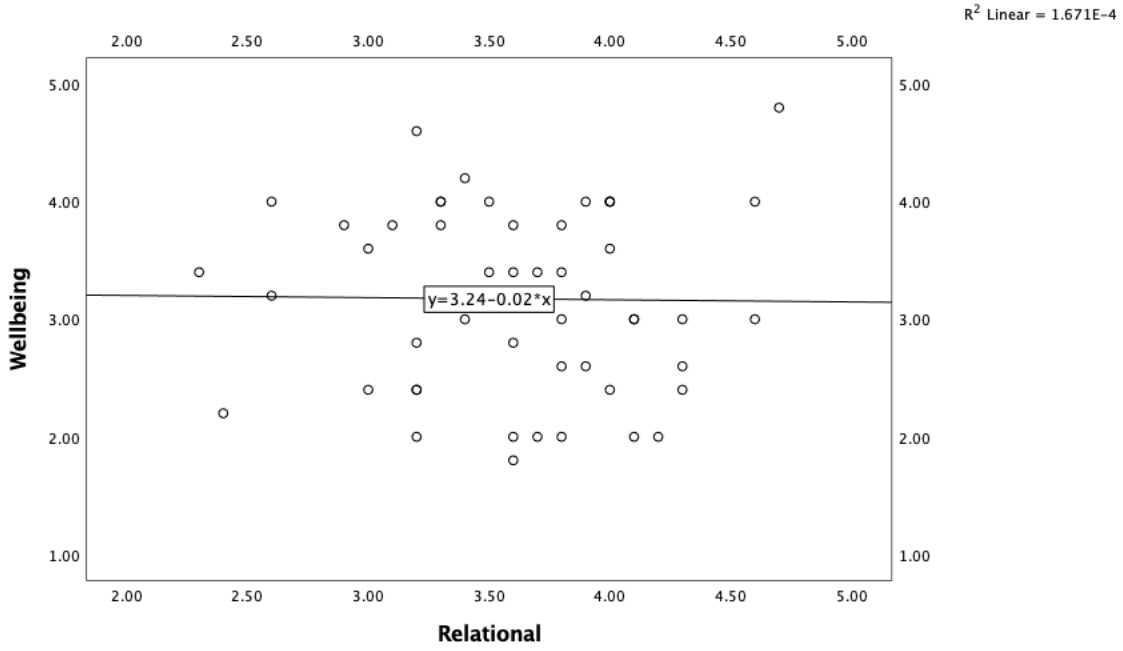
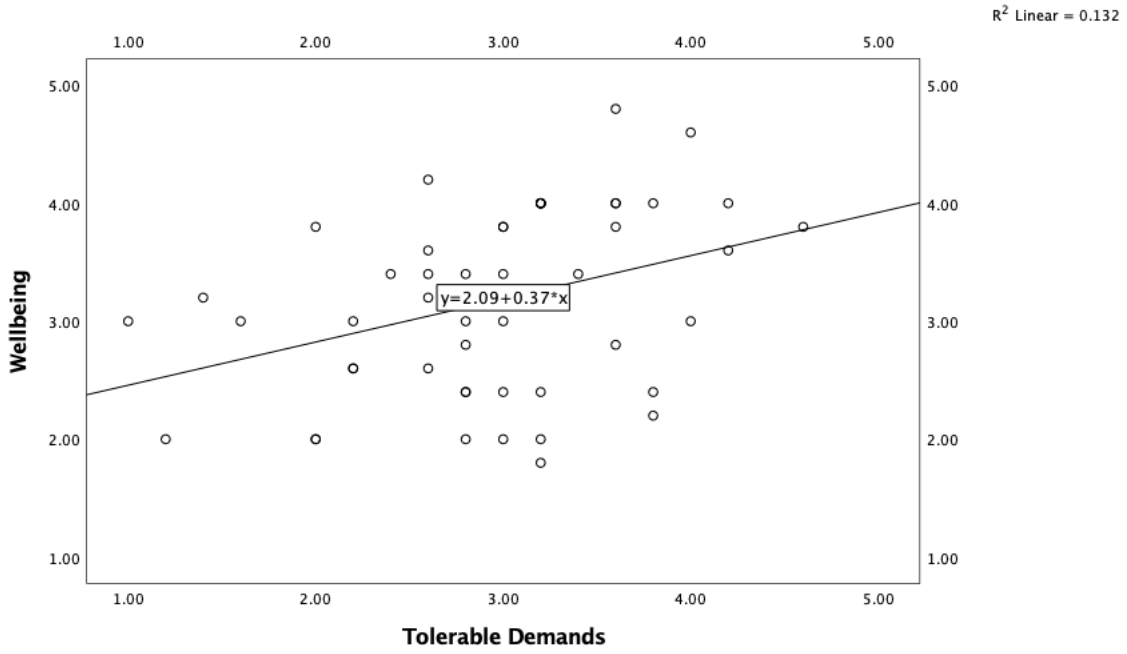


Figure F15

The Linear Relationship between Tolerable Demands and Wellbeing in Group 3



Appendix G

Figure G1

Scatterplot of Standardised Observed Residuals and Standardised Predicted Residuals for Overall Sample

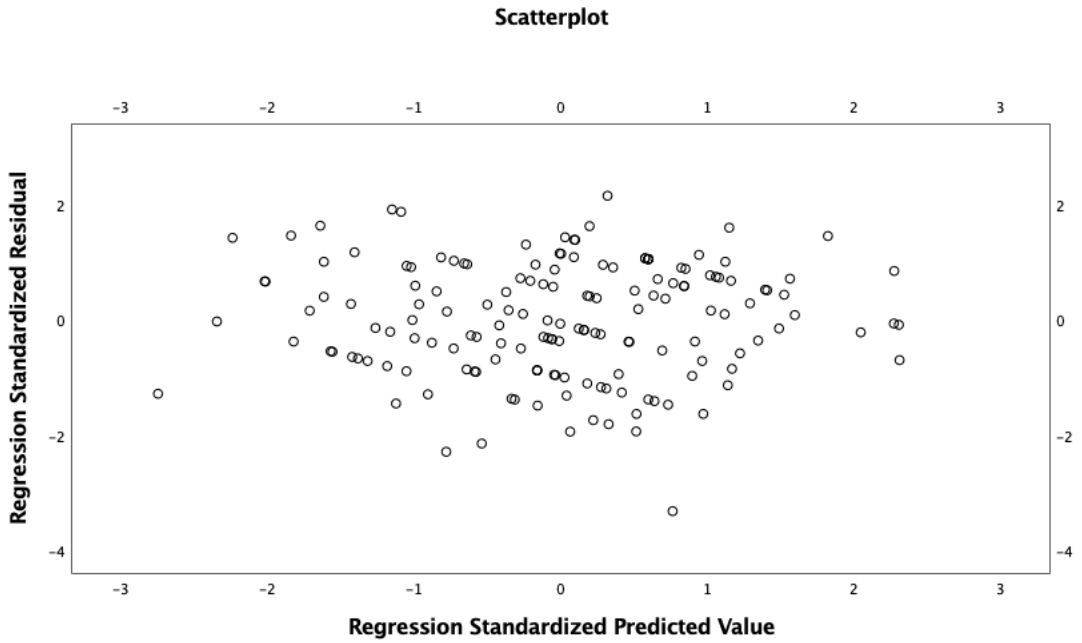


Figure G2

Scatterplot of Standardised Observed Residuals and Standardised Predicted Residuals for Employees Working mostly Face-To-Face

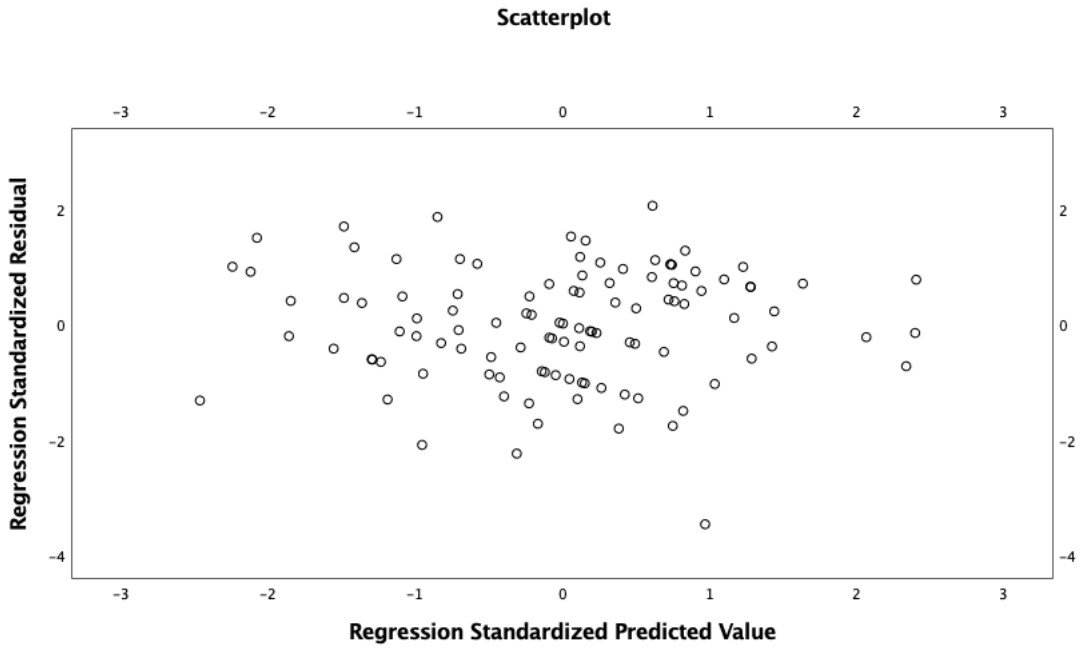
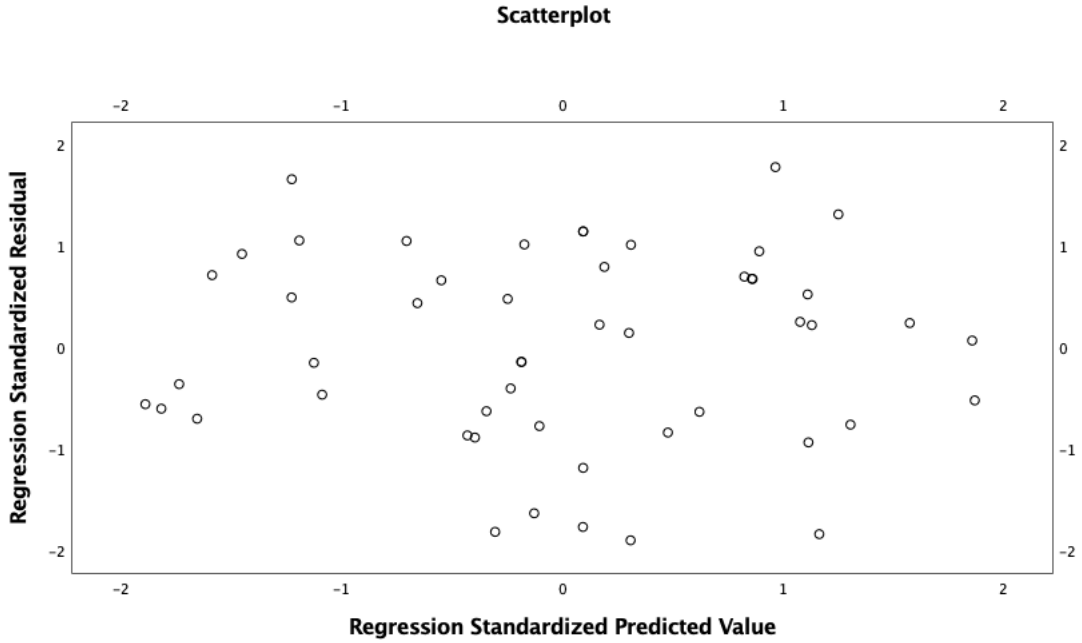


Figure G3

Scatterplot of Standardised Observed Residuals and Standardised Predicted Residuals for Employees Working mostly Virtually



Appendix H

Figure H1

Histogram of Normally Distributed Residuals for Overall Sample

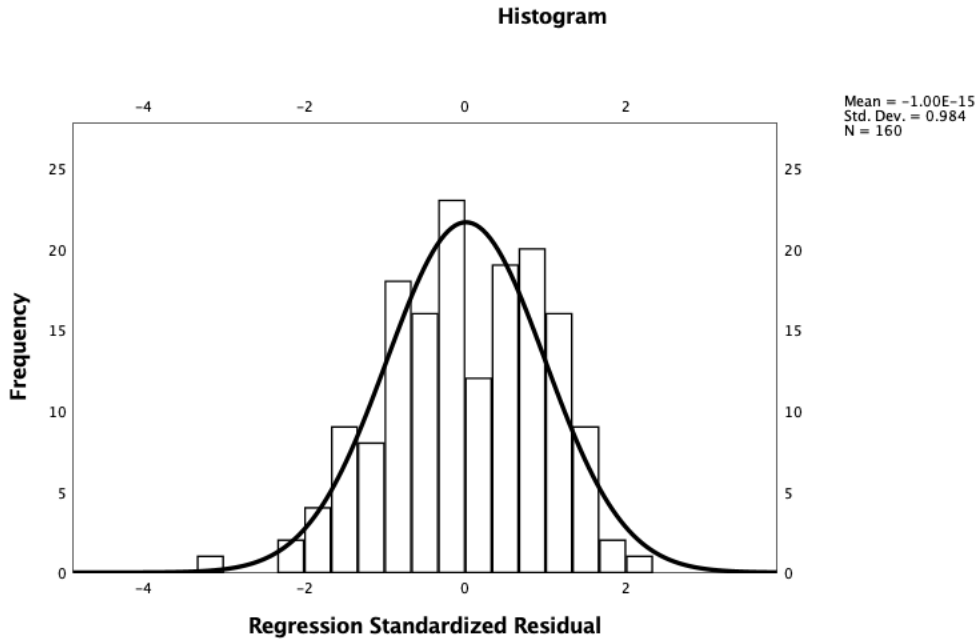


Figure H2

Histogram of Normally Distributed Residuals for Employees Working mostly Face-to-Face

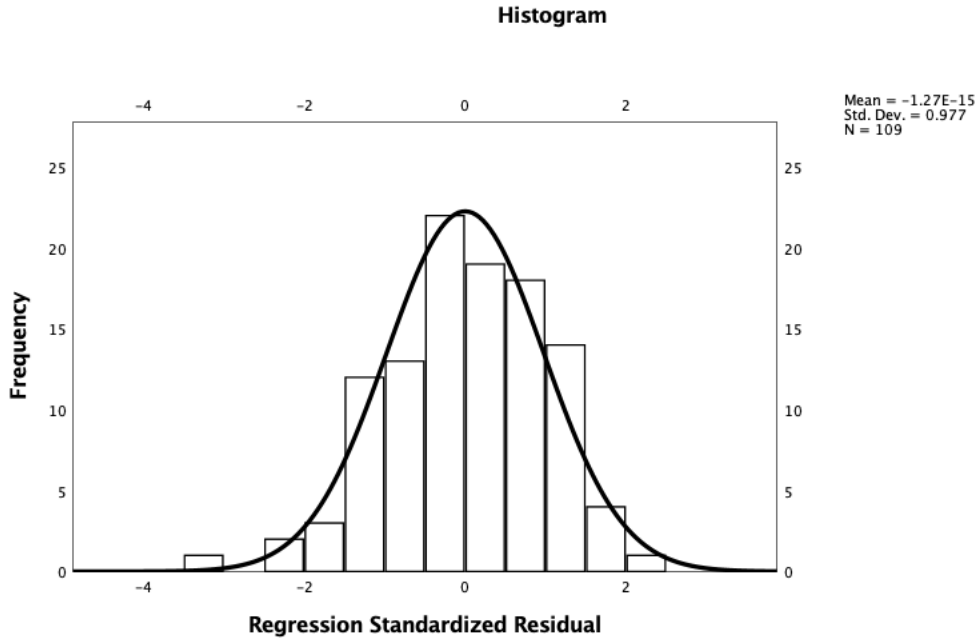


Figure H1

Histogram of Normally Distributed Residuals for Employees Working mostly Virtually