"Did you have a good weekend?" A week-level diary study examining the relationship between weekend recovery and weekday performance

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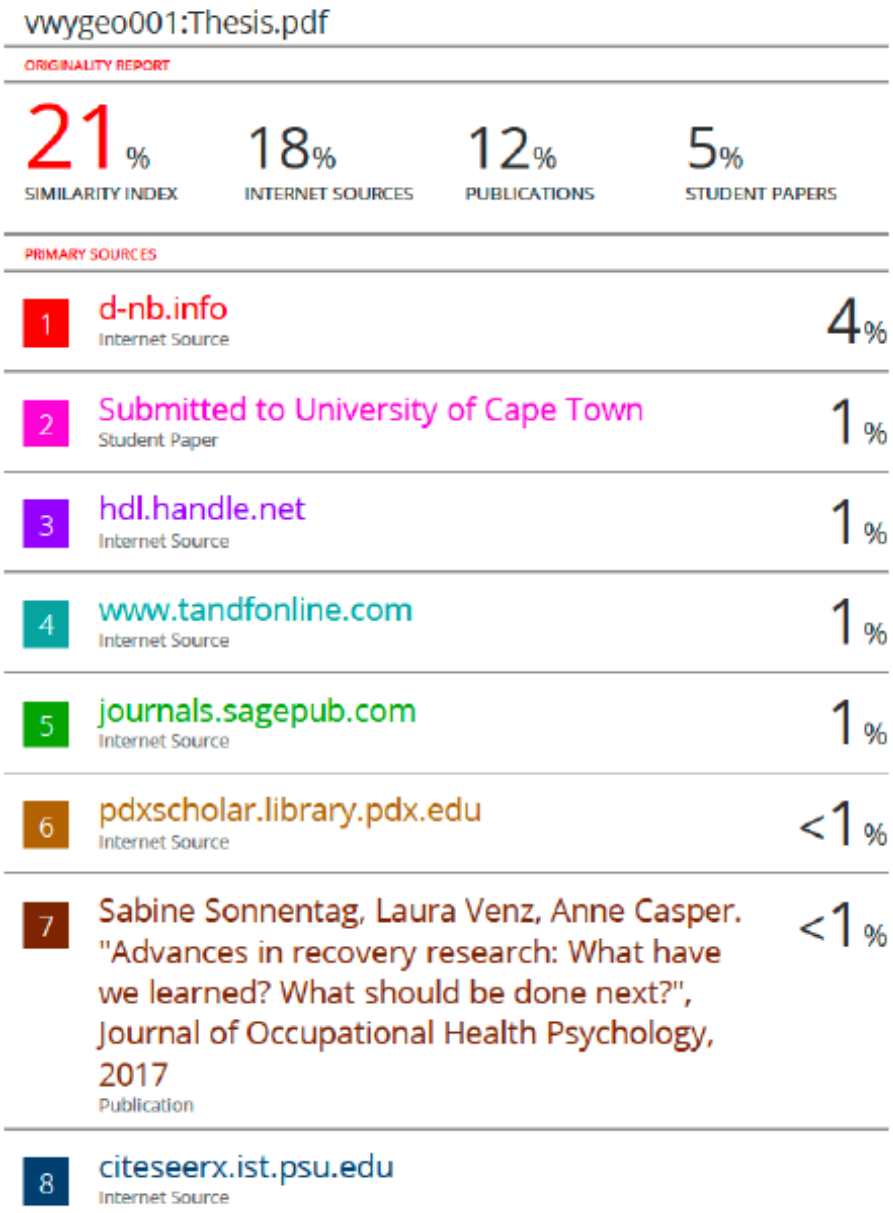
Compulsory Declaration

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.

Signature: Signed by candidate Date: 4 March 2021



The report has been assessed and discussed with the student.

Ieff Bagraim: Supervisor

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Abstract

Sufficient rest breaks are needed for optimal performance in traditional workplaces, but it is unclear how working with a loosely structured work schedule impacts recovery. Students have temporal flexibility and serve as a good proxy for all groups who work unstructured work schedules. Since most students and employees use the weekend to recover, this study investigated the relationship between recovery experiences (i.e., psychological detachment, relaxation, and mastery) over the weekend and the state of being recovered on the following Monday. Further, the relationship between the state of being recovered on Monday and weekday performance indicators (i.e., task performance and personal initiative) was investigated. Data was collected over three consecutive weeks from a cohort of first-year university students (N = 106) using a quantitative diary study design. This study administered seven surveys (i.e., a personal data survey once, a pre-weekend survey three times, and a post-weekend survey three times). After three weeks, 66 participants (N = 66) had completed all the surveys at the person level, yielding 148 matched observations at the week-level. Multilevel modelling showed that weekend relaxation positively predicted the state of being recovered on Monday. Weekend psychological detachment and weekend mastery experiences did not predict the state of being recovered on Monday, and the state of being recovered did not predict weekly personal initiative or weekly task performance. The theoretical and practical implications of this study are presented, as are limitations and suggestions for future research.

Keywords: Weekend recovery, psychological detachment, mastery, relaxation, personal initiative, task performance, state of being recovered, first-year university students, multilevel modelling.

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Abbreviations

CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Indices
COR	Conservation of Resources
EFA	Exploratory Factor Analysis
E-R	Effort-Recovery model
KMO	Kaiser-Meyer-Oklin
ML	Maximum Likelihood
NGSE	New General Self-Efficacy Scale
PAF	Principal Axis Factoring
PANAS	Positive and Negative Affect Schedule
PI	Personal Initiative
REML	Mixed-Effects Restricted Maximum Likelihood
REQ	Recovery Experience Questionnaire
RMSEA	Root Mean Square Error of Approximation
SPSS	Software Package for Social Science
SRMR	Standardised Root Mean Square

Introduction

Individuals who inadequately recover from work-related stress experience reduced physical and psychological wellbeing (Sonnentag, Venz, & Casper, 2017; Steed, Swidler, Keem, & Liu, 2019). Without regular time to recover, fatigue accumulates over time, which can lead to chronic physical and psychological consequences such as burnout (Geurts & Sonnentag, 2006). In contrast, successful recovery is associated with improved health, wellbeing, and performance at work (Binnewies, Sonnentag, & Mojza, 2010; Geurts & Sonnentag, 2006; Sonnentag & Fritz, 2007). When an individual has successfully recovered, he or she feels mentally and physically refreshed and replenished following a period of rest. This concept is referred to as the state of being recovered and is the outcome of the recovery process (Binnewies, Sonnentag, & Mojza, 2009a; Sonnentag & Kruel, 2006). However, how recovery occurs is of primary interest to many researchers. The recovery process includes engaging in various recovery experiences, including psychological detachment, relaxation, and mastery, that rebuild and replenish lost resources (Hobfoll, 1998; Sonnentag & Fritz, 2007; Sonnentag et al., 2017).

Research has shown that highly recovered individuals report higher levels of performance during the subsequent work period. This is due to increased resources that can be directed towards improving performance at work (Beal, Weiss, Barros, & MacDermid, 2005; Binnewies et al., 2009a; Binnewies et al., 2010). For example, Binnewies et al. (2010) found that participants who reported feeling highly recovered after the weekend reported increased task performance and personal initiative (PI) during the subsequent working week. Similarly, Binnewies, Sonnentag and Mojza (2009b) showed that being highly recovered is positively associated with enhanced task performance after six months. This highlights how essential recovery is for an individual to improve and sustain high performance over the short and long term (Xanthopoulou, Sanz-Vergel, & Demerouti, 2014).

Studies examining recovery experiences have primarily been conducted on samples of employees working in desk-based occupations that follow traditional ‘9 to 5’ work hours (e.g. Binnewies et al., 2010; Fritz & Sonnentag, 2005; Hahn, Binnewies, & Haun, 2012; Ouyang, Cheng, Lam, & Parker, 2019). However, many individuals have temporal flexibility in their work schedules and work irregular hours. Therefore, it is necessary to investigate how loosely structured work schedules influences recovery as the distinction between work and non-work periods can become blurred and could inhibit the individual’s ability to recover adequately (Ragsdale, Beehr, Gebner, & Hun, 2011; Sonnentag et al., 2017).

University students may serve as a proxy for all groups who work unstructured work schedules since they have temporal flexibility in managing loose work schedules. During the week, a student's daily class timetable is structured to accommodate the lectures and other academic activities they are required to attend. However, since students are also required to complete assignments and study for tests outside of lecture periods, this allows students flexibility in deciding when to complete most of their academic activities.

Although it is useful to make inferences about the recovery process in other groups by studying students, the unique context of students further justifies studying recovery and performance in this particular group. There is a mental health crisis in universities, where many students experience high levels of stress, depression, and anxiety (Auerbach et al., 2018; Ragsdale et al., 2011). Furthermore, first-year students may be particularly vulnerable as they face additional challenges associated with transitioning from high school to university. From an academic perspective, first-year students are exposed to challenging course work and may, for the first time, be required to manage their schedules to cope with their workload (Conley, Travers, & Bryant, 2013). However, if first-year students can learn to cope with stress effectively, it creates an opportunity for them to develop behaviours that support wellbeing and performance over time (Conley et al., 2013).

Given the benefits associated with recovery, it is necessary to investigate how and when students recover. As students tend to complete the majority of their academic tasks outside of lecture periods, they may need to work during the evening to meet their due dates, thereby eliminating the evening as an opportunity to recover (Ragsdale et al., 2011). Furthermore, while vacations may offer good recovery opportunities, they occur infrequently, and the benefits from recovering during vacation are usually short-lived (Westman & Eden, 1997). However, students, like employees, are typically not required to work or attend formal academic activities during the weekend. Therefore, the weekend may present a frequent and more reliable recovery period for students to recover from stressors and replenish resources that can be used to enhance their performance during the week (Beal et al., 2005; Binnewies et al., 2009a; Hobfoll, 1998, 2001; Meijman & Mulder, 1998; Ragsdale et al., 2011).

The aim of the present study is twofold. First, this study aims to examine weekend recovery experiences as predictors of the state of being recovered on Monday. Second, this study aims to investigate the state of being recovered on Monday as a predictor of task performance and PI. This study aims to examine these relationships among a sample of first-year students and therefore differentiates it from similar studies conducted on employees

working in primarily desk-based occupations (Binnewies et al., 2009a; Binnewies et al., 2009b; Binnewies et al., 2010; Bosch, Sonnentag, & Pinck, 2018; Fritz & Sonnentag, 2005; Niks, Gevers, De Jonge, & Houtman, 2016). Accordingly, the following research questions are offered:

(1) To what extent do recovery experiences (psychological detachment, relaxation, and mastery) during the weekend predict the state of being recovered on Monday?
(2) To what extent does the state of being recovered on Monday predict task performance and personal initiative (PI) during the week?

Literature Review

This chapter aims to review weekend recovery literature and its relationship with performance during the week. To achieve this, the conceptual model underlying this study is first presented to briefly introduce the variables under examination and provide an overview of the hypothesised relationships between them. Thereafter, this literature review will be separated into two parts. Part one will discuss the literature related to weekend recovery, while section two will discuss performance literature. Each part begins with an overview of the body of literature under examination, a discussion of the theoretical frameworks employed, definitions of the variables of interest and a thorough discussion of relevant empirical studies that have previously examined the relationships of interest. Thereafter, this study's hypotheses are presented, and finally, the rationale justifying the choice of variables controlled for in this study: age, gender, negative affect, self-efficacy, proactive personality, and academic stress are described.

Conceptual Model

The conceptual model in Figure 1 below illustrates the variables of interest and the hypothesised relationships that are studied in this dissertation. In this study, weekend recovery is defined as a process through which a person replenishes and restores lost resources during the weekend (Sonnentag & Geurts, 2009; Sonnentag et al., 2017). To do this, a person could engage in three recovery experiences, including psychological detachment, relaxation and mastery (Sonnentag & Fritz, 2007). These recovery experiences are hypothesised to result in a person feeling refreshed, recovered and physically, mentally and emotionally prepared for the challenges of the next work period. This outcome of the recovery process is referred to as the state of being recovered (Sonnentag & Kruel, 2006; Sonnentag et al., 2017). While the state of being recovered is the outcome of the weekend recovery process, it also simultaneously predicts the performance outcomes (namely task performance and personal initiative) during the week (Binnewies et al., 2009a; 2010).

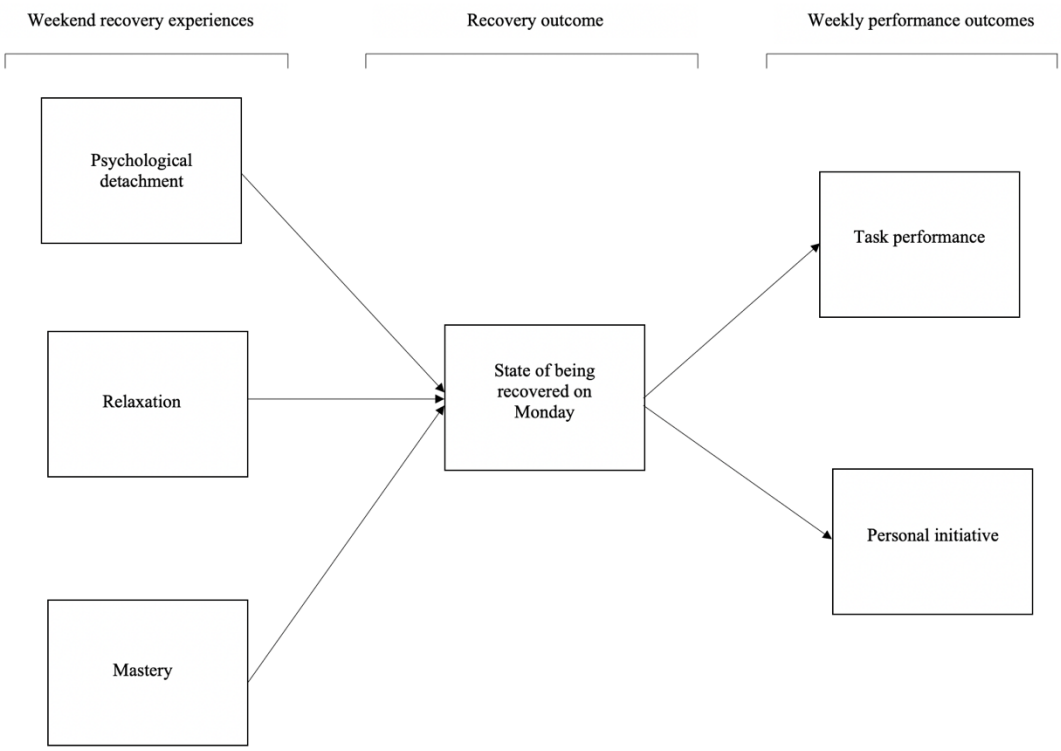

Figure 1. Conceptual Model

Search Strategy

I wrote the literature review following research between February 2019 and November 2020. Databases searched included Web of Science, JSTOR, Academic Search Premier, Education Resources Information Centre, PsycARTICLES, PsycINFO, and Sabinet. Examples of the keywords used in the literature search included *recovery, recovery experiences, weekend recovery experiences, weekend recovery, task performance, contextual performance, personal initiative, in-role behaviour, university students, college students,* and *diary studies*.

An Overview of Recovery Literature

To provide context and theoretical rigour to this dissertation, this section will first discuss how research on recovery has evolved over the past century. Thereafter, three prominent theoretical frameworks: The Conservation of Resources (COR) theory (Hobfoll, 1998), the Effort-Recovery model (E-R model; Meijman & Mulder, 1998), and Allostatic Load framework (McEwan, 1998) that underpin recovery literature will be reviewed.

The conceptual evolution of recovery. Recovery has received increasing attention in literature over the past century (Sonnentag et al., 2017). During the 1920s and 1930s, a series

of prominent experiments called the Hawthorne studies were conducted (Franke & Kaul, 1978). One of these experiments examined the relationship between rest periods and worker productivity. The study contained fifteen experimental conditions, with each condition containing a different combination of the frequency and duration of rest periods coupled with variations in the length of the workday and workweek (Sonnenfeld, 1985). Although the findings were inconclusive due to several variables that were not controlled, the results of these studies suggested that sufficient rest periods could be an essential contributor to employee performance (Sonnenfeld, 1985).

In the late 20th century, researchers started to examine the effect vacations have on decreasing job-related stress (Eden, 1990; Lounsbury & Hoopes, 1986). Notably, Lounsbury and Hoopes (1986) found that, following a vacation, employees experienced a significant increase in both life and job satisfaction compared to pre-vacation levels. Further, Eden and colleagues have argued that the study of recovery periods, or 'respites', is central to understanding the stressor-strain relationship (Eden, 2001; Etzion, Eden, & Lapidot 1998; Westman & Eden, 1997). Consequently, these studies, together with the increased popularity of the E-R model and COR theory, laid the foundation for contemporary research in recovery (Sonnentag et al., 2017).

Contemporary research in recovery seeks to understand how employees engage with recovery processes during their daily experiences. The first study of this kind was conducted by Sonnentag (2001), which examined the activities engaged in the evening after work, whereby it was shown that time spent on physical, social, and low-effort activities was associated with an increase in day-specific wellbeing during the evening. Similarly, work-related activities or household tasks were associated with a decrease in day-specific wellbeing. However, this study did not initially receive substantial attention from the research community. This could be attributed to three factors that were later met by subsequent studies (Sonnentag et al., 2017).

First, recovery had not yet been shown to predict work performance. However, empirical literature subsequently found recovery to be associated with work engagement (Sonnentag, 2003; Sonnentag et al., 2012; ten Brummelhuis & Bakker, 2012), proactive behaviour, PI, task performance, and organisational citizenship behaviour (Binnewies et al., 2009a; 2010; Sonnentag, 2003; Volman, Bakker, & Xanthopoulou, 2013).

Second, the theoretical frameworks that explained the process of recovery needed to be better understood. The E-R model, which is one of the core theories applied to recovery literature, was initially only briefly described (Meijman & Mulder, 1998). Although this model

was more fully elaborated on in Meijman (1989), it was written in Dutch, which may not have been widely understood by international researchers. However, Geurts and Sonnentag's (2006) conceptual paper, which was written in English, integrated the E-R model, and McEwan's (1998) Allostatic Load Theory to address recovery phenomena. This increased the accessibility of recovery research to the international community.

Finally, Sonnentag's (2001) study examined activities associated with recovery and, by doing so, omitted the deeper psychological process through which recovery occurs. Later, Sonnentag and Fritz (2007) suggested four psychological experiences: detachment, relaxation, mastery, and control, to be important in the process of recovery. Furthermore, they developed and validated the widely used Recovery Experience Questionnaire (REQ) that enabled the psychological experience of recovery to be empirically tested. The REQ has since been translated into several languages, thereby enabling studying recovery processes in international samples (Molino, Cortese, Bakker, & Ghislieri, 2015; Sanz-Vergel et al., 2010; Shimazu, Sonnentag, Kubota, & Kawakami, 2012).

Following these contributions, interest in recovery markedly increased between 2005 and 2010 (Sonnentag et al., 2017). Further, I conducted a literature search using the Web of Science to identify a trend in the number of empirical studies examining recovery experiences that have been published since 2010. As seen in Figure 2 below, there were more than four times the number of articles relating to recovery experiences published in 2019 compared to those published in 2010 (Web of Science, 2020). This emphasises that recovery is widely acknowledged to be important in coping with work and life demands in occupational literature.

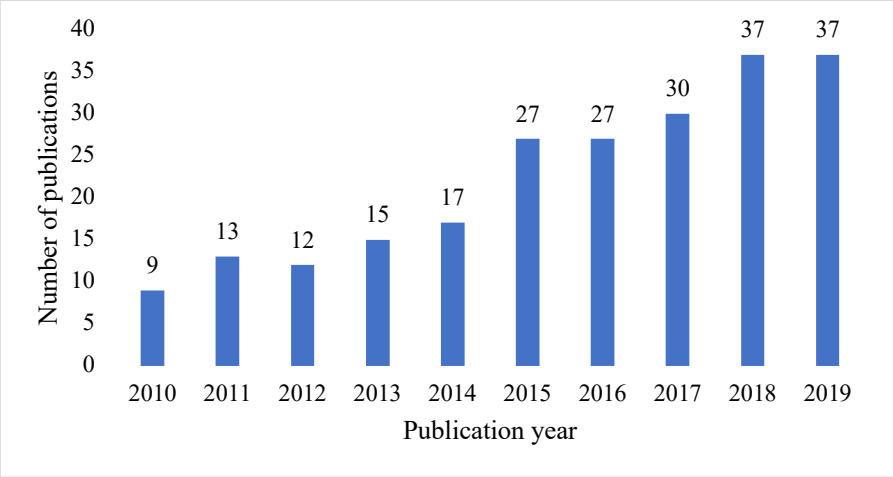

Figure 2. Recovery experiences literature available on Web of Science published 2010-2019.

Theoretical foundations of recovery. Recovery research assumes that an individual's physical and mental resources may become depleted in response to the demands encountered at work. However, during off-work periods, individuals no longer experience work-related demands and therefore have an opportunity to replenish their resources and recover (Binnewies et al., 2009a; Eden, 2001; Sonnentag, 2001; Sonnentag & Zijlstra, 2006). Recently, researchers have conceptualised the process of recovery as involving the regeneration of resources lost during work periods (Ragsdale & Beehr, 2016; Xanthopoulou et al., 2014). Therefore, the process of resource replenishment is of fundamental interest in recovery research, since individuals who successfully replenish resources during off-work periods can begin the next work period with the physical, emotional, and mental energy to perform optimally (Ragsdale & Beehr, 2016).

COR theory and the E-R model are complimentary frameworks that explain the process of recovery. While both frameworks offer unique contributions, when studied together, they provide a comprehensive understanding of how individuals unwind and recover after work (Sonnentag & Fritz, 2007; Steed et al., 2019). First, the E-R model suggests that for recovery to occur, the demands placed on the individual must be removed. This means that during off-work periods, activities that engage the same functional system as those drawn on during work should be avoided (Meijman & Mulder, 1998; Steed et al., 2019). Notably, the demands referred to do not only relate to work but also include obligatory household or care tasks (Demerouti, Bakker, Geurts, & Taris, 2009). Second, COR theory posits that individuals may replenish resources during off-work periods. These resources may be replenished through a variety of activities or experiences engaged in. While COR theory and the E-R model explain the psychological recovery process, the Allostatic Load Model describes the physiological recovery process after exposure to stressors.

Conservation of Resources Theory. COR theory proposed by Hobfoll (1989, 1998, 2001) is a stress theory that describes an individual's motivation to acquire, preserve and protect resources that enable them to meet the demands of the stressor and to better survive their environment (Hobfoll, 1998). These resources include (1) Objects, such as a house and transport; (2) Personal resources, such as self-efficacy or self-regulatory resources; (3) Condition resources form the base on which other resources can be accessed and built on. This includes being healthy and employed. Finally, (4) Energy resources include vigour, money, or knowledge which can be invested or exchanged to obtain other resources, such as object or personal resources (Hobfoll, 1998).

A central assumption of COR theory that individuals must invest resources to protect against resource loss, to recover from a loss, and to gain resources (Hobfoll, 2001). For example, self-regulatory resources may be diminished during challenging work periods (Beal et al., 2005). To replenish this resource, an individual may invest time by engaging in relaxing activities that replenish resources lost during off-work periods.

Effort-recovery Model. The E-R model assumes that the effort expended at work leads to an acute stress response, resulting in physiological activation or fatigue. Under normal conditions, this stress response subsides when the functional system drawn on during work is no longer taxed during off-work periods, thus resulting in recovery. If sufficient recovery occurs, the functional system that is activated in response to an acute stressor returns to pre-stressor baseline levels before the start of the next work period (Demerouti, Xanthopoulou, Tsaousis, & Bakker, 2014; Meijman & Mulder, 1998).

Conversely, when there has been insufficient recovery and effort expenditure continues, the functional system cannot return to a pre-stressor baseline level. In other words, incomplete recovery may require the individual to exert additional compensatory energy to meet the demands of their work. Over time, this may lead to fatigue, loss of wellbeing, and reduced performance (Els, Mostert & de Beer, 2015; Sonnentag, 2003). Through this, an individual may have adverse reactions to a "normal" workload when recovery is incomplete, which may lead to chronic health impairments (Geurts & Sonnentag, 2006; Xanthopoulou et al., 2014). If this state is sustained, it affects an individual's ability to meet the demands of current, and future work tasks as the individual must invest further compensatory energy to perform adequately at work. This, in turn, places additional demands on the recovery process during subsequent non-work periods. Thus, incomplete recovery can result in a "vicious cycle" where an individual's response to acute stressors can lead to chronic health consequences such as burnout, anxiety, and difficulty sleeping (Geurts & Sonnentag, 2006).

Allostatic Load Theory. McEwan's (1998) Allostatic Load Theory describes the functional system in relation to recovery in greater detail than the E-R model discussed above. McEwan (1998) describes the functional or allostatic system as comprising of numerous physiological systems that are involved in the body's stress response. This includes the autonomic nervous system, which comprises of both the sympathetic and parasympathetic nervous system; the HPA axis whereby the stress hormone cortisol is used as a primary indicator; the metabolic system; and the immune system (Geurts & Sonnentag, 2006). When the allostatic system is operating optimally, these systems work together to enable the body to adapt to stressors and protect the body against harm.

However, homeostatic imbalances can occur under conditions of repeated or continual exposure to stressors. As a result, prolonged activation of the allostatic system may result in an inability to reduce the body's stress response, or to stressors appropriately (Geurts & Sonnentag, 2006). Thus, McEwan (1998) describes the allostatic load as the damage caused to the body and brain because of the chronic over- or underactivity of the allostatic system in response to a stressor. For example, because of chronic stress, the immune system may be impaired and allow viruses or bacteria to infect the body, or the immune system may become overreactive, causing autoimmune diseases (Geurts & Sonnentag, 2006).

Defining Recovery

Recovery is defined as the restoration and unwinding process that occurs on both a physiological and psychological level, which negates the harmful effects of psychological strain (Demerouti et al., 2009; Sonnentag & Geurts, 2009; Sonnentag et al., 2017). Similarly, recovery has also been conceptualised as a process whereby depleted resources are replenished (Sonnentag & Fritz, 2007; Sonnentag & Zijlstra, 2006; Xanthopoulou et al., 2014). A central goal of contemporary recovery research is to understand how and when recovery occurs, and the conditions related to successful or unsuccessful recovery. To this end, the recovery has been broadly operationalised in literature as an evolving phenomenon that changes during consecutive workdays or weeks, whereby work and non-work experiences influence the other in a continual and reciprocal manner (Xanthopoulou et al., 2014).

Sonnentag and Geurts (2009) argue that recovery includes two related yet distinct phenomena, that is, recovery as a process and recovery as an outcome. This section aims to first discuss the weekend as a context of recovery and, thereafter, describe recovery as a process and recovery as an outcome in greater detail.

The weekend as a context of recovery. Recovery can occur in a variety of contexts, including during short breaks (internal recovery) and during more extended periods that occur outside of the workplace (external recovery) (Demerouti et al., 2009). An example of internal recovery is a lunch break or microbreak between tasks (e.g. Sianoja, Kinnunen, de Bloom, Korpela, & Geurts, 2016; Trougakos, Beal, Green, & Weiss, 2008; Trougakos, Hideg, Cheng, & Beal, 2014). Furthermore, external recovery includes recovery that occurs during the evening after work (Binnewies et al., 2009a; Sanz-Vergel, Demerouti, Bakker, & Moreno-Jiménez, 2011; Sonnentag, 2001, 2003; Ouyang et al., 2019), over the weekend (Binneweis et al., 2010; Fritz & Sonnentag, 2005; Fritz, Sonnentag, Spector, & McInroe, 2010; Ragsdale et

al., 2011) and during vacations (Davidson et al., 2010; de Bloom et al., 2009; de Bloom, Radstaak, & Geurts, 2014; Kuhnel & Sonnentag, 2011).

As this study focuses on first-year university students, it is important to consider how and when this population recovers from their academic activities. First, the nature of students' weekly academic schedules means that studying internal recovery is infeasible. During the week, a student's daily class timetable may be structured differently from other days of the week to accommodate the lectures, tutorials, and seminars that students are required to attend each day. Furthermore, across the population of students, academic timetables are unlikely to be homogenous owing to the different course requirements relevant to each student's chosen degree. Second, as students attend lectures during the day, some students may be required to work during the evening to meet due dates for their deliverables. Consequently, students may not be able to recover during the evenings reliably. Finally, while vacations may offer good recovery opportunities, they may occur too infrequently. Therefore, the weekend provides a reliable and frequent opportunity for students to recover. Importantly, in the present study, the weekend is defined as the period commencing on Friday evening and ending on Sunday night (Ragsdale et al., 2011). Thus, this study will aim to examine the weekend as a context of recovery among first-year university students.

Recovery as a process. First, the process of recovery refers to a series of activities or experiences through which a change in stress occurs (Sonnentag et al., 2017). The process of recovery may occur on both a physiological and psychological level. Physiological recovery occurs when the body's allostatic system returns to a pre-stressor baseline level following exposure to a stressor (Geurts & Sonnentag, 2006; McEwen, 1998). Psychological recovery, which is the focus of this study, occurs when an individual engages in specific activities that give rise to the psychological experiences of recovery and reduce symptoms of strain. Although both recovery activities and recovery experiences are included in some empirical literature, they are distinct phenomena and therefore need to be defined separately (Sonnentag et al., 2017; Sonnentag & Fritz, 2007).

Recovery activities are the behaviours that employees engage in during off-work periods (Demerouti et al., 2009). Sonnentag and Fritz (2007) argue that the specific activities an individual engages in to recover may be less important than the underlying psychological experience of the recovery that the activity promotes. The activities that are perceived to be beneficial for recovery may differ significantly amongst individuals. For instance, some may enjoy reading a book to relax, while others prefer to attend a yoga class. While the specific activities may differ, the underlying experience of relaxation is the same. Therefore, it is

necessary to look beyond the activities and examine the underlying experiences inherent in the recovery process (Sonnentag & Fritz, 2007).

Recovery experiences. Sonnentag and Fritz (2007) define recovery experiences as the subjective psychological experience of the restoration that underlies recovery activities. In other words, it refers to the extent to which an individual considers the activities engaged in during leisure periods to contribute to the restoration of energy resources (Sonnentag & Natter, 2004). This includes psychological detachment, relaxation, and mastery.

Psychological detachment. Etzion et al. (1998) first defined detachment in respite research as an "individual's sense of being away from the work situation" (p. 579). Later, Sonnentag and Bayer (2005) further sought to emphasise the subjective nature of psychological detachment by describing it as a state of disengagement or mentally "switching off" from work during non-work periods. The experience of psychological detachment implies that an individual would not be actively or passively engaged in work-related tasks during off-work periods. This means that an individual would no longer participate in work-related tasks such as taking phone calls or answering emails, nor think about work-related issues during off-work periods (Sonnentag & Fritz, 2007; Sonnentag & Fritz, 2015). Sonnentag & Fritz (2015) argue that psychological detachment from work is likely to be context-specific and is less likely to occur while the individual is at work, such as during a lunch break. Therefore, psychological detachment may be conceptualised as being physically away from the workplace and mentally disengaged from work during non-work periods.

Drawing on the E-R model, psychological detachment should be particularly important for recovery as the demands that draw on the functional system during work are reduced during off-work periods (Meijman & Mulder, 1998). Conversely, when individuals are not detached and continue to engage in work-related tasks and think about work-related issues, the functional systems continue to be stressed, and full recovery cannot occur (Fritz & Sonnentag & 2007). Research has also shown psychological detachment to be a vital recovery experience (Demerouti, Bakker, Sonnentag, & Fullagar, 2012; Feuerhahn, Sonnentag, & Woll, 2014; Flaxman, Menard, Bond, & Kinman, 2012; ten Brummelhuis & Bakker, 2012; Volman et al., 2013).

In the present study, psychological detachment will be examined during the weekend. Therefore, weekend psychological detachment refers to being physically away and psychologically disengaged from the university campus and study activities for the duration of the weekend (Sonnentag & Fritz, 2007).

Relaxation. Stone, Kennedy-Moore and Neale (1995) define relaxation as a state of low physical and psychological activation and low perceived effort. This is achieved through reduced mental exertion and focus and well as physical rest (Cho & Park, 2018). Through this, relaxation may promote recovery through the replenishment of resources (Meijman & Mulder, 1998). Furthermore, engaging in relaxation experiences reduces psychological strain and may help to prevent illnesses associated with prolonged activation of the functional systems (Brosschot, Pieper, & Thayer, 2005; Fritz & Sonnentag, 2007; Ragsdale & Beehr, 2016).

Relaxation is often associated with specific activities that give rise to a subjective experience of relaxation (Sonnentag & Fritz, 2007). Typically, these activities tend to demand little physical or mental effort, do not challenge the individual, nor do they place social strains on the individual (Tinsley & Eldredge, 1995). However, as previously mentioned, there may be individual differences in activities that are perceived to be relaxing. Nonetheless, several activities have previously been found to give rise to relaxation. For instance, meditation (Lumma, Kok, & Singer, 2015), being in a natural environment (Korpela & Kinnunen, 2011), or listening to music (Kappert, Wuttke-Linnemann, Scholtz, & Natter, 2019).

As this study aims to examine recovery experiences over the weekend, weekend relaxation will be defined as the state of low physical and mental activation and low perceived effort during the weekend (Sonnentag & Fritz, 2007; Stone et al., 1995).

Mastery. Sonnentag and Fritz (2007) suggest that leisure activities that are challenging and provide opportunities for personal development may help to distract employees from job-related stressors, build additional competencies and resources, and therefore lead to recovery. Importantly, these activities should promote growth in areas that are unrelated to work. By engaging in these activities, a person can learn new skills, exercise proficiency, and demonstrate competence and achievement (Sonnentag & Fritz, 2007; Cho & Park, 2018). Examples of mastery experiences may include learning a foreign language, engaging in a new hobby, or volunteering (Fritz & Sonnentag, 2006; Ruderman, Ohlott, Panzer, & King, 2002).

While mastery experiences provide opportunities for learning and development, these experiences should not overtax the individual's resources or capabilities. Further, mastery experiences require self-regulation. For instance, an individual would need to exercise some self-control to attend a foreign language class rather than spend the evening watching television (Sonnentag & Fritz, 2007; Vohs & Baumeister, 2004). Therefore, even though master experiences place additional demands on the individual, it is theorised that these experiences contribute to recovery as they promote the development of additional personal resources such

as self-efficacy, skills, competencies, and enhanced mood (Bandura, 1997; Cho & Park, 2018; Parkinson & Totterdell, 1999; Sonnentag & Fritz, 2007).

As the present study will investigate mastery experiences over the weekend, weekend mastery experiences refer to the experience of engaging in challenging non-work-related activities that develop an individual's skills or contribute to an individual's self-development during the weekend (Sonnentag & Fritz, 2007).

Empirical literature examining weekend recovery experiences. There is limited empirical literature that examines recovery experiences within the context of the weekend. Table 1 in Appendix A provides a summary of the empirical studies found as a result of the literature search strategy described. Notably, of the eight empirical studies found, only two of the studies were conducted using samples of university students (Cho & Park, 2018; Ragsdale et al., 2011), while the remaining six studies were conducted using samples of employees working in desk-based occupations (Binnewies et al., 2010; Fritz & Sonnentag, 2005; Fritz et al., 2010; Hahn et al., 2012; Park & Haun, 2017; Ragsdale & Beehr, 2016). Furthermore, four of the studies listed in Table 1 utilized German samples (Binnewies et al., 2010; Fritz & Sonnentag, 2005; Fritz et al., 2010; Hahn et al., 2012), while the remaining studies utilized American samples (Cho & Park, 2018; Ragsdale et al., 2011; Ragsdale & Beehr, 2016; Park & Haun, 2017).

Very few empirical studies on recovery experiences have been conducted within a South African context. To my knowledge, just two studies have examined recovery experiences in South Africa. However, these studies were both conducted using a sample of employees and were cross-sectional and therefore unable to make inferences about the within-person variation in recovery over time (Els et al., 2015; Oosthuizen, Mostert, & Koekemoer, 2011). This highlights that weekend recovery experiences have been unexamined both within the contexts of university students and within South Africa

Binnewies and colleagues' (2010) research was found to be of relevance to the present study in terms of its research aims, relationships of interest, and methodology. Binnewies et al. (2010) aimed to examine recovery during the weekend and fluctuations in weekly performance amongst a sample of 133 German desk-based employees using a week-level diary study design that spanned four consecutive weeks. Like the present study, Binnewies et al. (2010) examined the relationships between weekend recovery experiences (i.e., psychological detachment, relaxation, and mastery), the state of being recovered, weekly task performance, and weekly PI.

Binnewies and colleagues' (2010) study has several strengths associated with it. First, the study provided meaningful evidence that the weekend offers an opportunity for employees to recover and relax following the demands they encountered during the week. The study also provided evidence that recovery over the weekend had a beneficial impact on various performance indicators during the following week. Furthermore, it is the only study that has previously combined recovery and performance literature and integrated it using a within-person, week-level design. This allows the researchers to base their conclusions on how differences in recovery and performance variables occur within individuals over time.

Recovery as an outcome. The psychological and physiological state of being recovered following a rest period is the outcome of the recovery process (Sonnentag et al., 2017). Past researchers have referred to this state as a 'recovery level' or 'feeling recovered', however, it is most commonly referred to as the 'state of being recovered' (Binnewies et al., 2010; Debus, Sonnentag, Deutsch, & Nussbeck, 2014; Sonnentag & Kruel, 2006).

State of being recovered. Binnewies et al. (2009a, p. 67) define the state of being recovered as "having one's resources successfully replenished after a period of rest". Notably, this outcome is a state and is transitory in nature. When an individual has recovered sufficiently, he or she will feel energetic and mentally and physically refreshed. This implies that the individual has replenished resources during the rest period (Binnewies et al., 2009a; Sonnentag & Kruel, 2006). However, in instances of insufficient recovery, an individual may be required to exert additional effort at the beginning of his or her next work period to compensate for a lack of recovery. This may result in further fatigue, reduced wellbeing, and lower performance over time (Meijman, 1989; Sluiter, de Croon, Meijman, & Frings-Dresen, 2003; Sonnentag, 2003).

Since the present study aims to investigate the outcome of recovery following the weekend, the state of being recovered will be assessed on Monday (Binnewies et al., 2010). Therefore, the state of being recovered on Monday assesses the degree to which an individual feels mentally, physically, and psychologically refreshed on Monday after recovering on the weekend (Sonnentag & Kruel, 2006).

Weekend Recovery Experiences and the State of Being Recovered on Monday

Recovery literature assumes that recovery experiences lead to the state of being recovered (Steed et al., 2019). However, relatively few studies have empirically tested this assumption. Instead, recovery experiences, recovery activities, and the state of being recovered

have been termed ubiquitously as "recovery" in some studies, despite empirical and conceptual differences in these phenomena (Debus et al., 2014; Sonnentag et al., 2017; Steed et al., 2019). Therefore, this study will contribute to existing recovery literature by testing this assumption empirically within a South African tertiary education context (Steed et al., 2019). This study aims to test this assumption by investigating the relationships between weekend recovery experiences (i.e., psychological detachment, relaxation, and mastery) and the state of being recovered on Monday. In formulating the hypotheses proposed below, recent peer-reviewed empirical literature was drawn on.

However, as seen in Table 1 in Appendix A, there is limited research that examines the relationship between recovery experiences during the weekend and the state of being recovered on Monday. Therefore, empirical evidence examining the relationship between recovery experiences and the state of being recovered in a variety of recovery contexts are drawn on, including during lunch breaks, evenings, and during the weekend.

As discussed above, Binnewies et al. (2010) conducted a week-level diary study on a sample of 133 German employees. The results of the multilevel analysis indicated that psychological detachment, relaxation, and mastery experiences each positively predicted the state of being recovered on Monday. This means that when individuals spent more time disengaging from work-related tasks, relaxing and learning new skills over the weekend, they felt more recovered on Monday (Binnewies et al., 2010).

Furthermore, Steed and colleagues' (2019) recent meta-analysis on employee recovery utilized a random-effects meta-analysis to estimate the relationship between recovery experiences and the state of being recovered. The results revealed that both psychological detachment and relaxation were positively related to the state of being recovered. However, the relationship between mastery and the state of being recovered was not described in this study due to insufficient data to derive meta-analytic results (Steed et al., 2019).

In addition, Bosch et al. (2018) examined the role of recovery during a lunch break on employee wellbeing during the afternoon. Bosch and colleagues (2018) hypothesised that psychological detachment and relaxation during a lunch break was positively related to the state of being recovered after the lunch break. To test these hypotheses, a sample of 109 German employees working in various occupations and industries completed three surveys per day over two consecutive workweeks. The results of a multilevel path analysis revealed that relaxation during the lunch break positively predicted the state of being recovered; however, psychological detachment did not significantly predict the state of being recovered. The

relationship between mastery experiences during a lunch break and the state of being recovered following a lunch break was not investigated in this study (Bosch et al., 2018).

Although recovery experiences are commonly studied together, psychological detachment has been studied independently from other recovery experiences. For instance, Niks et al. (2016) conducted a day-level diary study over eight days by recruiting a sample of 67 employees. The study aimed to test whether the previous day's detachment positively predicted the state of being recovered before going to work. The results showed that psychological detachment positively predicted the state of being recovered at the person-level. However, at the day-level, a statistically significant relationship was not found. This indicates that on evenings where an individual experienced a higher degree of detachment, they felt more recovered the next morning relative to mornings in which the same individual had fewer detachment experiences during the prior evening.

In summary, the extant literature that examines the relationship between psychological detachment and the state of being recovered remains inconclusive and further research is needed to confirm Binnewies et al.'s (2010) and Steed et al.'s (2019) findings. Furthermore, further research is needed to support Binnewies et al.'s (2010) finding that weekend mastery positively predicts the state of being recovered on Monday. Finally, there is consistent empirical evidence that relaxation positively predicts the state of being recovered. However, this hypothesis requires further testing in a South African tertiary education context. Based on the empirical literature discussed above, the following hypotheses are posited:

H_1: Weekend psychological detachment positively predicts the state of being recovered on Monday.

H_2: Weekend relaxation positively predicts the state of being recovered on Monday.

H_3: Weekend mastery experiences positively predicts the state of being recovered on Monday.

Approaches to Understanding Performance

Although the concept of performance has mostly been applied to the context of paid employment, this definition may also be expanded to include work done by students. This is due to the comparable nature of a student's academic activities to an employee's job-related tasks. For instance, like employees, students are required to participate in a series of rigorous tasks such as completing assignments, studying for tests, and attending regular lectures,

tutorials, and seminars. As such, these set of deliverables and attendance obligations could be likened to those of a job (Salanova, Schaufeli, Martinez, & Breso, 2010). Therefore, the original definition of job performance offered by Motowidlo, Borman and Schmidt (1997) will be used in this study. However, the construct will instead be referred to as 'performance'. This section aims to describe how performance is conceptualised in literature by defining task and contextual performance. It will also discuss the dynamic nature of performance and how the theory of dynamic performance can be used as a framework to explain the relationship between the state of being recovered and performance.

How is performance conceptualised in literature? Job performance is a dynamic and multidimensional construct that relates to the employee's work-related behaviours and actions that either directly or indirectly contribute to organisational goals (Motowidlo et al., 1997). Performance is divided into two broad categories; task performance and contextual performance (Demerouti et al., 2014).

Task performance. Williams and Anderson (1991) define task performance, or in-role behaviour, as the behaviours that are recognised by formal reward systems of the organisation and the obligatory actions that are specified in a formal job description. These behaviours seek to directly serve the objectives of the organisation through executing its' technical processes (i.e., teaching in a school) or by maintaining and servicing its technical requirements (i.e., planning and coordination activities) (Borman & Motowidlo, 1993).

In line with Williams and Anderson's (1991) definition, this study will conceptualise weekly task performance as behaviours that are both recognised by the formal reward systems of the university and the obligatory actions required of students on a weekly basis. For instance, behaviours that are recognised by the formal reward systems of the university include studying for tests and examinations or completing assignments to a certain standard to attain higher grades. In addition, obligatory behaviours required of students included submitting assignments by the stipulated deadline and attending compulsory lectures and tutorials.

Contextual performance. Notably missing from the behaviours assessed by task performance is a broader range of behaviours necessary for effective performance at work (Demerouti et al., 2014). Contextual performance is defined as discretionary behaviours that support the organisation's social and psychological environment without necessarily being related to the employee's productivity (Borman & Motowidlo, 1993). Instead, contextual performance supports organisational performance by enabling task performance and thereby enhance organisational effectiveness (Binnewies et al., 2009a; MacKenzie, Podsakoff, & Fetter, 1991). Previous researchers have studied contextual performance through PI

(Binnewies et al., 2009a; 2009b; 2010; Sonnentag, 2003) and organisational citizenship behaviour (Binnewies et al., 2009a; 2009b; 2010; Williams & Anderson, 1991).

Weekly personal initiative. In this study, PI will be examined over the working week. PI is a subtype of proactive behaviour (Crant, 2000) and is defined as "a behaviour syndrome resulting in an individual's taking an active and self-starting approach to work and going beyond what is formally required in a given job" (Frese, Kring, Soose, & Zempel, 1996, p. 38). Moreover, PI may be characterised in the following ways. (1) It is congruent with the organisation's mission; (2) It is long-term orientated; (3) It requires goal-directed and action-orientated behaviour; (4) It is persistent when challenges are encountered; and (5) It is proactive in nature (Frese et al., 1996).

To further explain PI, Frese, and colleagues (1996) draw on Action Theory (Miller, Galanter, & Pribram, 1960). Individuals high in PI tend to have a long-term orientation towards their goals as it allows them to solve current problems, to anticipate future difficulties, and to think creatively about alternative ways of doing a task. However, long term goals are only useful in building PI if they are translated into action. Kuhl (1983; 1992) argue that there are two primary pathways individuals take to translate their goals into action. Some individuals focus solely on their goals but may not take action to achieve their goals. Alternatively, other individuals quickly translate their goals into their behaviour. Therefore, Frese et al. (1996) emphasise that PI requires both goal-directedness and action-orientated behaviour.

In addition, individuals are likely to encounter obstacles and challenges when they are working to complete tasks. Frese et al. (1996) state that individuals who easily give up when experiencing challenges lack initiative, while others who persist through challenges and who actively seek to solve problems are likely to be high in PI. Therefore, through the development of long-term orientated goals, performing extra-role requirements, translating goals into actions, and demonstrating persistence when encountering challenges allows individuals to develop self-starting and proactive behaviour patterns thereby showing initiative (Frese et al., 1996).

The dynamic nature of performance. Although performance is understood to be a dynamic construct that is subject to change over time, traditional job performance research has primarily studied performance as a stable construct and has therefore focused on between-person variability in job performance (Beal et al., 2005; Deadrick, Bennet, & Russel, 1997; Ghiselli & Hare, 1960). These studies aimed to investigate the differences between individuals concerning their performance. In these studies, within-person variation in performance, that is, the differences in performance of the same individual over time has been treated as error and

has not been explicitly investigated (McCloy, Campbell, & Cudeck, 1994). Thus, this approach has neglected to account for the changes in performance within-persons over short periods, such as during the working day (Binnewies et al., 2009a; Sonnentag, 2003) or the working week (Binnewies et al., 2010).

Theory of dynamic performance. Intuitively it is known that an individual cannot always perform optimally. Instead, individuals are likely to perform better on some days than others (Beal et al., 2005). Thus, when examining the dynamic nature of job performance, it is not necessarily an individual's general level of performance that is of primary interest, but the conditions under which individuals are likely to perform optimally. Binnewies et al. (2009a) suggest that the assumptions underlying the theory of dynamic performance apply to both task and contextual performance.

Beal et al. (2005) propose that resource allocation is the primary mechanism underlying dynamic performance. For instance, an individual may perform optimally on a task that he or she has allocated their maximum available resources to accomplish the task. However, if the individual is unable to allocate their maximum resources to a task, they are likely to perform less well. Significantly, resource allocation depends on the resources available to an individual at a point in time. Conditions that could inhibit maximum resource allocation include fatigue (Beal et al., 2005; Binnewies et al., 2009a). This is especially true of self-regulatory resources.

Self-regulatory resources are needed to observe and manage thoughts, behaviours, and affects (Muraven, Baumeister, & Tice, 1999; Schmeichel & Baumeister, 2004). From the perspective of episodic performance, that is short periods when an individual's focus is directed at a task; self-regulation refers to a process of an individual's capability and willingness to direct their resources towards accomplishing a task. Successful self-regulation should result in an individual successfully focusing their attention on the task at hand and resist focusing their attention elsewhere. However, regulatory resources differ from other cognitive resources, such as conscientiousness, in that sufficient rest is required for optimal performance. In other words, to improve or maintain performance standards, resources must be replenished or conserved during rest periods (Beal et al., 2005).

The State of Being Recovered and Weekday Performance

While the state of being recovered is an outcome of the previous period of recovery, it concurrently signifies the start next period of work (Binnewies et al., 2009a; 2010). As previously discussed, performance is driven by the resources available to a person at a given

time and resource allocation. According to the theory of dynamic performance, the more resources an individual has available at a given time, the more resources that can be allocated to the task, which results in enhanced performance at that specific time point (Beal et al., 2005; Binnewies et al., 2009a). Therefore, on days when an individual is highly recovered, they will have more resources available to allocate to tasks. In such instances, the individual's performance should increase. Alternatively, on days when the individual is less recovered, they will have less available resources to allocate to tasks and performance is likely to decline (Binnewies et al., 2005).

However, there is limited research investigating the relationship between the state of being recovered and performance outcomes, especially at the week-level (Binnewies et al., 2009a; 2009b; 2010). Rather, recovery experiences are more commonly investigated as predictors of performance (Chawla, MacGowan, Gabriel, & Podsakoff, 2020; Fritz & Sonnentag, 2005; Ouyang et al., 2019). Therefore, studies that investigate the relationships between the state of being recovered, task performance, and PI during the working day (Binnewies et al., 2009a) and over six months (Binnewies et al., 2009b) will provide additional empirical evidence to support the hypotheses presented below.

As previously discussed, Binnewies et al. (2010) conducted a week-level diary study with a within-person design to examine recovery during the weekend and weekly job performance. In this study, the relationships between the state of being recovered on Monday and weekly task performance, as well as the state of being recovered and weekly PI were investigated. The results of the multilevel analysis revealed that the state of being recovered positively and significantly predicted both weekly task performance and weekly PI. The results of the study suggest that on weeks when individuals were highly recovered, their task performance and PI during the week increased.

Furthermore, Binnewies et al. (2009a) conducted a daily diary study with a within-person design to examine the relationship between the state of being recovered in the morning and daily performance at work. The study was conducted over one working week and used a sample of 99 employees working in 10 German and Swiss public service organisations. The results of the multilevel analyses revealed that the state of being recovered in the morning positively predicted daily fluctuations in both task performance and PI. The results indicate that when individuals reported high levels of recovery in the morning, they experienced higher levels of task performance and PI.

Furthermore, Binnewies et al. (2009b) conducted a longitudinal study to investigate the relationships between non-work experiences, including feeling recovered during leisure time

and various dimensions of performance. The study aimed to examine the long-term benefits of recovery on performance, as opposed to the short-term benefits that occur within a few hours, days, or weeks following a period of recovery. Therefore, the researchers administered two questionnaires to a sample of 358 employees working in non-profit organisations for over six months (Binnewies et al., 2009b). Although the outcome of the recovery process in this study was termed as "feeling recovered", it has been conceptualised and operationalised identically to "the state of being recovered". The study hypothesised that feeling recovered should be critical in maintaining high levels of performance over time. Specifically, they hypothesised that feeling recovered at Time 1 would positively predict task performance and PI at Time 2. The results of the hierarchical linear regression revealed that feeling recovered during non-work periods predicted an increase in task performance after six months. However, no relationship was found between feeling recovered and PI after six months. The results of this study show that feeling recovered during non-work periods positively predicted an increase in task performance over time but not in PI.

The results of these studies provide further support to the basic principles of dynamic performance in that being highly recovered is associated with increased resources that can be allocated to work tasks, thereby enhancing performance. Based on the empirical literature discussed above, the following hypotheses are posited:

H_4: The state of being recovered on Monday positively predicts weekly task performance.

H_5: The state of being recovered on Monday positively predicts weekly personal initiative

Control Variables

To exclude alternative interpretations in this study, six control variables will be included: negative affect, age, gender, self-efficacy, academic stress, and proactive personality. First, as this study will rely on data gathered through self-report surveys, the participant's general level of negative affect will be controlled. This will be done to exclude bias in the data as a result of the participants' tendency to perceive their off-work experiences, state of recovery, or performance in a negative light (Podsakoff, MacKenzie, Jeong-Yeon, & Podsakoff, 2003). Binnewies et al. (2010) also found negative affect to negatively predict the state of being recovered and weekly task performance. Second, Sonnentag and colleagues

(2017), note that the effectiveness of certain recovery experiences and activities may change with age. This is due to motivation to regulate a person's mood which is dependent on age (Scheibe & Zacher, 2013). Furthermore, Binnewies et al. (2009a) found age to negatively predict PI. Third, some empirical research has shown gender to correlate with psychological detachment and relaxation (Cho & Park, 2018; Gluschkoff et al., 2016). Fourth, some studies have shown self-efficacy has mediated the relationship between the state of being recovered and performance (Schmitt, Belschak, & Den Hartog, 2016; Sonnentag et al., 2012). Fifth, in line with COR Theory and E-R model, it is assumed that students who are experiencing a high level of stress because of their studies, and therefore have depleted resources, may not recover adequately during the weekend (Hobfoll, 1998; 2001; Meijman & Mulder, 1998). Finally, PI is a subtype of the broader construct of proactive behaviour (Crant, 2000; Sonnentag, 2003). Proactive behaviour has primarily been conceptualised as both relatively stable personality trait, as well as having a situational component that is subject to vary within-persons over time (Bateman & Crant, 1993; Sonnentag, 2003). Therefore, to examine the situational component of PI, proactive personality will be controlled for in this study.

Summary of Hypotheses

In summary, the present study aims to investigate the relationships between weekend recovery experiences (psychological detachment, relaxation, and mastery) and the state of being recovered on Monday. This will be achieved by hypothesising that the weekend psychological detachment, weekend relaxation, and weekend mastery positively predict the state of being recovered on Monday. Furthermore, this study aims to investigate the relationships between the state of being recovered on Monday and performance during the week. Specifically, the state of being recovered on Monday is hypothesised to positively predict weekly task performance and weekly PI. Figure 3 below illustrates these hypotheses and the conceptual model inherent to the study.

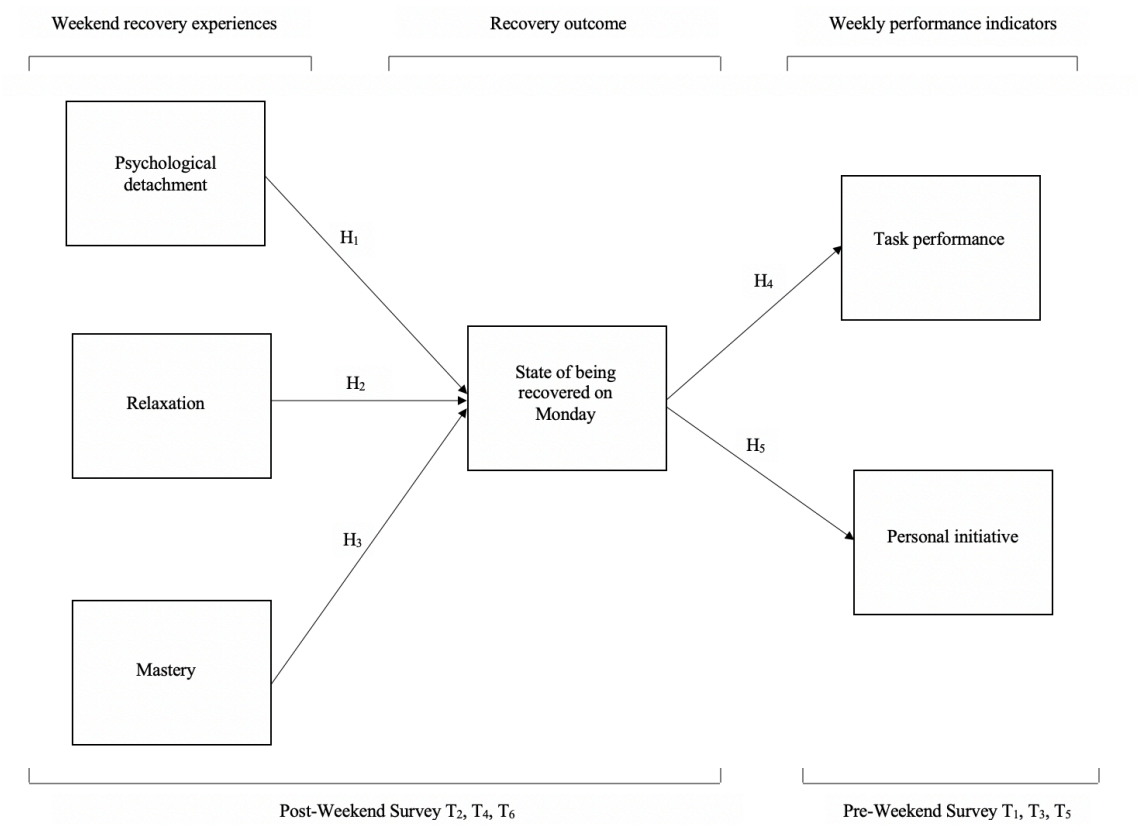

Figure 3. Summary of hypotheses

Method

This chapter contains seven subsections which outline the methods used to evaluate this study's hypotheses. These subsections include the research design, sampling procedure, participants, measures, procedure, ethical considerations, and statistical analysis.

Research Design

This study utilised a descriptive, week-level diary study design spanning three consecutive weeks, and it collected primary quantitative data. During the three-week data collection, participants were required to complete seven surveys. The first survey, the General Survey, collected demographic and control variable data. Thereafter, participants completed a survey before (Pre-Weekend Survey) and after (Post-Weekend Survey) each weekend over the three weeks. See Appendix B with a timeline associated with survey administration.

First, a week-level diary design has been chosen to allow for short-term variations recovery and performance to be studied. While cross-sectional research is the most commonly used method in organisational psychology and has previously been used to study performance, this method assumes that the variables under investigation are stable (Ohly, Sonnentag, Niessen, & Zapf, 2010; Richardson, Abraham, & Bond, 2012). However, lived experience and empirical evidence suggest that performance fluctuates (Beal et al., 2005; Binnewies et al., 2009a). One explanation for this is that performance is dependent on other factors that have been shown to vary over time, such as mood, stress, or recovery (Binnewies et al., 2010; Richardson et al., 2012; Zohar, Tzischinski, & Epstein, 2003). Furthermore, diary studies allow for within-person and between-person variation to be studied, which allowed for a deeper understanding of how weekend recovery is related to weekly performance (Ohly et al., 2010).

Second, a descriptive research design was chosen so that naturally occurring relationships may be studied (Dulock, 1993; Terre Blanche, Durrheim, & Painter, 2006). Third, this study collected quantitative data through self-report surveys (Ohly et al., 2010). This enabled the data to be analysed quantitatively, which is necessitated by the hypotheses inherent in this study (Field, 2018). Fourth, this study relied on primary data due to a lack of applicable secondary data available.

Sampling Procedure

First-year university students were the population of interest in this study. To recruit participants, this study utilised an availability, non-probability sampling technique (Daniel, 2012). The study relied on participants who are readily available and willing to participate (Daniel, 2012). This sampling strategy meant that the survey could be administered quickly and inexpensively. Although this sampling technique limited the generalisability of this study's findings, it was the most suitable sampling strategy given the time and resource constraints inherent in this study (Terre Blanche et al., 2006).

Participants

A total of 129 first-year students completed the General Survey. 242 students were enrolled in *Introduction to Organisational Psychology,* and 600 students were enrolled in *Mathematics 1000.* Thus, this study had a combined response rate of 15.3%. 15 participants were removed from the dataset as they were not first-year students, 7 participants were removed as they did not provide their email address and, finally, 1 participant was removed from the dataset as they did not complete the General Survey by the stipulated deadline. Therefore, the final sample consisted of 106 first-year students. The participants' ages ranged from 18 to 22 (M = 18.77, SD = .80), and as seen in Table 1 below, female students and students registered in the Commerce faculty were over-represented in this sample. Table 1 in Appendix C includes additional demographic information describing the present study's sample.

Table 1

Description of Participants

		Frequency	Percentage
Gender	Female	61	57.55%
	Male	45	42.45%
Faculty	Commerce	44	41.51%
	Humanities	36	33.96%
	Science	25	23.58%
	Law	1	.94%

Not all participants included in the study's sample completed seven surveys. Table 2 below shows the number of participants who completed each survey. Fewer participants

completed the Pre-Weekend Survey than the Post-Weekend Survey in each respective week, and there was a marked decrease in the number of participants who completed both the Pre-Weekend and Post-Weekend Survey in Week 3. Sixty-six participants were found to have complete data for the variables under investigation. However, this included cases with unbalanced data; that is, there may be some missing data at some time-periods. Thus, at the person-level, 66 participants were included in this study. Furthermore, there were 148 matched observations at the week-level. These subsamples were used to test the hypotheses of this study.

Table 2

Subsample Size by Week

Week	Pre-Weekend Survey	Post-Weekend Survey
1	69	78
2	68	66
3	49	53

Measures

The data was collected using three separate surveys; the General Survey (administered once), Pre-Weekend Survey (administered three times), and Post-Weekend Survey (administered three times). Unless otherwise specified, participants responded to items on a 7-point Likert scale ranging from (1) *Strongly disagree* to (7) *Strongly agree*. Furthermore, high scores for each scale indicate that the participant reported a high level of the respective variable. The measures included in this study were selected as they were previously shown to be reliable in samples similar to the sample included in this study, therefore, it is expected that the measures described below will also be reliable in the present study.

General Survey. The General Survey sought to measure the participants' demographic information and the control variables included in this study. In this survey, participants self-reported their age, gender, race, faculty, employment status, whether they have dependents, and how their studies are funded. Employment status and dependent care information may indicate draws on the student's time and resources which may inhibit their ability to recover adequately. Furthermore, by revealing how their studies are funded, this could provide some information on any financial stress students are experiencing that may confound the results of this study.

Negative affect. Six items of negative affect subscale of the Positive and Negative Affect Schedule (PANAS) were used in this study (Watson, Clarke, & Tellegen, 1998). This scale requested participants to report the extent to which they have felt "irritable" or "upset" in the past week. Participants responded to this scale using a 5-Point Likert scale ranging from (0) Very slightly or not at all to (4) Extremely. The 6-item negative affect subscale was found to demonstrate an adequate level of internal consistency in previous studies (Binnewies et al., 2010; Firoozabadi, Uitdewilligen, & Zijlstra, 2018). Furthermore, the 10-item negative affect subscale demonstrated acceptable levels of internal consistency on a sample of South African undergraduate students ($\alpha = .80$) (Nell, 2016).

Proactive personality. Proactive personality was measured using six items with the highest factor loading values of the original 17-item original measure (Bateman & Crant, 1993; Parker, 1998). This scale is intended to measure trait-level proactivity. An item in this scale is "I excel at identifying opportunities". Participants responded to the items using a 5-point Likert scale ranging from (1) *Strongly disagree* to (5) *Strongly agree*. Ouyang et al. (2019) found the abbreviated scale of proactive personality demonstrated acceptable levels of internal consistency amongst a sample of 183 Chinese employees ($\alpha = .83$) Furthermore, Neneh (2019a, 2019b) found that a 4-item version of this scale demonstrated good internal consistency on two samples of South African students (Study 1: n = 277, $\alpha = .83$; Study 2: n = 533, $\alpha = .89$).

Self-efficacy. The first six items of the 8-item New General Self-Efficacy Scale (NGSE) was used to measure self-efficacy in this study (Chen, Gully, & Eden, 2001). Six items were selected to shorten the length of time a participant would spend completing this survey. A sample item contained in this scale includes "I will be able to achieve most of the goals that I have set for myself". The scale was found to have a good construct, content, discriminant, and predictive validity and displayed good to excellent internal consistency ($\alpha = .85 - .88$) in a sample of undergraduate students enrolled in a mid-Atlantic university (Chen et al., 2001).

Academic stress. MacGeorge, Samter and Gillihan's (2005) 3-item measure of academic stress was used in this study. One item included in this scale is "I worry a great deal about the effect this semester's grades will have on my future career". The scale demonstrated excellent internal consistency among a sample of 739 American undergraduate university students ($\alpha = .90$, MacGeorge et al., 2005) and a sample of 213 Norwegian undergraduate students ($\alpha = .90$, Hystad et al., 2009).

Pre-Weekend Survey. The below scales have previously been used in organisational contexts, and thus were adapted to increase item relevance to South African first-year students. For example, items that address "work" were altered to reflect "university" or "courses". The scales have also been adapted to refer to the whole week. Students were prompted to consider their performance in their role as a student during the past week by proving the leading statement: "This past week, as a university student…".

Task performance. Weekly task performance was measured using Williams and Anderson's (1991) 6-item in-role behaviour scale. A sample item included in this scale is "This past week, I adequately completed my assigned tasks/ assignments". Item 5 "This week, I neglected aspects of my course that I am obliged to complete (e.g. attending lectures, tutorials, completing my readings)" and item 6 "This week, I failed to perform essential duties (e.g. submitting assignments timeously and attending tutorials)" were negatively phrased and were reverse-scored. This scale demonstrated acceptable levels of reliability and validity amongst a sample of American MBA students ($\alpha = .91$, Williams & Anderson, 1991). In addition, the scale demonstrated excellent internal consistency amongst a sample of 258 South African teachers ($\alpha = .91$, Redelinghuys, Rothmann, & Botha, 2019).

Personal initiative. Weekly PI was measured using Frese, Fay, Hilburger, Leng, and Tag's (1997) 7-item measure of self-reported PI. Participants responded to the items using a 5-point Likert scale ranging from (1) *Not at all true* to (5) *Very true.* A sample item included in this scale is "This week, I actively attacked problems". This scale previously demonstrated acceptable levels of internal consistency in Sonnentag (2003) ($\alpha = .67 - .89$) and in Binnewies et al. (2010) ($\alpha = .84 - 91$).

Post-Weekend Survey. The post-weekend survey was adapted to reflect the process of recovery over the weekend. Therefore, participants were prompted to reflect on the weekend while responding to items measuring recovery experiences by the phrase "this weekend…" preceding each item. Furthermore, participants were prompted to respond to items measuring the state of being recovered in terms of how they felt that day by the addition of the word "today…" preceding each item. All items included in this survey were measured on a 5-point Likert scale, ranging from (1) *Strongly disagree* to (5) *Strongly agree*.

Recovery experiences. The underlying psychological experience of recovery was measured using 12-items from Sonnentag and Fritz's (2007) Recovery Experiences Questionnaire (REQ). This measure includes three, four-item, subscales measuring psychological detachment; "I forgot about my studies", relaxation; "I kicked back and relaxed",

and mastery; “I learned new things”. The REQ was found to be reliable in the original validation study (relaxation: α = .87; detachment: α =.89; mastery: α = .82) (Sonnentag & Fritz, 2007) and within a South African organisational context (relaxation: α = .86, detachment: α =.84; mastery: α = .88) (Els et al., 2015).

State of being recovered. State of being recovered on Monday was measured using a 4-item scale developed by Sonnentag and Kruel (2006). A sample item included in this scale is “I feel mentally recovered”. This scale demonstrated good to excellent levels of reliability in previous diary studies that investigated recovery (Binnewies et al., 2010: $\alpha = .82 - .92$; Firoozabadi et al., 2018: $\alpha = .84 - .88$; Sonnentag & Kruel, 2006: $\alpha = .87$).

Procedure

The surveys included in this study were developed using Qualtrics (2019) and first piloted on a sample of five postgraduate students to identify errors, ambiguous phrasing, or problems associated with the format or distribution of the surveys. Following this, first-year students enrolled in *Introduction to Organisational Psychology* and *Mathematics 1000* were invited to participate in this study during a short presentation, and an announcement was posted these classes via the university’s online resource platform, Vula (See Appendix D. This announcement included all information required to obtain informed consent, my contact information and a URL link to the General Survey (See Appendix E). Thereafter, participants were required to complete a survey before (Pre-Weekend Survey) and after every weekend (Post-Weekend Survey) for three consecutive weeks (See Appendix F). On days that data was collected, participants were emailed a link to complete the survey at 8:00 a.m. and were informed that the link would expire at midnight to ensure that measures are completed at the correct time to fulfil the objectives of this study. Following data collection, the data was imported into version 25 of the IBM Software Package for Social Sciences (SPSS). Data generated from each survey were imported separately, yielding seven datasets. Participants were assigned an individualised code which was subsequently used to match participants in a master dataset (See Appendix G). This process served to anonymise the data.

Ethical Considerations

Prior to data collection, ethical approval was granted from the university’s Commerce Faculty Ethics in Research Committee and the Director of Student Affairs (REF: REC 2019/10/068). Thereafter, ethical considerations were adhered to in the following ways. First,

the participants provided their informed consent to participate in this study, since they received complete information relating to this study's purpose, duration, and requirements (American Psychological Association [APA], 2019). The participants were also informed that participating was voluntary and that they may withdraw at any time. Second, the participants were informed of the procedure to keep their data confidential. The participants were asked to provide their email addresses, which were used to send participants surveys for completion throughout data collection and to match the participant's survey responses. The participants' email address was kept strictly confidential throughout data collection, and once completed, the dataset was anonymised. However, a record of the participants' email and identification code was securely stored on a password-protected laptop should the information be required at a later date. Third, the participants were informed that the risk of participating was minimal since this study did not expose participants to any additional source of stress or physical risk. However, some participants may have experienced some discomfort if they were concerned about their academic performance. To mitigate this, contact details to the Student Wellness Centre was provided on the consent form. Fourth, participants informed that the participants who completed all the surveys were entered into a raffle with a 1 in 50 chance to win a cash prize of R500. This served to incentivise participation in this study and compensate participants sufficiently for their time and effort. Finally, as per the University of Cape Town's research data management policy, the data collected in this study will be made publicly available for validation of this study's results and reuse.

Statistical Analyses

Analyses were conducted on both SPSS version 25 and Stata version 16 (StataCorp, 2019). The initial psychometric properties of the scales were assessed using principal axis factoring (PAF) and confirmatory factor analysis (CFA). Thereafter, scale reliability was determined using Cronbach's alpha and corrected item-total analyses. Descriptive statistics were also employed to analyse the sample's responses. The data had two levels: the person-level (level 2, $n = 66$) and the week-level (level 1, $n = 148$), whereby the week-level data was located within persons. The hypotheses were tested using multilevel linear models (Snijders & Bosker, 1999).

Results

This chapter will detail the statistical analyses conducted on this dataset. These analyses include initial psychometric analyses, descriptive statistics, correlation analyses, and hypothesis testing. Item analysis was performed using the entire sample available at each time-period, while a smaller subsample with complete data was used to test the hypotheses.

The data were centred on the descriptive statistics, correlation analyses, and multilevel analyses. Data at the person-level (Level 2) was centred around the grand mean, while week-level data (Level 1) was group mean centred. There are several advantages associated with centring predictors in these analyses. First, centring predictors is an effective way to combat multicollinearity in predictor variables. As a result, models with centred predictors may be more stable, and the estimates may be interpreted as independent from the other estimates, which is desirable (Field, 2018). Second, group mean centring is desirable when the primary interest of the study is Level 1 data. The objective of this study is for within-person comparisons to be drawn, and thus group mean centring was appropriate in this study. Furthermore, group mean centring enables values to be interpreted more easily by removing between-person variance. Since group mean centring is commonly used in diary studies, it enables comparisons to be drawn between the present study's findings and the results previously found by other researchers (Bell, Jones, & Fairbrother, 2018; Binnewies et al., 2010; Field, 2018; Hoffmann & Gavin, 1998).

Initial Psychometric Analyses

To test the factorial validity of the scales, Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) was conducted.

Exploratory Factor Analysis. EFA was conducted to determine the underlying structure of the scales and whether the scales measure what they theoretically intended to measure (Field, 2018). Principal axis factoring (PAF) was used to extract factors. Before EFA could be conducted, two assumptions that underly EFA had to be met for each scale. First, the Kaiser-Meyer-Oklin (KMO) index should be greater than .50 (Kaiser, 1974). Second, Barlett's Test of Sphericity should be significant ($p < .05$) (Bartlett, 1950). All measures included in this study met these assumptions. To interpret the factor structure of each scale, Kaiser's (1960) criterion was used as a guide. This criterion recommends that only factors with eigenvalues greater than one should be retained. Furthermore, to interpret the factor loadings, Hair, Black, Babin and Anderson (2014) suggest that factor loadings should equal a minimum of .30 to

determine the factor structure. However, Hair and colleagues (2014) provide the following guidelines to determine whether factor loadings are statistically significant ($\alpha < .05$) by sample size: < .75 (n = 50), < .70 (n = 60), < .65 (n = 70), < .60 (n = 85), < .55 (n = 100), < .50 (n =120).

In this study, the factor structure of some scales differed across weeks. Since centring was employed to test the hypotheses via multilevel linear modelling, the factor structure of each variable needed to be consistent across weeks (Field, 2018) Therefore, the objective in the initial psychometric analyses was to determine a common factor structure for each scale across the three weeks. If the factor structure differed across weeks, then factors were extracted according to the theoretical structure underlying each variable. After a careful iterative process, a single factor solution emerged for each scale in accordance with Kaiser's criterion (eigenvalue < 1). See Appendix H for further information of the iterative process followed for each scale.

Confirmatory Factor Analysis. A confirmatory approach, using CFA, was used to assess goodness of fit of the models estimated using EFA. First, a "good" model fit may be indicated by a non-significant χ^2. Second, standardised root mean square (SRMR) values should be close to .08 or below. Third, comparative fit indices (CFI) values should be close to .95 or greater. Finally, root mean square error of approximation (RMSEA) values should be close to or equal to .06 (Hu & Bentler, 1999). The addition of the phrase "close to" is not accidental. Rather, it is a necessary caveat as their research showed that cut-off values fluctuated according to model type and the combination of fit indices used (Browne, 2015). Browne (2015) cautions that when fit indices fall into marginal ranges surrounding these guidelines, it is best to consider the consistency of SRMR, RMSEA, and CFI indicators in addition to the context of the model under analysis. For instance, in small samples, a significant χ^2 or RMSEA above .08 may not warrant model rejection if CFI and SRMR are indicative of a good model fit. Thus, as this study utilised a small sample, CFI and SRMR indicators are given the most weight when determining model fit. All scales were found to have a reasonable model fit (See Appendix H). CFA was conducted on each scale separately on the advice of statistics consultants.

Reliability Analyses

To determine measurement consistency, reliability analyses were conducted on each measure included in this study, including scales administered in the General Survey, Pre-

Weekend Survey, and Post-Weekend Survey (Field, 2018). To determine reliability, two criteria were used: Cronbach's alpha and corrected item-total correlation. First, Cronbach's alpha is a measure of internal consistency, and it measures the extent to which each item on a scale measure the same underlying construct (Field, 2018). Nunnally (1978) suggests that Cronbach's alpha that exceeds .70 indicates good levels of internal consistency. Second, the corrected item-total correlation measures the correlation between an item and the rest of the items included on a scale. Items associated with low corrected item-total correlation signify that the item may not be measuring the same underlying construct as those measured by the other scale items. Therefore, items with associated item-rest correlations of below .3 should be removed from the scale (Field, 2018). As seen in Table 3 below, all measures included in this study demonstrated acceptable levels of internal consistency in weeks 1, 2, and 3. Furthermore, the corrected item-total correlations indicate that, for each scale, all items were sufficiently correlated with the other items included on each respective scale.

Table 3

Reliability Analyses

Measure	Week	n	Cronbach's alpha (α)	Corrected item-total correlations
General Survey				
Negative affect		106	.83	$.51 < r < .68$
Self-efficacy		105	.84	$.57 < r < .68$
Academic stress		105	.87	$.63 < r < .84$
Proactive personality		104	.71	$.35 < r < .62$
Pre-Weekend Survey				
Weekly task performance	1	68	.79	$.50 < r < .67$
	2	66	.84	$.45 < r < .77$
	3	49	.91	$.74 < r < .80$
Weekly personal initiative	1	66	.76	$.33 < r < .56$
	2	61	.82	$.38 < r < .72$
	3	45	.87	$.52 < r < .73$
Post-Weekend Survey				
State of being recovered on Monday	1	78	.88	$.67 < r < .81$
	2	66	.91	$.74 < r < .83$
	3	53	.91	$.73 < r < .86$
Weekend psychological detachment	1	78	.83	$.56 < r < .72$
	2	66	.82	$.56 < r < .73$
	3	53	.86	$.54 < r < .80$
Weekend relaxation	1	78	.88	$.71 < r < .82$
	2	66	.92	$.79 < r < .88$
	3	53	.94	$.80 < r < .95$
Weekend mastery	1	78	.82	$.53 < r < .72$
	2	66	.81	$.53 < r < .71$
	3	53	.82	$.54 < r < .74$

Descriptive Statistics

To provide a comprehensive description of the variables included in this study, the means, standard deviations, minimum and maximum score of each scale is presented in Appendix I. The mean for each variable was compared to the corresponding midpoint of the variable. Mean scores that were greater than the variable midpoint illustrated higher levels of the variable of interest being reported in the sample. The following were above the midpoint of the scale: the state of being recovered on Monday, weekly task performance, weekly PI, self-efficacy, proactive personality, negative affect, and academic stress. Furthermore, of the weekend recovery experiences, the sample reported the highest levels of relaxation followed by mastery. Notably, the mean of weekend psychological detachment was below the midpoint of the scale, indicating lower levels of psychological detachment over the weekend was reported by the sample overall.

In terms of the variability of weekend recovery experiences, there was less overall variance in weekend mastery experiences than weekend relaxation and weekend psychological detachment in the sample. In addition, there was a relatively large amount of variance in the state of recovery reported on Monday overall. However, more variance was reported across participants than within the same participant. This indicates that each individual's state of recovery was more stable over time relative to the state of recovery on Monday across participants (StataCorp, 2019). For weekly performance variables, overall, there was less variance reported in weekly PI than in weekly task performance. Both weekly PI and task performance varied less within-persons relative to between-persons.

Correlation Analyses

The relationships between the weekend recovery experience variables, the state of being recovered on Monday, and weekly performance variables were preliminarily explored using the Pearson product-moment correlation at both the week- and person-level. As discussed above, data at the person-level (Level 2) was centred around the grand mean, while week-level data (Level 1) was group mean centred. The correlations were interpreted according to the direction and strength of the correlation between variables. The direction of the correlation coefficients is indicative of a positive or negative relationship between variables. The strength of the correlation refers to the magnitude of the relationship between the variables of interest (Pallant, 2011). The strength of the correlation was interpreted in line with Cohen's (1988) effect size guidelines in Table 4 below.

Table 4

Interpretation of Pearson's Product-Moment Correlations

Correlations	Strength of relationship	Effect size
$.10 < r < .29$	Weak	Small
$.30 < r < .49$	Moderate	Medium
$.50 < r < 1.0$	Strong	Large

As seen in Table 5 below, the state of being recovered on Monday had statistically significant, positive relationships with weekend psychological detachment and weekend relaxation at both the person- and week-level. These relationships varied from moderate to strong correlations, which suggested medium to large effect sizes. The relationship between state of being recovered on Monday and weekend relaxation was the strongest of the weekend recovery experience variables at both the week- and person-level. In addition, a strongly positive and statistically significant relationship was found between weekend relaxation and psychological detachment at both the week- and person-level, suggesting a strong effect size. Interestingly, there were also positive statistically significant relationships found between weekly PI and weekly task performance at both the week- and person-level. However, these relationships were weak and had a small effect size.

Table 5

Week-level and Person-level Pearson Product-Moment Correlations

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) State of being recovered on Monday		.10	-.03	.39***	.52***	-.03				
(2) Weekly PI	.23		.17*	-.13	-.13	.19*				
(3) Weekly task performance	.07	.26*		-.15	-.15	-.05				
(4) Weekend psychological detachment	.33**	-.07	-.08		.64***	-.08				
(5) Weekend relaxation	.47***	-.18	-.17	.59***		-.09				
(6) Weekend mastery	-.04	.41***	-.02	-.03	-.14					
(7) Negative affect	-.35**	-.05	-.14	-.16	-.15	.03				
(8) Self-efficacy	.18	.24*	.17	.07	-.25*	.21	-.30*			
(9) Academic stress	-.42***	-.26*	-.19	-.20	-.30*	-.08	.56***	-.30*		
(10) Proactive personality	.02	.36**	-.10	-.00	-31*	.35**	.04	.59***	-.01	
(11) Age	-.11	-.12	-.02	.17	-.07	-.06	.23	-.03	.15	-.12

Note. Correlations above the diagonal are week-level correlations (N = 147-148), with correlations of $r > |.16|$ significant at $p < .05$ and correlations of $r >|.38|$ significant at $p < .01$. Correlations below the diagonal are person-level correlations (n = 66). Correlations of r > | .24| significant at $p <$ .05 and correlations of $r >|.30|$ significant at *$p < .01$. *$p < .05$; **$p < .01$; ***$p < .001$ (2-tailed).

Multilevel Model Analyses

To test the relationships between weekend recovery experiences and the state of being recovered on Monday (hypotheses 1-3) and the relationships between the state of being recovered on Monday and weekly task performance (hypothesis 4) and weekly PI (hypothesis 5), multilevel analyses were conducted for each outcome variable. As discussed above, the data was centred at the person-level (Level 2), and at the week-level (Level 1). Three models for each outcome variable were compared: the null model, Model 1, and Model 2. In the Null Model, the intercept was the only predictor specified. Model 1 included the person-level control variables, including age, gender, negative affect, proactive personality, self-efficacy, and academic stress. Finally, Model 2 included the intercept, person-level control variables, and week-level predictors relevant to each hypothesis tested.

The multilevel models were calculated by conducting a mixed-effects restricted maximum likelihood (REML) regression on Stata. REML regression was chosen as it provides an unbiased estimate of the variance of the model (StataCorp, 2013). The Wald statistic (W^2) is associated with a p-value and is used to test the significance of the multilevel model ($p < .05$). Further, each predictor in the model is associated with a z-score and the corresponding p-value indicates significance in the model ($p < .05$) (Field, 2018).

To determine model fit and make comparisons between the Null Model, Model 1, and Model 2, three statistics will be evaluated: the model deviance, R^2, and the likelihood ratio (LR) tests. First, the model deviance (*-2LL*) is a measure of variance in the model and is calculated by multiplying the log-likelihood by -2. The larger the deviance statistic is, the worse the model fits the data as there is a greater amount of unexplained variance in the model. By examining model deviance, model fit comparisons between the Null Model, Model 1, and Model 2 can be made (Field, 2018). Second, R^2 is similar to *-2LL* and represents the amount of variance in the outcome variable that is explained in the model. The higher the R^2 value, the better the model fits the data as more variance in the outcome variable is explained by the model (Field, 2018). Finally, LR tests are used to whether the multilevel model or linear model is a better fit for the data. The LR test is associated with the $\overline{\chi}^2$ test statistic and corresponding p-value. If the test statistic is significant ($p < .05$), the multilevel model fits the data significantly better than a linear model (StataCorp, 2013). However, since REML was used in the present study to estimate log-restricted likelihood as opposed to maximum likelihood (ML), the LR test in this study cannot be used to compare models. Instead, it can only be used to

determine whether the multilevel model fits the data better than a linear model (StataCorp, 2013). A discussion of the assumptions underlying multilevel models is presented in Appendix J.

Weekend recovery experiences and the state of being recovered on Monday (hypotheses 1-3). Table 12 shows the results of the multilevel analyses with the state of being recovered on Monday as the outcome variable. The model contains 148 observations and 66 cases. The week-level predictors included in Model 2 are psychological detachment, relaxation, and mastery.

Assumptions. The assumptions underlying this multilevel analysis were met (see Appendix K). However, as discussed in the multilevel model assumptions above, outliers with standardised residuals larger than |.3| should be examined as it may have undue influence on the model (Montgomery et al., 2012). See Table 1 in Appendix K for a description of all outliers identified in the model. Participant ID10 was identified as an outlier in week 3. See Table 2 in Appendix K for Participant ID10's responses in week 3 and see Table 3 in Appendix K for a description of the participant. To determine the influence this case had on the findings reported in Table 6, the multilevel model was rerun, excluding case ID10. The rerun multilevel model did not differ substantively from the original model (See Table 4 in Appendix K). Therefore, the original model was retained.

Null Model. The Wald test returns no results on the Null model. As seen in Table 6, the intercept of the model is significant. Both the week-level intercept and the person level intercept varied significantly. Furthermore, there is a relatively large amount of deviance in the model, indicating that the model is a poor fit for the data. However, the LR test indicates that the multilevel model fits the data significantly better than a linear model ($\overline{\chi}^2(1) = 11.39$, $p < .001$).

Model 1. The Wald test indicates that Model 1 is significant ($W^2(6) = 19.65$, $p < .01$). This indicates that the model predicts the state of being recovered on Monday (Field, 2018). Of the person-level control variables included in this model, only gender was found to be a significant predictor of the state of being recovered on Monday. As seen in Table 6, gender negatively predicts the state of being recovered on Monday. This indicates that female participants reported lower levels of recovery on Monday by .55 relative to male students. Age, negative affect, proactive personality, self-efficacy, and academic stress were not found to be significant predictors of the state of being recovered. In addition, both the week-level intercept and person-level intercept varied significantly in Model 1. Model 1 shows the improved model fit as model deviance lowered by 5.86. In addition, person-level control variables explained

most of the variance in the state of being recovered on Monday (R^2 within-persons = 0.000, R^2 between-persons = 0.2480, R^2 overall = 0.1571). Taken together, this indicates that Model 1 shows an improved model fit compared to the Null model. Finally, the LR test shows that the multilevel model fits the data significantly better than a linear model ($\overline{\chi}^2(1) = 6.79$, $p < .01$).

Model 2. Weekend psychological detachment, weekend relaxation, and weekend mastery were included as week-level predictor variables in Model 2. Overall, Model 2 is significant ($W^2(9) = 85.40$, $p < .001$). As seen in Table 6, weekend relaxation was the only significant week-level predictor included in this model and positively predicted the state of being recovered on Monday. This indicates that on weekends that participants had relaxing experiences, they reported higher levels of recovery on Monday. Furthermore, of the person-level control variables included in this model, gender was a negative and significant predictor of the state of being recovered on Monday. This indicates that female participants reported lower levels of recovery on Monday by .60 relative to male participants. Further, the random effects parameters indicated by Level 1 and Level 2 intercept variance were both significant in this model. Finally, Model 2 showed improved goodness of fit compared to Model 1 and the Null Model, as model deviance decreased by 40.93 from Model 1. This indicates that there was less unexplained variance in the model compared to Model 1. In addition, within-person variance explained most of the variation in the state of being recovered (R^2 within-persons = .37, R^2 between-persons = .38, R^2 overall = .39). Finally, the multilevel model fit the data significantly better than a linear model ($\overline{\chi}^2(1) = 10.59$, $p < .001$).

Based on these findings, hypotheses 1 and 3 are not supported, while hypothesis 2 “Weekend relaxation positively predicts the state of being recovered on Monday” is supported.

Table 6

Multilevel Estimates for Models Predicting the State of Being Recovered on Monday

	Null Model					Model 1					Model 2				
				95% Confidence interval					*95% Confidence interval*					*95% Confidence interval*	
	Estimate	SE	z	Lower bound	Upper bound	Estimate	SE	z	Lower bound	Upper bound	Estimate	SE	z	Lower bound	Upper bound
Intercept	2.90	.11	26.61***	2.69	3.11	5.02	2.77	1.81	-.41	10.44	1.96	2.55	.77	-3.03	6.96
Weekend psychological detachment											.11	.08	1.31	-.05	.27
Weekend relaxation											.42	.09	4.76***	.25	.59
Weekend mastery											-.01	.09	-.07	-.18	.17
Age						-.04	.14	-.28	-.32	.24	-.04	.13	-.31	-.29	.21
Gender (Female)						-.55	.21	-2.66**	-.95	-.14	-.60	.19	-3.20***	-.97	-.23
Negative affect						-.20	.15	-1.30	-.50	.10	-.19	.14	-1.39	-.46	.08
Proactive personality						-.03	.23	-.12	-.48	.42	.06	.21	.31	-.35	.48
Self-efficacy						.01	.17	.08	-.33	.35	.13	.16	.82	-.18	.43
Academic stress						-.10	.08	-1.34	-.25	.05	-.02	.07	-.24	-.15	.12
-2LL	436.08					430.22					389.29				
Diff *-2LL*						5.86					40.93				
Diff *df*						6					3				
Level 1 intercept variance	.40	.15		.20	.81	.27	.13		.11	.67	.26	.10		.12	.56
Level 2 intercept variance	.80	.12		.59	1.08	.79	.12		.58	1.06	.52	.08		.38	.71

Note. Gender: males (0), females (1). *N* on the person-level =66, *N* on the week-level =148. *$p < .05$; **$p < .01$; ***$p < .001$. 'Level 1' refers to week-level data, 'Level 2' refers to person-level data.

The state of being recovered on Monday and weekly task performance (hypothesis 4). Table 7 illustrates the results of the multilevel models used to test the relationship between the state of being recovered on Monday and weekly task performance. The models contained 147 observations and 66 groups. Model 2 includes the state of being recovered on Monday as the week-level predictor model inherent to this hypothesis, while weekly task performance is the outcome variable.

Assumptions. As seen in Appendix L, all assumptions underlying the multilevel model were met. In addition, no outliers with standardised residuals exceeding |.3| were found (See Table 1 in Appendix L). Therefore, all cases were retained in this analysis.

Null Model. The Wald test returned no result and did not determine model significance. However, the intercept of the model is significant. Furthermore, the random effects parameters show that the week-level intercept variance and person-level intercept variance is significant. Furthermore, in determining goodness of fit, model deviance and the LR test are considered. The results show that there is a large amount of deviance in the model, which is indicative of poor model fit as there is a large amount of unexplained variance in the model. However, the LR test shows that the multilevel model fits the data significantly better than a linear model ($\overline{\chi}^2(1) = 11.85$, $p < .001$).

Model 1. Overall, Model 1 is not significant ($W^2(6) = 7.57$, $p = .271$). As seen in Table 7, none of the person-level control variables nor the model intercept was significant in the model. Furthermore, the week-level and person-level intercept variance are significant. However, Model 1 shows poor model fit. There is more deviance present in the model compared to the Null Model, indicating there is more unexplained variance in the model. Furthermore, relatively little variance in task performance is explained by Model 1 (R^2 within-persons = .00, R^2 between-persons = 0.18, R^2 overall = 0.09). However, the LR test shows that the multilevel model fits the data significantly better than a linear model ($\overline{\chi}^2(1) = 9.40$, $p < .001$).

Model 2. The Wald test indicates that, overall, Model 2 is not significant ($W^2(7) = 9.75$, $p = .203$). Furthermore, Table 7 shows that the state of being recovered on Monday is a non-significant, negative predictor of weekly task performance. In addition, none of the person-level control variables was found to be significant in this model. However, the week-level and person-level intercept variance are significant. Interestingly, the model shows marginally more deviance in the model compared to Model 1. This indicates that Model 2 contains more unexplained variance in the model compared to both Model 1 and Model 2. Furthermore, R^2 indicates that little of variance in task performance is explained by the model (R^2 within-

persons = .09, R^2 between-persons = .09, R^2 overall = .10). However, the LR test indicates that the multilevel model fits the data significantly better than a linear model ($\overline{\chi}^2(1) = 11.47$, $p < .001$).

Based on the results showed in Table 7, hypothesis 4 “The state of being recovered on Monday positively predicts weekly task performance” is not supported. This finding indicates that being highly recovered at the start of the working week does not result in a change in task performance during the week among South African first-year university students.

Table 7

Multilevel Estimates for Models Predicting Weekly Task Performance

	Null Model					Model 1					Model 2				
				95% Confidence interval					*95% Confidence interval*					*95% Confidence interval*	
	Estimate	*SE*	*z*	*Lower bound*	*Upper bound*	*Estimate*	*SE*	*z*	*Lower bound*	*Upper bound*	*Estimate*	*SE*	*z*	*Lower bound*	*Upper bound*
Intercept	5.11	.12	41.90***	4.87	5.35	6.01	3.35	1.79	-.55	12.57	6.71	3.46	1.94	-.07	13.49
State of being recovered on Monday											-.16	.10	-1.64	-.35	.03
Age						-.02	.17	-.14	-.36	.31	-.03	.18	-.16	-.38	.32
Gender (Female)						.37	.25	1.47	-.12	.86	.27	.26	1.02	-.25	.78
Negative affect						-.003	.19	-.02	-.37	.36	-.04	.19	-.20	-.42	.34
Proactive personality						-.35	.28	-1.28	-.89	.19	-.36	.28	-1.27	-.92	.20
Self-efficacy						.22	.21	1.04	-.19	.63	.23	.21	1.07	-.19	.65
Academic stress						-.11	.09	-1.16	-.28	.07	-.12	.09	-1.26	-.30	.07
-2LL	462.61					465.43					465.80				
Diff *-2LL*						-2.82					-.37				
Diff *df*						6					1				
Level 1 intercept variance	.51	.19		.25	1.05	.48	.19		.21	1.05	.55	.21		.26	1.16
Level 2 intercept variance	.96	.15		.70	1.3	.97	.15		.71	1.32	.91	.15		.67	1.25

Note. Gender: males (0), females (1). *N* on the person-level =66, *N* on the week-level =148. *$p < .05$; **$p < .01$; ***$p < .001$.

The state of being recovered on Monday and weekly personal initiative (hypothesis 5). To test the relationship between the state of being recovered on Monday and weekly PI, three multilevel analyses were conducted; the Null Model, Model 1, and Model 2 (See Table 8). In line with the hypothesis, the state of being recovered on Monday was included as the week-level predictor in Model 2, while weekly PI was the outcome variable in all three models. The multilevel models contained 148 observations and 66 groups.

Assumptions. All assumptions underlying the multilevel model were met (See Appendix M). Additionally, no outliers were found to have standardised residuals exceeding |.3|. Therefore, all participants were retained in the models (see Table 1 in Appendix M)

Null Model. The Wald test did not return a result, and therefore did not determine model significance. However, the intercept of the model, as well as the week-level and person-level intercept variance, were significant. Model deviance shows that there is unexplained variance in the model. However, the LR test shows that the multilevel model fits the data significantly better than a linear model ($\overline{\chi}^2(1) = 19.91$, $p < .001$).

Model 1. Overall, Model 1 is significant ($W^2(6) = 20.96$, $p < .01$). This indicates that taken together, the person-level control variables significantly predict weekly PI. In addition, gender and proactive personality were found to be significant predictors of weekly PI. As seen in Table 8, gender negatively predicted PI, which indicates that female students reported lower levels of PI relative to male students. Proactive personality positively predicted PI. In addition, the random effects parameters of the week-level and person-level intercept variance were significant. The model displayed improved model fit, and marginally lower levels of deviance were present in Model 1 compared to the Null Model. In addition, 26.91% of the variance in weekly PI was explained to between-person predictors relative to 16.89% of the overall model. Finally, the LR test showed that the multilevel model fit the data significantly better than a linear model ($\overline{\chi}^2(1) = 12.82$, $p < .001$).

Model 2. The Wald test revealed that overall, Model 2 is significant $W^2(7) = 20.95$, $p < .01$). This indicates that taken together, the state of being recovered and the person-level control variables predict weekly PI. However, as seen in Table 8, the state of being is a non-significant, negative predictor of weekly PI. However, as in Model 1, gender and proactive personality were found to predict weekly PI significantly. Furthermore, the week-level and person-level intercept variance were significant. Finally, the deviance in Model 2 shows reduced model fit, as more unexplained variance in the model was present relative to Model 1. However, the variance in Model 2 explained more variance in weekly PI relative to Model 1 (R^2 within-persons = .01, R^2 between-persons = .28, R^2 overall = .18). Despite this, the LR test shows that

the multilevel model fits the data significantly better than a linear model ($\overline{\chi}^2(1) = 13.02$, $p < .001$).

Based on these findings, hypothesis 5 “The state of being recovered on Monday positively predicts weekly personal initiative” is not supported. This indicates that this study has not provided evidence to support the notion that feeling recovered on Monday leads to increased levels of weekly PI during South African first-year students.

Table 8

Multilevel Estimates for Models Predicting Weekly Personal Initiative

	Null Model					Model 1					Model 2				
				95% Confidence interval					*95% Confidence interval*					*95% Confidence interval*	
	Estimate	SE	z	Lower bound	Upper bound	Estimate	SE	z	Lower bound	Upper bound	Estimate	SE	z	Lower bound	Upper bound
Intercept	3.22	.07	43.20***	3.08	3.37	2.95	1.88	1.57	-.73	6.63	3.09	1.90	1.62	-.65	6.83
State of being recovered on Monday											-.03	.05	-.50	-.13	.08
Age						-.02	.10	-.19	-.21	.17	-.02	.10	-.20	-.21	.17
Gender (Female)						-.31	.14	-2.22*	-.59	-.04	-.33	.15	-2.26*	-.61	-.04
Negative affect						.03	.11	.25	-.18	.23	.02	.11	.20	-.19	.23
Proactive personality						.40	.16	2.57**	.10	.71	.40	.16	2.55*	.09	.71
Self-efficacy						-.06	.12	-.51	-.29	.17	-.06	.12	-.50	-.29	.17
Academic stress						-.09	.05	-1.66	-.19	.02	-.09	.05	-1.69	-.19	.01
-2LL	308.44					306.10					309.85				
Diff *-2LL*						2.34					-3.75				
Diff *df*						6					1				
Level 1 intercept variance *(SE)*	.22	.06		.12	.39	.15	.06		.08	.31	.16	.06		.08	.32
Level 2 intercept variance *(SE)*	.31	.05		.23	.41	.30	.05		.23	.41	.30	.05		.23	.41

Note. Gender: males (0), females (1). *N* on the person-level =66, *N* on the week-level =148. *$p < .05$; **$p < .01$; ***$p < .001$

Summary of the Results

All scales used in this study were found to be reliable and unidimensional in this sample. However, the results of multilevel analyses used to test the hypotheses in this study showed that only hypothesis 2 was supported by this study (See Table 11).

Table 11

Summary of the Results

Hypothesis	Outcome
H_1: Weekend psychological detachment positively predicts the state of being recovered on Monday	Not supported
H_2: Weekend relaxation positively predicts the state of being recovered on Monday	Supported
H_3: Weekend mastery experiences positively predicts the state of being recovered on Monday	Not supported
H_4: The state of being recovered on Monday positively predicts weekly task performance	Not supported
H_5: The state of being recovered on Monday positively predicts weekly personal initiative	Not supported

Discussion

Over the weekend, students have the opportunity to rest and replenish resources that were lost due the demands of the previous academic week. If a student has successfully recovered over the weekend, the student should have sufficient resources to direct towards improving their performance during the subsequent week (Beal et al., 2005; Binnewies et al., 2009a; Sonnentag et al., 2017). Thus, the aims of the present study were twofold. First, it aimed to examine the process of recovery over the weekend among a sample of South African first-year university students. This was done by examining the relationships between weekend recovery experiences (i.e., psychological detachment, relaxation, and mastery) and the state of being recovered on Monday. Second, the present study aimed to investigate the state of being recovered on Monday as a predictor of task performance and PI during the week. Age, gender, negative affect, self-efficacy, proactive personality, and academic stress were controlled for in this study, as there is evidence that these variables influence either recovery (Binnewies et al., 2010; Cho & Park, 2018; Gluschkoff et al., 2016; Podsakoff et al., 2003; Sonnentag et al., 2017) or performance (Binnewies et al., 2009a; Schmitt et al., 2016; Sonnentag, 2003). This chapter will first review the psychometric properties of the scales used in this study before discussing the findings relating to this study's hypotheses with reference to literature. Thereafter, the theoretical and practical contributions of this study will be presented, followed by a discussion of the strengths and limitations of this study as well as recommendations for future research.

Psychometric Properties of the Scales

All the measures included in the study were found to be unidimensional in this sample. However, the psychometric properties of Williams and Anderson's (1991) in-role behaviour scale and Sonnentag and Fritz's (2007) REQ are discussed below because their psychometric analyses presented with issues of interest.

Weekly task performance. William and Anderson's (1991) scale of in-role behaviour was used to measure task performance in this study. EFA initially revealed that the factor structure of task performance varied across weeks, with items 5 and 6 loading interchangeably on factors 1 and 2 across weeks. Due to the inconsistent factor loadings, it was impossible to determine which factor these items measured. Therefore, items 5 and 6 were removed from further analysis. The factor structure of weekly task performance was determined with items

1-4 and was found to be unidimensional. This finding corresponds to the theoretical factor structure of in-role behaviour (Williams & Anderson, 1991).

Notably, items 5 and 6 were negatively phrased, which may account for the inconsistent interpretation of these items. Although Williams and Anderson's (1991) in-role behaviour scale has not previously been validated within a South African sample, some researchers have found that South African samples do not well understand negatively phrased items included on other scales. For example, Veldsman (2018) found that negatively phrased items were misunderstood in a sample of South African postgraduate students, and consequently omitted these items from the measures used. This finding is corroborated by other studies that have utilised negatively phrased items in South African samples (Bateman, 2014; Görgens-Ekermans & Herbert, 2013). Together, this finding suggests that negatively phrased items may confuse participants, thereby tainting their responses, and should not be administered to South African samples (Hair, Babin, Money, & Samouel, 2003; Lavrakas, 2008; Veldsman, 2018).

Weekend recovery experiences. The REQ was used to measure weekend recovery experiences in this study (Sonnentag & Fritz, 2007). The measure contains three, 4-item subscales that are intended to measure psychological detachment, relaxation, and mastery.

Initially, EFA was conducted on the 12-item REQ. The factor structure was found to vary across weeks, with three factors extracted in weeks 1 and 3, and two factors extracted in week 2. Although items generally loaded onto factors according to the theoretical construct they were intended to measure, there was some contamination across weeks. For instance, in week 1 and week 3, three factors were extracted whereby all relaxation items loaded onto factor 1, all mastery items loaded onto factor 2 and all psychological detachment items loaded onto factor 3. However, one item that measured psychological detachment "This weekend, I got a break from the demands of my academic work" cross-loaded onto factor 1 (relaxation) and factor 3 (psychological detachment). Also, in week 2, all relaxation and all detachment items loaded onto factor 1, while all mastery items loaded onto factor 2.

This demonstrates that the participants in this sample may have found it difficult to differentiate between items intended to measure psychological detachment and relaxation. Conceptually, these constructs are similar as both these recovery experiences are resource-providing in nature and, when compared to mastery experiences, do not require a high degree of effort or self-regulation to be expended (Binnewies et al., 2010; Sonnentag & Fritz, 2007). In addition, many individuals may find the experience of no longer engaging in work-related thoughts or issues during leisure time to be relaxing. This notion is supported by the fact that

relaxation and psychological detachment are positively correlated in numerous studies (Bosch et al., 2018; Els et al., 2015; Ouyang et al., 2019; Sonnentag & Fritz, 2007; Steed et al., 2019).

However, since the factor structure of weekend recovery experiences differed across weeks, EFA was conducted on each subscale of the REQ to align with the theoretical structure of the scale (Sonnentag & Fritz, 2007). Furthermore, psychological detachment, relaxation, and mastery have also been found to represent distinct constructs in international samples (Bakker, Sanz-Vergel, Rodríguez-Muñoz, & Oerlemans, 2015; Habesleben, Wheeler, & Paustian-Undeerdahl, 2013; Shimazu et al., 2012; Sonnentag et al., 2008). Accordingly, each subscale measuring psychological detachment, relaxation, and mastery was found to be unidimensional in this sample.

Discussion of the Findings

This subsection will discuss the findings of the present study's hypotheses with reference to previous empirical literature.

Weekend psychological detachment and the state of being recovered on Monday. Contrary to expectations, hypothesis one, weekend psychological detachment positively predicts the state of being recovered on Monday, was not supported by the findings of this study. A statistically significant relationship was not found, indicating that weekend psychological detachment and the state of being recovered on Monday may be unrelated South African first-year university students. This may be due to the context and environment in which students live and work.

Notably, the extant literature that has examined the relationship between psychological detachment and the state of being recovered is inconclusive. While some studies have found evidence to support a statistically significant positive relationship between these variables (Binnewies et al., 2010; Niks et al., 2016; Steed et al., 2019), other studies have not. For instance, Bosch et al. (2018) found that psychological detachment during a lunch break did not predict the state of being recovered after the break. They suggested that psychologically detaching from work during a lunch break may be more difficult when the employee remains physically at the workplace (Bosch et al., 2018). Furthermore, Sonnentag and Fritz (2015) argue that psychological detachment as a context-specific experience that occurs when a person is physically away from his or her place of work. This is because the ability to mentally disengage from work-related thoughts and issues may be limited while physically remaining in the workplace.

Many students remain physically at their "workplace" if they live in on-campus residences or if they do most of their academic work at home. First, at the university from which this study drew its sample, most students who lived in on-campus residences were first-year students (Department of Student Affairs, 2015). Although this information was not requested in the questionnaire completed by participants, some of the first-year students included in this sample probably lived in on-campus residences. As such, students who live in on-campus residences remain physically on the university campus during the weekend, which may have impacted their ability to psychologically detach during this period (Bosch et al., 2018; Sonnentag & Fritz, 2015).

Similarly, students who complete most of their academic work at home may also struggle to disengage from their academic work during off-work periods. While students have access to on-campus libraries and other facilities to work in, many students may find working at home more comfortable or convenient. However, over time, students may associate their home with a place of work. This may limit their ability to psychologically detach from academic activities over the weekend, especially if students continue to ruminate about incomplete work, worry about upcoming deadlines, or continue to actively work on their academic activities during the weekend (Sonnentag & Fritz, 2015). Moreover, the view that the first-year students included in this sample did not detach from their studies sufficiently to lead to a state of being recovered on Monday is corroborated by the lower mean levels of psychological detachment, relative to relaxation or mastery experiences.

This finding suggests that other groups who work from home, especially those with temporal flexibility in managing their work schedules, may also experience difficulty detaching from work during leisure periods (Sonnentag & Fritz, 2015).

Weekend relaxation and the state of being recovered on Monday. As expected, hypothesis two, weekend relaxation positively predicts the state of being recovered on Monday, was supported by the findings of this study. This indicates that on weekends which students had relaxing experiences, they felt more recovered on Monday relative to weeks in which students had fewer relaxing experiences. Furthermore, weekend relaxation predicted the state of being recovered on Monday over and above the variance explained by the control variables included in this model.

This finding aligns with previous empirical studies that have also found a positive relationship between relaxation experiences and the state of being recovered (Binnewies et al., 2010; Bosch et al., 2018; Steed et al., 2019). However, these studies have previously examined the relationship between relaxation experiences and the state of being recovered in

occupational contexts. This study provides evidence that relaxation experiences contribute toward successful recovery among first-year university students.

This finding provides further support for the core assumptions underlying COR Theory (Hobfoll, 1989, 1998, 2001), the E-R model (Meijman & Mulder, 1998), and research in recovery. In sum, these frameworks posit that when the demands placed on an individual during periods of work are lifted during leisure time, an individual's resources may be replenished, resulting in recovery. This study provides evidence that weekend relaxation positively predicts the state of being recovered on Monday. Therefore, this study demonstrates that by removing demands placed on individuals during the week, and replacing it with low-effort, resource-providing recovery experiences, individuals report higher levels of recovery (Fritz & Sonnentag, 2007; Stone et al., 1995; Tinsley & Eldredge, 1995). This aligns with previous literature that has shown relaxation to be beneficial for resource replenishment (Binnewies et al., 2009a; Eden, 2001; Sonnentag, 2001; Sonnentag et al., 2017; Sonnentag & Zijlstra, 2006).

Weekend mastery experiences and the state of being recovered on Monday. Contrary to expectations, hypothesis 3, weekend mastery experiences positively predict the state of being recovered on Monday, was not supported by the findings of this study. This indicates that weekend mastery experiences may be unrelated to the state of being recovered on Monday amongst South African first-year university students.

Although Binnewies et al. (2010) found a positive relationship between weekend mastery experiences and the state of being recovered on Monday, they provide an interesting suggestion for why this finding has not been replicated in other studies. They suggest that, in the short-term, engaging in mastery experiences may result in an initial decrease in feeling recovered following a recovery period. This may be due to the increased effort expended and self-regulatory resources required for mastery experiences, relative to psychological detachment and relaxation during leisure periods (Beal et al., 2005; Binnewies et al., 2010).

However, it is expected that mastery experiences would enhance recovery and performance over time. For instance, Stoverink, Kirkman, Mistry and Rosen (2020) found that the long-term mastery experiences were found to increase performance in teams through resource gain spirals; a construct inherent to COR Theory (Hobfoll, 1998; 2001). Although the outcome of recovery is absent from this explanation, one would assume that resource gain spirals are only possible if an individual's resources are replenished and available to be invested in gaining further resources (Hobfoll, 1998). Given that the state of being recovered was assessed within two days of the participant engaging in mastery experiences and not over a

more extended period such as several months, an initial, short-term decrease in recovery may have been captured in this study.

State of being recovered and weekly task performance. Contrary to expectations, hypothesis four, the state of being recovered on Monday positively predicts weekly task performance, was not supported by the findings of this study. This indicates that the state of being recovered on Monday is unrelated to task performance during the subsequent working week amongst South African first-year university students.

Although this finding may be counter-intuitive, the extant literature examining the relationship between recovery and performance is inconclusive (Sonnentag et al., 2017; Steed et al., 2019). For instance, Sonnentag and Fritz (2006) found that, following a vacation, there was no change in self-rated task performance relative to pre-vacation levels. This occurred even though participants reported lower levels of exhaustion, health complaints, and that less effort was required to complete their daily tasks, which indicates that the participants were highly recovered following vacation. Sonnentag and Fritz (2006) suggest that task performance levels before vacation were already high, so it was unlikely that vacation would have increased performance further. They also argue that the measure used assessed a reasonably stable measure of task performance that may have been less likely to change because of going on vacation. Furthermore, Shimanzu et al. (2012) found a curvilinear relationship between recovery experiences and job performance. They found that when levels of psychological detachment and relaxation increased from low to moderate level, job performance improved. However, job performance did not improve with further increases in recovery experiences. Although the state of being recovered as the outcome of the recovery process was not assessed in this study, Shimanzu et al.'s (2012) findings suggest that the relationship between recovery and job performance warrants further investigation.

Although this finding is counter-intuitive, the review of the extant literature highlights that the relationship between the state of being recovered and weekly task performance is complex and likely depends on other confounding variables not measured in this study. However, it is possible that, as in Sonnentag and Fritz's (2006) study, the measure of task performance used may have measured a relatively stable form of task performance that may have been resistant to changes in recovery. For instance, the behaviours assessed in the weekly task performance measure included basic behaviours required from students; these include attending lectures and tutorials and submitting their assignments on time. In addition, the mean level of state of being recovery was moderate in the present study while mean weekly task

performance was relatively high. It is possible that further increases in recovery would not have increased mean levels of task performance, as was found by Shimanzu et al. (2012).

State of being recovered on Monday and weekly personal initiative. Contrary to expectations, hypothesis five, the state of being recovered on Monday positively predicts weekly PI, was not supported by the findings of this study. This suggests that the state of being recovered and weekly PI are unrelated amongst South African first year students.

Previous empirical studies examining the relationship between recovery and contextual performance also remains inconclusive. While some studies have found positive relationships between the state of being recovered and PI (Binnewies et al., 2009a; Binnewies et al., 2010), other empirical studies have found no relationship (Binnewies et al., 2009b) or a negative relationship between these variables (de Bloom, Kinnunen & Korpela, 2015; Eschleman, Madsen, Alarcon, & Barelka, 2014). Binnewies et al. (2009b) provide an interesting interpretation of these findings. They argue that, as PI is a discretionary behaviour, it largely depends on an individual's motivation to go beyond what is strictly required of them (Smith, Organ, & Near, 1983). In this sense, having more resources available to increase performance only determines to what extent an individual is able to increase their performance, but not necessarily the extent to which they are willing to do so. In this study, while only moderate levels of recovery were reported on average, this level of recovery may have been sufficient to provide enough resources for students to display PI during the week. This suggests that motivation may have played a role in determining an individual's willingness to display PI during the week (Binnewies et al., 2009b).

Although the state of being recovered itself was not found to be a significant predictor of weekly PI, the regression model significantly predicted weekly PI, but the predictor, the state of being recovered, was not significant. In addition, two control variables included in this study were significant predictors of weekly PI: gender and proactive personality. First, the multilevel model revealed that female students reported lower levels of weekly PI relative to male students. This may be explained by the lower levels of recovery on Monday reported by female students relative to male students in this study. Second, proactive personality was found to be a positive, significant predictor of weekly PI. This is to be expected since PI is a subtype of proactive behaviour, which is a more stable personality trait whereas PI is more discretionary in nature and depends largely on the situation (Bateman & Crant, 1993; Crant, 2000; Sonnentag, 2003).

Implications of the Present Study

This subsection aims to extrapolate the theoretical contributions this study has made to recovery and performance literature as well as the practical implications of these findings for universities, researchers, and students.

Contributions of the study. This finding contributes to recovery literature in the following ways. First, the present study demonstrates that COR Theory (Hobfoll, 1989, 1998), the ER model (Meijman & Mulder, 1998) and the allostatic load model (McEwan, 1998) are useful theoretical frameworks that can be used to understand the recovery process during the weekend better. Second, this study tested the assumption that recovery experiences of psychological detachment, relaxation, and mastery lead to the state of being recovered. Although this assumption is entrenched in recovery literature, it has seldom been explicitly tested (Debus et al., 2014; Sonnentag et al., 2017; Steed et al., 2019). Interestingly, relaxation was the only recovery experience that predicted the state of being recovered in this study. Third, this study contributed to performance literature by examining how within-person experiences of weekend recovery relate to fluctuations in weekly performance amongst first-year students. Although this has been studied in occupational contexts (e.g. Binnewies et al., 2010), to my knowledge, it has not previously been explored within the context of a South African tertiary institution nor within groups with temporal flexibility in managing loosely structured work schedules. Finally, this study demonstrated that all scales were reliable and unidimensional in this sample. These psychometric contributions may enable other researchers to study recovery and performance phenomena more easily in South African tertiary education contexts.

Practical implications. The state of being recovered on Monday was not found to contribute towards weekly task performance or weekly PI in this study. However, recovery has been shown to enhance wellbeing in literature (Fritz, Yankelevich, Zarubin, & Barger, 2010; Siltaloppi, Kinnunen, & Feldt, 2009; Sonnentag et al., 2017; Sonnentag & Fritz, 2007; Steed et al., 2019; von Thiele Schwarz, 2011). Although this was not the focus of the present study, the extant literature emphasises the importance of recovery on health and wellbeing. Therefore, it is paramount to encourage students to recover over the weekend, particularly by engaging in relaxing experiences. Although the specific activities that are perceived to be relaxing differ across individuals, these activities tend to be low-effort and restorative and could include watching a movie or spending time with loved ones (Ragsdale et al., 2011; Sonnentag, 2001).

This could be achieved at a university level through two mechanisms. First, the university could establish an institution-wide policy to set course deadlines (such as deadlines

to submit assignments or write tests) towards the end of the workweek. This would allow students to spend time recovering during the weekend, instead of working to complete deliverables due on Monday or Tuesday. This may be particularly helpful in promoting psychological detachment which requires an individual to discontinue work-related thoughts or worries (Sonnentag & Fritz, 2007). Second, departments and course convenors could raise awareness of the importance of regular recovery as part of a wellness drive that promotes better mental and well-being among students. This could encourage students to take time away from their studies and to replenish lost resources and to recover from stressors encountered during the week.

Strengths, Limitations, and Suggestions for Future Research

Although this study has limitations that should be considered when interpreting its results, it also holds some important strengths.

Strengths. First, this study utilised a robust diary study design to assess the relationships of interest (Ohly et al., 2010). This design involved studying the same participants over three weeks to assess their within-person experiences of recovery of the weekend and how this affected their task performance and PI during the week. By utilising a longitudinal, diary design in this study, the fluctuations in recovery and performance could be studied over time (Binnewies et al., 2010; Ohly et al., 2010). Second, the primary interest in this study revolved around within-person fluctuations in recovery and performance. By doing so, it enabled this study to assess differences in an individual's behaviour over time, rather than the differences in behaviour between individuals that are typically investigated in cross-sectional, between-persons research (McCloy et al., 1994). Finally, this study utilised multilevel modelling for statistical analysis. Multilevel models are a sophisticated statistical technique used to analyse the two levels of data inherent to this study; the person-level and the week-level and included both the predictor variables and control variables in determining the outcome variable. The advantage of this is that the multilevel model accounts for more sources of variation in the data and, therefore, provides more accurate test statistics, p-values, and confidence intervals (Field, 2018).

Limitations and suggestions for future research. This study includes three primary limitations; the use of self-report measures, the timing associated with the administration of measures, and a relatively small sample size. These limitations, and suggested ways these limitations could be mitigated, are offered below.

Self-report measures. This study relied on self-report measures to gather data from participants. As a result, common method bias may be present in this study (Podsakoff et al., 2003). Common method bias occurs in all studies that rely on self-report measures and results in artificially inflated relationships between variables because of response bias (Ragsdale & Beehr, 2016).

However, the only credible method of measuring psychological experiences of recovery is through self-report measures (Ragsdale & Beehr, 2016). Some studies examining recovery have attempted to use more objective measures, such as using family members reporting the participant's psychological experience of recovery (see Sonnentag & Kruel, 2006). However, it is unclear whether one can make valid inferences of another individual's psychological experiences of recovery that go beyond merely the activities that an individual pursues in their free time. Furthermore, by collecting other objective measures of recovery, for example, physiological data, it would not be possible to separate the recovery process from the outcome (Sonnentag & Guerts, 2009). Therefore, although the use of self-report measures accompanies some limitations, it was not practical to use alternative measures in this study.

Also due to the longitudinal nature of this study and the use of control variables, the effect of common method variance was mitigated in this study (Ragsdale & Beehr, 2016; Sonnentag & Fritz, 2006). Therefore, the use of self-report measures is not a significant limitation of this study. However, researchers could reduce the effect of common method variance in future studies by collecting data at multiple time-periods and by including control variables, such as negative affectivity.

Timing of measures. Each week this study administered surveys to participants before and after the weekend. Weekly performance was measured before each weekend (mostly on Fridays), whereas the participants' recovery data were measured on Mondays. However, Sonnentag and Guerts (2009) suggest that pre-weekend measures taken on Friday afternoon may not be an optimal time to measure weekday variables since participants may already anticipate the weekend. This may change the participant's affective states and the way they assess their performance retroactively. In this study, participants were able to complete the Pre-Weekend Survey anytime from 8 am to midnight on Friday (Or on Thursday on one occasion due to a public holiday on Friday). Therefore, the time participants completed the Pre-Weekend Survey could have impacted the results found in this study.

In future, researchers could adopt the following principles when planning to collect longitudinal data for diary studies. First, pre-weekend data should only be collected on Friday morning. Similarly, post-weekend data should only be collected on Monday morning before

the restorative experiences of the weekend start to fade. Second, researchers should aim to collect data over a longer period, such as four weeks or five weeks. This will enable more observations to be captured, which may increase the accuracy of the study's findings (Field, 2018). However, researchers should be wary of survey fatigue in participants and balance the risk of attrition against capturing more observations.

Sample size. Sixty-six participants were found to have complete data across the seven surveys that were administered during data collection and this sample was used to draw within-person conclusions in this study. Although diary studies frequently utilise small samples, the small sample size may have implications on the generalizability of the study's findings and the statistical power of the multilevel models used (Ohly et al., 2010).

First, generalisability refers to the ability to make accurate inferences from the findings of a study to the broader population from which the sample originates. To generalise a study's findings to the population, the sample should be relatively large and representative of the broader population (Polit & Beck, 2010). In this study, the sample drawn is not entirely representative of the broader student population as "white" students, and those registered in the Commerce faculty were over-represented (Department of Higher Education and Training, 2019).

Second, statistical power refers to the probability of detecting an effect when there is one to be found (Field, 2018). When determining the statistical power of multilevel models, it is important to differentiate between the number of observations at level 1 (the week-level) and the sample size at level 2 (the person-level). Scherbaum and Ferreter (2009) recommend that the sample size at the person-level should exceed 30 to produce accurate results and that increasing the sample size at the person-level is likely to have a more significant impact on statistical power than increasing the number of observations at the week-level. While the criteria for an adequate sample size at the person-level has been met in this study, larger samples are nonetheless desirable to increase the accuracy of the study's results. For example, previous diary studies in high-ranking journals sampled at least 100 participants at the person level, while including at least five observations per participant at the day or week level (Ohly et al., 2010).

This suggests that while the sample size in this study met the recommended criteria for ensuring adequate statistical power in a multilevel model, the sample size is relatively small compared to published diary studies. This, in turn, has implications on the generalisability of this study's findings to the population, and further research with a larger sample size is required to confirm the findings of this study. However, participating in diary studies requires

participants to spend time completing multiple repetitive surveys within narrow allotted time-periods. Given the burden these places on participants, attractive incentives should be offered to participants to recruit an adequate sample size, compensate participants fairly for their time, and to minimise the risk of attrition. This could include monetary incentives, lottery prizes, or course credits.

Suggestions for future research based on findings. The findings of this study suggest that mastery experiences and psychological detachment warrant further investigation in tertiary education contexts. First, future researchers could examine the short- and long-term effects of mastery experiences on the state of being recovered and performance. Second, researchers should examine whether psychological detachment is impaired in students who live in on-campus residences or work primarily from home. Third, studies could also examine whether weekend recovery is impacted by deadlines (such as assignment due dates) early in the working week and whether weekend recovery is improved if these deadlines are moved to later in the working week. Finally, further research is needed to determine whether the inclusion of negatively phrased items in scales are appropriate in South African studies.

Conclusion

Research has previously shown that recovery is associated with enhanced performance, health, and wellbeing. However, much of this research has been conducted within occupational contexts and has ignored the unique context surrounding university students and other groups with temporal flexibility in managing loosely structured work schedules. As such, this study aimed to examine recovery over the weekend, as this was the most reliable recovery period available to students. This study also set out to examine the relationship between weekend recovery and next-week performance. To fulfil the aims of this study, the relationships between weekend recovery experiences and the state of being recovered on Monday were assessed. Furthermore, the relationships between the state of being recovered on Monday and weekly task performance, and weekly PI were explored. Although this study contained some limitations, the present study's findings provide some useful insights into the process and outcome of weekend recovery and its influence on next-week performance amongst first-year university students. Multilevel analyses revealed that weekend relaxation was the only recovery experience to positively predict the state of being recovered on Monday. Interestingly, the state of being recovered on Monday did not predict next-week performance. Although further research is needed to confirm the findings of this study, students should be encouraged to spend time relaxing over the weekend. Although this may not necessarily improve the student's performance, it may help students to feel better recovered at the start of the working week, which may ultimately help to improve their health and wellbeing.

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Appendix A

Description of Studies Examining Weekend Recovery Experiences

Table A1

Description of Studies Examining Weekend Recovery Experiences

Study	Sample	Design	Predictors	Outcomes	Main findings
Fritz & Sonnentag (2005)	87 German emergency service workers	Descriptive longitudinal design spanning one week. Measures were administered on three occasions: Health and performance variables were measured before (Time 1) and after the weekend (Time 3). Weekend recovery experiences were measured on Sunday (Time 2)	Weekend experiences: • Non-work hassles • Positive work reflection Social activities	Health outcomes: • Burnout • Wellbeing Performance outcomes: • Task performance • PI • Pursuit of learning	The presence of non-work hassles, a lack of positive work reflection and low social activities over the weekend predicted burnout and reduced wellbeing after the weekend. Non-work hassles negatively predicted task performance, PI and pursuit of learning during the week. Positive work reflection predicted pursuit of learning during the week, and social activity predicted weekly task performance.
Binnewies et al. (2010)	133 German employees	Descriptive diary study design spanning four weeks	Recovery experiences: • Psychological detachment • Relaxation • Mastery	State of being recovered on Monday Performance outcomes: • Task performance • PI	Psychological detachment, relaxation and mastery experiences over the weekend predicted state of being recovered on Monday. In turn, State of being recovered on Monday predicted weekly task performance,

				• Organizational citizenship behavior • Perceived effort	PI, organizational citizenship behavior and low perceived effort.
Fritz et al. (2010)	229 German preschool teachers	Descriptive diary study spanning one week. Time 1 Survey (Friday) measured affective experiences of the week, Time 2 Survey (Sunday) measured weekend recovery experiences and weekend affective experiences while Time 3 Survey (Friday) measured affective experiences felt during the week.	Weekend experiences: • Psychological detachment • Mastery • Relaxation • Control • Non-work hassles	Positive affective experiences: • Serenity • Self-assurance • Joviality Negative affective experiences: • Fatigue • Sadness • Fear • Hostility	Recovery experiences during the weekend significantly predicted variance in positive and negative affect on Sunday and during the working week.
Ragsdale et al. (2011)	221 American undergraduate students	Descriptive, longitudinal design spanning one weekend. Two surveys were administered. Role ambiguity and workload were measured on Friday (Time 1), while all other variables were measured on Monday (Time 2).	• Role ambiguity • Workload Recovery activities: • Resource-providing activities • Resource consuming activities	• Need for recovery • Psychological strain	Engaging in activities that provide resources on the weekend, such as physical activity, social activities and activities that promote restoration, together with accompanying recovery experiences over the weekend lead to reduced psychological strain and need for recovery on Monday.

			Recovery experiences: • Psychological detachment • Relaxation • Mastery • Control Recovery quality		
Hahn et al. (2012)	239 German university faculty members	Descriptive, longitudinal design spanning one weekend. Surveys administered on two occasions; before (Time 1) the weekend and after the weekend at the beginning of the working week (Time 2).	Weekend experiences with partner: • Joint activities • Conflict Weekend recovery experiences (mediators): • Psychological detachment • Relaxation • Mastery • Control	Positive affective states: • Vigor • Joviality • Serenity Negative affective states: • Negative activation • Fatigue	Greater absorption in activities pursued with a partner positively predicted recovery experiences during the weekend and increased positive affect on Monday. Weekend relaxation mediated the effects of joint activities and positive affect. Furthermore, conflict with one's partner was positively related to increased negative affect but was unrelated to recovery experiences.
Ragsdale & Beehr (2016)	233 American full-time employees	Descriptive weekend design. Participants were administered three surveys within a one-week period. One survey assessed demographics (Measured Wednesday, Time 1), while	Weekend activities: • Low effort • Social • Physical • Work-related • Household or childcare	Recovery outcomes on Monday: • Burnout • Work engagement	Weekend activities has a significant negative relationship with burnout and a significant positive relationship with work engagement, when mediated by recovery experiences.

		a survey was administered before (Friday, Time 2) and after the weekend (Monday, Time 3).	Recovery experiences: • Psychological detachment • Relaxation • Mastery • Control Mediating personal resources: • Self-regulatory capacity • State optimism		Weekend activities and recovery experiences contributed to the maintenance or replenishment of personal resources on Monday
Park & Haun (2017)	167 American cohabiting dual-earner couples	Descriptive weekend design spanning 1 week. Measures were administered before (Time 1) and after one weekend (Time 2) as well as the end of the new working week (Time 3).	Partner's support for weekend recovery	State of being recovered on Monday Work engagement in the new week	There is a positive indirect effect between partner's support for weekend recovery and work engagement in the new week, and this relationship is mediated through state of being recovered Partner's state of being recovery is only significant on the other partner's work engagement during the new week if the two partners work together.

Cho & Park (2018)	70 American university students	Week-level diary design. Measures administered every Friday and Monday for four consecutive weeks.	Weekend physical activity Moderating variables: • Psychological detachment • Relaxation • Mastery • Control • Sleep	Negative affect on Monday	Relationship between weekend physical activity and Negative affect on Monday is not significant. Psychological detachment and sleep hours significantly moderated the relationship between weekend physical activity and Negative affect on Monday.

Appendix B

Timeline of Survey Administration

Wednesday, 7 August 2019	General Survey administered
Thursday, 8 August 2019	Pre-Weekend Survey Week 1 administered
Monday, 12 August 2019	Post-Weekend Survey Week 1 administered
Friday, 16 August 2019	Pre-Weekend Survey Week 2 administered
Monday, 19 August 2019	Post-Weekend Survey Week 2 administered
Friday, 23 August 2019	Pre-Weekend Survey Week 3 administered
Monday, 26 August 2019	Post-Weekend Survey Week 3 administered

Figure B1. Timeline associated with the administrations of each survey included in this study. Week 1 therefore refers to the period Tuesday, 6 August to Monday, 12 August. Week 2 refers to Tuesday, 13 August to Monday 19 August and week 3 refers to Tuesday, 20 August to Monday 26 August. The Pre-Weekend Survey in Week 1 was administered on Thursday, 8 August 2019 due a public holiday on Friday, 9 August 2019.

Appendix C

Demographic Statistics

Table C1

Demographic Statistics of First Year Students

		Frequency	Percentage
Race	"White"	41	38.68%
	"Black"	28	26.42%
	"Coloured"	17	16.04%
	"Indian"	12	11.32%
	"Asian"	3	2.83%
	International student	3	2.83%
	Prefer not to answer	2	1.89%
Employment Status[a]	Unemployed	84	79.25%
	Part-time employment (< 10 hours weekly)	19	17.25%
	Part-time employment (11-20 hours weekly)	1	.94%
	Full-time employment (20 hours weekly <)	2	1.89%
Dependent Care[b]	No	104	98.11%
	Yes	2	1.89%
Funding[c]	Family support	67	63.21%
	NSFAS[d]	24	22.64%
	Company bursary	16	15.09%
	Personal loan	1	.94%
	Self-funded	3	2.83%
	Other	1	.94%

Note. $N = 106$

a. Refers to whether the participant engages in paid employment in addition to their role as a student.

b. Refers to whether the participant provides care for a dependent, such as a child, sibling, parent or grandparent, on a weekly basis.

c. Refers to how the student funds their studies. The results show that some participants fund their studies through a combination of sources.

d. National Student Financial Aid Scheme, a government funded bursary and financial aid scheme (NSFAS, 2019)

Appendix D

Vula Announcement

Hi, my name is Georgia van Wyngaarden and I need your participation to help complete my Master's research on the important topic of student stress and recovery. I am particularly interested in how weekends help us to recover.

For this study to be meaningful and have an impact, data will be collected over three consecutive weeks during which you will be asked to complete seven very short surveys before and after each weekend (The first survey will gather general information).

To thank and incentivise you to participate, **one in every 50 participants who completes the study will win R500 in cash**. Only first-year UCT-registered students are eligible to participate.

The results of the study will be made available through the library on completion of the research. All data will be kept strictly confidential and only aggregate data will be reported. Of course, your participation is voluntary, and you may withdraw from the study at any time. Although your email address will be requested so that you may receive invitations to complete the surveys in the study, no other identifying information will be requested from you during the survey. After data collection has been completed, your email address will be separated from your survey responses, kept confidential and stored in a separate, password-protected file. In accordance with UCT's Open Access policy to research, the dataset collected in this study will be made publicly available for research purposes. However, the dataset will not include any identifying information that could be used to identify you as a participant in this research study.

The risk of harm to you by participating is anticipated to be no more than minimal, as you will be required to report on the stress that you experience during the week. However, if you do experience any emotional discomfort while answering questions about stress and coping, please contact the Student Wellness Services (021 650 1017 or 021 650 1020 or 0800 24 25 26).

Should you have any questions regarding the research please feel free to contact me on VWYGEO001@myuct.ac.za

If you would like to participate in this study, please follow this link: https://ucpcommerce.eu.qualtrics.com/jfe/form/SV_9EPAiJZ6ghaibMp

Please note: The survey will close at 9am, 8 August. The survey will take no more than 5 minutes to complete.

Thank you very much for your participation!

Kind regards,
Georgia

Appendix E

Survey Cover Page

UNIVERSITY OF CAPE TOWN

FACULTY OF COMMERCE

Igniting Knowledge and Opportunity

Information Sheet & Consent Form

Hi,

My name is Georgia van Wyngaarden and I need your participation to help complete my Master's research on the important topic of student stress and recovery. I am particularly interested in how weekends help us to recover.

For this study to be meaningful and have an impact, data will be collected over three consecutive weeks during which you will be asked to complete seven very short surveys before and after each weekend (The first survey will gather general information).

To thank and incentivise you to participate, one in every 50 participants who completes the study will win R500 in cash. Only first-year UCT-registered students are eligible to participate.

The results of the study will be made available through the library on completion of the research. All data will be kept strictly confidential and only aggregate data will be reported. Of course, your participation is voluntary, and you may withdraw from the study at any time. Although your email address will be requested so that you may receive invitations to complete the surveys in the study, no other identifying information will be requested from you during the survey. After data collection has been completed, your email address will be separated from your survey responses, kept confidential and stored in a separate, password-protected file. In accordance with UCT's Open Access policy to research, the dataset collected in this study will be made publicly available for research purposes. However, the dataset will not include any identifying information that could be used to identify you as a participant in this research study.

The risk of harm to you by participating is anticipated to be no more than minimal, as you will be required to report on the stress that you experience during the week. However, if you do experience any emotional discomfort while answering questions about stress and coping, please contact the Student Wellness Services (021 650 1017 or 021 650 1020 or 0800 24 25 26).

Please note: This research has been approved by the Commerce Faculty Ethics in Research Committee.

Should you have any questions regarding the research please feel free to contact me.

Researcher: Georgia van Wyngaarden
Email address: VWYGEO001@myuct.ac.za

Please note: This research has been approved by the Commerce Faculty Ethics in Research Committee.

Should you have any questions regarding the research please feel free to contact me.

Researcher: Georgia van Wyngaarden
Email address: VWYGEO001@myuct.ac.za

Supervisor: Professor Jeffrey Bagraim
Email address: Jeffrey.Bagraim@uct.ac.za

Thank you!

Georgia

Signature Removed

I acknowledge that I am participating in this study of my own free will. I understand that I may refuse to participate or stop participating at any time without penalty. If I wish, I will be given a copy of this consent form.

- ○ Yes, I provide my informed consent to participate in this study.
- ○ No, I would not like to participate in this study.

0% 100%

→

Appendix F

Data Collection Timetable

Table F1

Data Collection Timetable

Survey		Administration date and time	
		Opened	Closed
General Survey		Wednesday, 7 August, 11:00	Thursday, 8 August, 09:00
Pre-Weekend Survey	Week 1	Thursday, 8 August, 10:00[a]	Friday, 9 August, 00:00
	Week 2	Friday, 16 August, 08:00	Saturday, 17 August, 00:00
	Week 3	Friday, 23 August, 08:00	Saturday, 24 August, 00:00
Post-Weekend Survey	Week 1	Monday, 12 August, 08:00	Tuesday, 13 August, 00:00
	Week 2	Monday, 19 August, 08:00	Tuesday, 20 August, 00:00
	Week 3	Monday, 26 August, 08:00	Tuesday, 27 August[b], 00:00

Note. Three emails were sent to participants to complete the survey during each data collection period.

a. The first Pre-Weekend Survey was sent out on Thursday, 8 August due to a long weekend scheduled from Friday, 9 August to Sunday, 11 August.

b. Data collection began as soon as ethics approval was granted, and the pilot study was completed. The university's term calendar allocated a mid-term vacation for students spanning 24 August 2019 to 1 September 2019. This meant was not viable to continue data collection past 27 August 2019, as data on performance could not be collected during vacation. In addition, due to the time constraints inherent to this study, data collection could not resume following the vacation. This meant that the data collection period was limited to three consecutive weeks.

Appendix G

Procedure Used to Match Participant Responses

The participants' email addresses were used as an initial form of identification for each participant. To assign a unique code to each participant in order to remove their email addresses from the dataset and thereby anonymise the dataset, an Excel file containing each participant's email address was created. An identification code set out in the format "ID1", ID2" was then assigned to the respective participant in the order in which the General Survey was completed. This file is securely stored in a password protected file, on a secure laptop that only I had access to.

Then, for each of the seven datasets included in this study, the participant's email addresses were then carefully replaced with the identification code assigned to them. I was careful to ensure that each participant was consistently assigned their correct identification code so that these codes could be used as a unique identifier for individual participants across datasets while simultaneously protecting the identities of the research participants.

Appendix H

Initial Psychometric Analyses

Table H1

Item Factor Loadings and CFA Fit Indices of the Negative Affect Scale

Item	Factor 1
1. Irritable	.57
2. Upset	.70
3. Distressed	.76
4. Nervous	.64
5. Afraid	.74
6. Jittery	.64
Eigenvalue	3.29
Explained variance (%)	54.82

Note. $N = 106$. Factor loadings significant at < .55. CFA: $\chi^2(9) = 45.26$, $p < .001$, SRMR = .09, CFI =.85 RMSEA = .196. Although the Chi-squared goodness of fit test was significant and RMSEA indicated a poorly fitting model, these tests are sensitive to sample size and therefore may be inaccurate for this model. Further, the CFI value generated is close to Browne's (2015) guideline of .90 indicating acceptable fit. Similarly, the SRMR value is small and close to the desired value of .08 or below (Hu & Bentler, 1999). Taken together, these indices are indicative of reasonable model fit.

Table H2

Item Factor Loadings and CFA Fit Indices of the Proactive Personality Scale

Item	Factor 1
1. If I see something I don't like, I fix it.	.41
2. No matter what the odds, if I believe in something, I will make it happen.	.65
3. I love being a champion for my ideas, even against other's opposition.	.45
4. I am always looking for better ways to do things.	.54
5. If I believe in an idea, no obstacle will prevent me from making it happen.	.81
6. I excel at identifying opportunities	.41
Eigenvalue	2.53
Explained variance (%)	42.11

Note. N = 104. Factor loadings significant at < .55. CFA: $\chi^2(9)$ =8.16, p < .001, SRMR= .05, CFI= .99, RMSEA = .00 indicating reasonable model fit.

Table H3

Factor Loadings and CFA Fit Indices of the Self-efficacy Scale

Item	Factor 1
1. I will be able to achieve most of the goals that I have set for myself.	.62
2. When facing difficult tasks, I am certain that I will accomplish them.	.65
3. In general, I think that I can obtain outcomes that are important to me.	.75
4. I believe I can succeed at almost any endeavour to which I set my mind.	.73
5. I will be able to successfully overcome many challenges	.81
6. I am confident that I can perform effectively on many different tasks.	.64
Eigenvalue	3.44
Explained variance (%)	57.39

Note. $N = 105$. Factor loadings significant at < .55. CFA: $\chi^2(9) = 22.26$, $p < .001$, SRMR = .05, CFI =.94, RMSEA = .12 indicating reasonable model fit overall.

Table H4

Factor Loadings and CFA Fit Indices of the Academic Stress Scale

Item	Factor 1
1. I worry a great deal about the effect this semester's grades will have on my future.	.96
2. I spend a lot of time thinking about how this semester's grades could negatively affect my educational and career goals.	.90
3. I find myself very concerned about the grades I am likely to receive this semester.	.65
Eigenvalue	2.39
Explained variance (%)	79.58

Note. $N = 105$. Factor loadings significant at < .55. CFA: $\chi^2(0) = .00$, $p < .001$, SRMR =.00, CFI = 1, RMSEA = .00 indicating good fit overall.

Table H5

Factor Loadings for the Weekly In-Role Performance Scale (Items 1-6)

	Week 1[a]		Week 2[b]		Week 3[c]	
	Factor		*Factor*		*Factor*	
Items	1	2	1	2	1	2
1. I adequately completed my assigned tasks/ assignments	.59		.85		.76	
2. I fulfilled my responsibilities that are specified by course outlines.	.73		.84		.95	
3. I performed all of the tasks that were expected of me.	.78		.81		.83	
4. I met all of my formal deadlines that are required for my courses.	.72		.55		.83	
5. I neglected aspects of my course that I am obliged to complete (e.g. attending lectures, tutorials, completing my readings).				.79		.70
6. I failed to perform essential duties (e.g. submitting assignments timeously and attending tutorials).		.50				.35
Eigenvalue	2.56	1.09	2.85	1.12	3.34	1.11
Explained variance (%)	42.69	18.21	47.53	18.62	55.67	18.43

Note. Initially, PAF revealed that the factor structure differed across weeks, with items 5 and 6 loading on factors 1 and 2 interchangeably across weeks. Item 5 and 6 are negatively phrased. Although these items were recoded appropriately, this may suggest why these items seem to measure a different construct than items 1-4 (Pallant, 2011). Since it was impossible to determine which factor items 5 and 6 measured, these items were removed from further analysis and PAF was rerun on items 1-4 for each week (See Table H6).

a. $N = 68$, factor loadings significant at < .65
b. $N = 66$, factor loadings significant at < .65
c. $N = 49$, factor loadings significant at < .75

Table H6

Factor Loadings and CFA Fit Indices for the Weekly In-Role Performance Scale (Items 1-4)

Items	Factor 1		
	Week 1[a]	*Week 2*[b]	*Week 3*[c]
1. I adequately completed my assigned tasks/ assignments.	.57	.87	.78
2. I fulfilled my responsibilities that are specified by course outlines.	.71	.85	.92
3. I performed all of the tasks that were expected of me.	.80	.82	.86
4. I met all of my formal deadlines that are required for my courses.	.72	.49	.81
Eigenvalue	2.47	2.72	3.14
Explained variance	.61.70%	68.04%	8.42%
$\chi^2(2)$	.21	1.57	1.67
SRMR	.01	.02	.02
CFI	.99	.99	.99
RMSEA	.00	.00	.00

Note. One factor was extracted in week 1, 2 and 3, and all items loaded sufficiently onto factor 1. Furthermore, CFA revealed good model fit in each week. χ^2 significant at $*p < .01$. $*p < .05$; $**p < .01$; $***p < .001$

a. $N = 68$, factor loadings significant at < .65
b. $N = 66$, factor loadings significant at < .65
c. $N = 49$, factor loadings significant at < .75

Table H7

Initial Factor Loadings for the Weekly Personal Initiative Scale

	Week 1[a]		Week 2[b]		Week 3[c]	
	Factor		*Factor*		*Factor*	
Items	1	2	1	2	1	2
1. I actively attacked problems.		.58		.87	.58	
2. Whenever something went wrong, I searched for a solution immediately.		.77		.60	.72	
3. Whenever there was a chance to get actively involved, I took it.	.55		.74		.69	
4. I took initiative immediately, even when others did not.	.31		.87		.73	
5. I took advantage of opportunities quickly in order to attain my goals.	.88		.65		.87	
6. I did more than I was asked to do.	.55		.56		.57	
7. I was particularly good at bringing my ideas into reality.	.42		.69		.80	
Eigenvalue	2.89	1.10	3.43	1.22	4.02	.97
Explained variance (%)	41.21	15.68	48.96	17.44	57.40	13.84

Note. Factor loadings of less than .3 are suppressed. Initially, PAF revealed that the factor structure varied across weeks with two factors extracted in week 1 and 2 and one factor extracted in week 3. Due to the change in factor structure across weeks, a one-factor structure was forced in weeks 1 and 2 (See Table H8).

a. $N = 66$, factor loadings significant at < .65
b. $N = 61$, factor loadings significant at < .70
c. $N = 45$, factor loadings significant at < .75

Table H8

Factor Loadings and CFA Fit Indices for the Weekly Personal Initiative Scale (One factor solution)

Items	Factor 1		
	Week 1[a]	*Week 2*[b]	*Week 3*[c]
1. I actively attacked problems.	.65	.40	.58
2. Whenever something went wrong, I searched for a solution immediately.	.47	.49	.72
3. Whenever there was a chance to get actively involved, I took it.	.55	.73	.69
4. I took initiative immediately, even when others did not.	.38	.75	.73
5. I took advantage of opportunities quickly in order to attain my goals.	.55	.80	.87
6. I did more than I was asked to do.	.67	.59	.57
7. I was particularly good at bringing my ideas into reality.	.62	.65	.80
Eigenvalue	2.89	3.43	4.02
Explained variance	41.21%	48.96%	57.40%
$\chi^2(14)$	21.50	30.02*	28.79*
SRMR	.08	.09	.08
CFI	.91	.88	.90
RMSEA	.09	.14	.16

Note. One factor was extracted in week 1, 2 and 3. CFA reveals reasonable model fit. χ^2 significant at *$p < .01$. *$p < .05$; **$p < .01$; ***$p < .001$.

a. $N = 66$, factor loadings significant at < .65

b. $N = 61$, factor loadings significant at < .70

c. $N = 45$, factor loadings significant at < .75

Table H9

Factor Loadings of the Recovery Experiences Questionnaire

	Week 1[a]			Week 2[b]		Week 3[c]		
	Factor			*Factor*		*Factor*		
Items	1	2	3	1	2	1	2	3
1. I forgot about my studies.			.87	.66				.90
2. I didn't think about my studies at all.			.71	.56				.97
3. I distanced myself from UCT.			.65	.75				.45
4. I got a break from the demands of my academic work.	.43		.58	.81				.68
5. I "kicked back" and relaxed.	.79			.84		.82		
6. I did relaxing things.	.87			.78		.89		
7. I used the time to relax.	.89			.87		.96		
8. I took the time for leisure.	.71			.86		.88		
9. I learned new things.		.75			.74		.61	
10. I sought out intellectual challenges.		.72			.62		.68	
11. I did things that challenge me.		.81			.82		.83	
12. I did something to broaden my horizons		.62		.31	.72		.80	
Eigenvalue	4.26	2.59	1.70	5.35	2.60	4.93	2.45	1.78
Explained variance (%)	35.46	21.58	14.18	44.58	21.70	41.09	20.43	14.76

Note. PAF was initially run on the full 12-item REQ scale which included items that theoretically measure psychological detachment (Items 1-4)), relaxation (Items 5-8) and mastery (Items 9-12) (Sonnentag & Fritz, 2007). PAF revealed that the factor structure changed over time, with three factors extracted in weeks 1 and 3, and two factors extracted in week 2. In general, factor loadings show that items tended to load onto factors according to the theoretical constructs contained in the REQ. In week 1, all relaxation items loaded onto factor

1, all mastery items loaded onto factor 2, and all detachment items loaded onto factor 3. However, item 4, which measures psychological detachment, “This weekend, I got a break from the demands of my academic work” cross-loaded onto factor 1 and factor 3. In week 2, all relaxation and psychological detachment items loaded onto factor 1, while all mastery items loaded onto factor 2. Finally, in week 3, PAF revealed that all relaxation items loaded onto factor 1, all mastery items loaded onto factor 2 and all psychological detachment items loaded onto factor 3. Therefore, there is some evidence to suggest that the REQ has a three-factor structure, measuring relaxation, mastery and psychological detachment in this sample. However, as the factor structure differed across weeks, the factor structure of the subscales measuring psychological detachment (Table H10), relaxation (Table H11) and mastery (Table H12) were assessed independently in weeks 1, 2 and 3.

a. $N = 78$, factor loadings significant at < .60
b. $N = 66$, factor loadings significant at < .65
c. $N = 53$, factor loadings significant at < .75

Table H10

Factor Loadings and CFA Fit Indices for the Psychological Detachment Subscale

Items	Factor 1		
	Week 1[a]	*Week 2*[b]	*Week 3*[c]
1. I forgot about my studies.	.79	.85	.90
2. I didn't think about my studies at all.	.63	.62	.88
3. I distanced myself from UCT.	.80	.82	.75
4. I got a break from the demands of my academic work.	.75	.72	.58
Eigenvalue	2.66	2.69	2.81
Explained variance (%)	66.45	67.36	70.27%
$\chi^2(2)$	19.18***	3.88	3.32
SRMR	.08	.03	.04
CFI	.87	.98	.99
RMSEA	.33	.12	.11

Note. One factor was extracted in week 1, 2 and 3. Furthermore, CFA reveals good model fit. χ^2 significant at *$p < .01$. *$p < .05$; **$p < .01$; ***$p < .001$

d. $N = 78$, factor loadings significant at < .60

e. $N = 66$, factor loadings significant at < .65

f. $N = 53$, factor loadings significant at < .75

Table H11

Factor Loadings and CFA Fit Indices for the Relaxation Subscale

	Factor 1		
Items	*Week 1*[a]	*Week 2*[b]	*Week 3*[c]
1. I "kicked back" and relaxed.	.78	.88	.91
2. I did relaxing things.	.80	.82	.82
3. I used the time to relax.	.91	.94	.99
4. I took time for leisure.	.76	.83	.87
Eigenvalue	2.98	3.27	3.42
Explained variance	74.55%	81.67%	85.52%
$\chi^2(2)$	1.17	10.16*	1.64
SRMR	.01	.04	.01
CFI	.99	.96	.99
RMSEA	.00	.25	.00

Note. One factor was extracted in week 1, 2 and 3. CFA reveals good model fit overall in week 1, 2 and 3. χ^2 significant at *$p < .01$. *$p < .05$; **$p < .01$; ***$p < .001$.

a. $N = 78$, factor loadings significant at < .60

b. $N = 66$, factor loadings significant at < .65

c. $N = 53$, factor loadings significant at < .75

Table H12

Factor Loadings and CFA Fit Indices for the Mastery Subscale

	Factor 1		
Items	*Week 1*[a]	*Week 2*[b]	*Week 3*[c]
1. I learned new things.	.77	.76	.60
2. I sought out intellectual challenges.	.74	.60	.69
3. I did things that challenge me.	.83	.82	.87
4. I did something to broaden my horizons.	.58	.69	.76
Eigenvalue	2.59	2.53	2.60
Explained variance	64.72%	63.36%	64.95%
$\chi^2(2)$	5.22	22.06***	2.75
SRMR	.04	.08	.04
CFI	.97	.80	.99
RMSEA	.15	.39	.09

Note. One factor was extracted in week 1, 2 and 3. Furthermore, CFA revealed reasonable model fit in each week. χ^2 significant at *$p < .01$. *$p < .05$; **$p < .01$; ***$p < .001$

a. $N = 78$, factor loadings significant at < .60

b. $N = 66$, factor loadings significant at < .65

c. $N = 53$, factor loadings significant at < .75

Table H13

Factor Loadings and CFA Fit Indices for the State of Being Recovered Scale

	Factor 1		
Items	*Week 1*[a]	*Week 2*[b]	*Week 3*[c]
5. I feel mentally recovered.	.71	.77	.77
6. I feel physically refreshed.	.75	.87	.88
7. I feel well rested.	.85	.89	.93
8. I am now full of energy.	.90	.87	.81
Eigenvalue			
Explained variance			
$\chi^2(2)$	10.41*	4.89	2.48
SRMR	.06	.03	.02
CFI	.95	.98	.99
RMSEA	.23	.15	.07

Note. One factor was extracted in week 1, 2 and 3. CFA revealed reasonable model fit in each week. χ^2 significant at *$p < .01$. *$p < .05$; **$p < .01$; ***$p < .001$.

a. $N = 78$, factor loadings significant at < .60

b. $N = 66$, factor loadings significant at < .65

c. $N = 53$, factor loadings significant at <.75

Appendix I

Descriptive Statistics

Table I1

Means, Standard Deviations, Minimum and Maximum Scores

		M	*SD*	Min	Max	Mid	Observations
State of being recovered on Monday	Overall	2.93	1.09	1	5	2.5	*N* = 148
	Person-level		.90	1	4.5		*n* = 66
	Week-level		.67	.60	4.68		T-bar = 2.24
Weekly personal initiative	Overall	3.24	.73	1	4.71	2.5	*N* = 148
	Person-level		.60	1.62	4.43		*n* = 66
	Week-level		.42	1.52	4.45		T-bar = 2.24
Weekly task performance	Overall	5.14	1.21	1	7	3.5	*N* = 147
	Person-level		1.05	2.25	7		*n* =66
	Week-level		.72	2.73	7.14		T-bar = 2.23
Weekend psychological detachment	Overall	2.46	1.14	1	5	2.5	*N* = 148
	Person-level		.87	1	5		*n* = 66
	Week-level		.82	.59	4.80		T-bar = 2.24
Weekend relaxation	Overall	3.28	1.12	1	5	2.5	*N* = 148
	Person-level		.88	1	5		*n* =66
	Week-level		.77	1.12	5.12		T-bar = 2.24
Weekend mastery	Overall	3.09	.86	1	4.75	2.5	*N* = 148
	Person-level		.73	1.13	4.50		*n* = 66

	Week-level		.50	1.51	4.51		T-bar = 2.24
Negative affect	Overall	2.49	.84	1.17	4.17	2	*N = 148*
	Person-level		.85	1.17	4.17		*n* = 66
	Week-level		0	2.49	2.49		T-bar = 2.24
Self-efficacy	Overall	5.64	.80	3.83	7	3.5	*N* = 148
	Person-level		.80	3.83	7		*n* = 66
	Week-level		0	5.64	5.64		T-bar = 2.24
Academic stress	Overall	5	1.67	1	7	3.5	*N* = 148
	Person-level		1.67	1	7		*n* = 66
	Week-level		0	5	5		T-bar = 2.24
Proactive personality	Overall	3.75	.60	2.33	4.83	2.5	*N* = 148
	Person-level		.57	2.33	4.83		*n* = 66
	Week-level		0	3.75	3.75		T-bar = 2.24

Note. "*M* = mean; *SD* = standard deviation; min = minimum; max = maximum; mid = midpoint. T-bar represents an average number of observations per participant (StataCorp, 2019). The overall standard deviation is an estimate of the overall variance in the data as reported in the same units as the data (Field, 2018). Larger standard deviations, relative to the mean, is indicative of scores distributed further from the mean, while smaller standard deviations indicate that most scores are clustered around the mean (Field, 2018). Further, the between-persons standard deviation represents the average variance in scores across participants in the sample, while the within-persons standard deviation represents the average variance in scores reported by the same participant for a particular variable across time (StataCorp, 2019).

Appendix J

Assumptions of Multilevel Models

The assumptions underlying multilevel models are similar to a linear model in that the normality, linearity and homoscedasticity of variance should be evaluated. Furthermore, an investigation to identify outliers that may have undue influence on the model should be conducted. In addition, the random effect parameters of the multilevel model should be normally distributed. In this analysis, this means that the week-level and person-level intercept variance should be normally distributed. However, unlike the linear model, the assumption of independence and multicollinearity do not apply to multilevel models that have centred predictors (Field, 2018).

Normal distribution of the residuals. In order for the estimated parameters of the model to be optimal, the residuals should be normally distributed (Field, 2018). The distribution of residuals was determined by plotting the distribution of the model's residuals on Stata. The residuals were determined to be normally distributed if the distributed showed a bell-shaped curve.

Linearity of the residuals. In multilevel linear models, it is assumed that the relationship between the predictor variables and the outcome variable is linear. To test this assumption, the residuals of the predictor variable can be plotted against the residuals of the outcome variable. The plot, the *zpred vs zresid*, is based on converting the scores of the predictor and outcome variable to z-scores. The resulting plot illustrates the underlying relationship between the predictor variable and the outcome variable. For the assumption of linearity to be met, there should be no underlying relationship between the model's residuals and the predicted model residuals. If the *zpred vs zresid* graph demonstrates a curve in the distribution of the residuals, linearity cannot be assumed (Field, 2018)

Homoscedasticity of variance. In study designs which groups of cases are tested, as in the multilevel model, homoscedasticity of variance means that the groups are sampled from populations with the same variance (Field, 2018). This is indicated by the variance of the outcome variable being stable at all levels of the predictor variable. The assumption of homoscedasticity of variance is tested using the same *zpred vs zresid* graph that is used to test linearity. If there is no underlying relationship between the model's residuals and the predicted model residuals, then homoscedasticity of variance is assumed. However, if the graph displays a funnel shape, heteroscedasticity is present (Field, 2018).

Normal distribution of the random-effects parameters. This assumption states that the random parameters, or the intercepts of the model that can vary, should be normally distributed around the overall model (Field, 2018). This assumption was tested on Stata.

Outliers. To identify outliers who may have undue influence on the model, standardised residuals were calculated. According to Montgomery, Peck and Vinning, (2012), standardised residuals of greater than |.3| are indicative of an outlier and warrant further investigation.

Appendix K

Assumptions of Multilevel Analysis: State of Being Recovered on Monday

The assumptions of normal distribution of the residuals (Figure P1), linearity and homoscedasticity of the model's predictors (Figures P2- P8) and normal distribution of the random effect parameters (Figure P9) were met. Furthermore, a summary of the outliers present in the model and Model 2 results (excluding case ID10) are presented in Table J1 and Table J2 respectively.

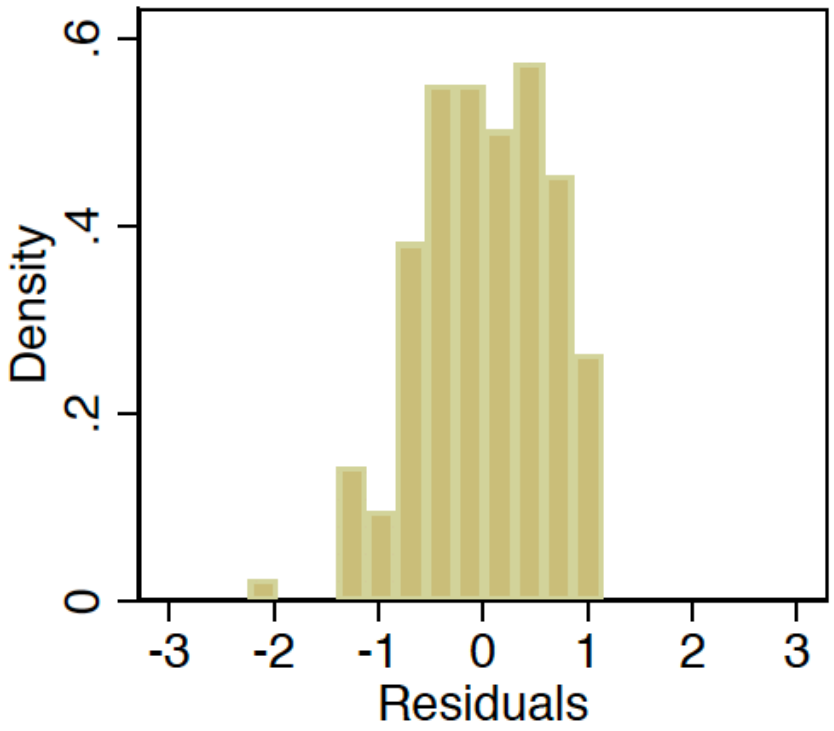

Figure K1: Normal distribution of the residuals.

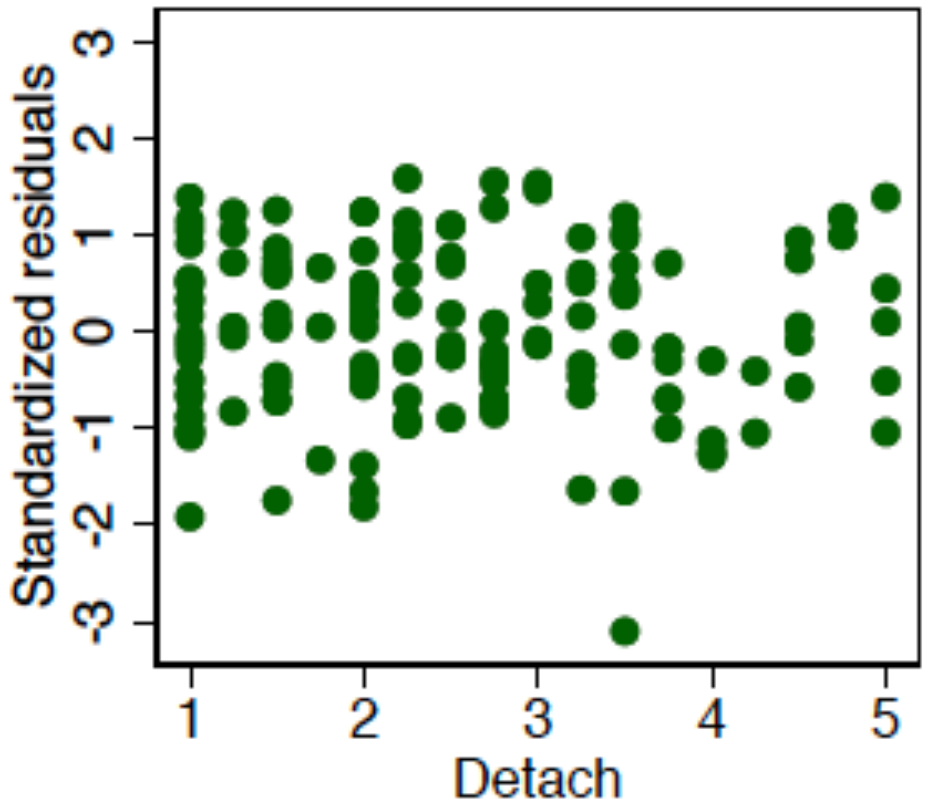

Figure K2: Linearity and homoscedasticity of variance between weekend psychological detachment and the state of being recovered on Monday.

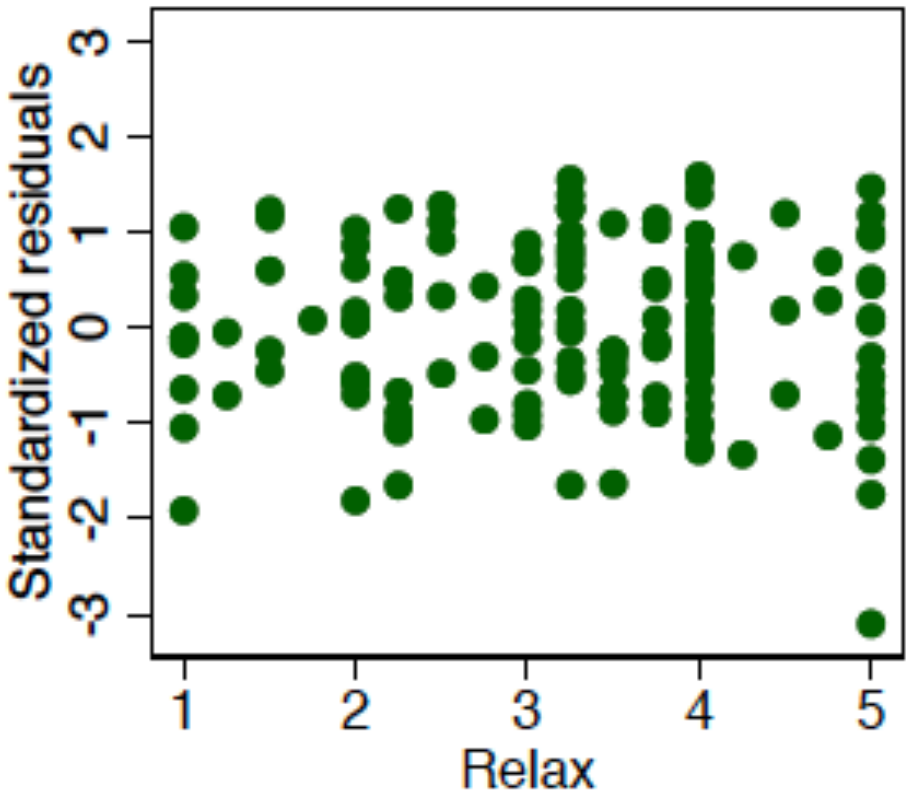

Figure K3: Linearity and homoscedasticity of variance between weekend relaxation and the state of being recovered on Monday.

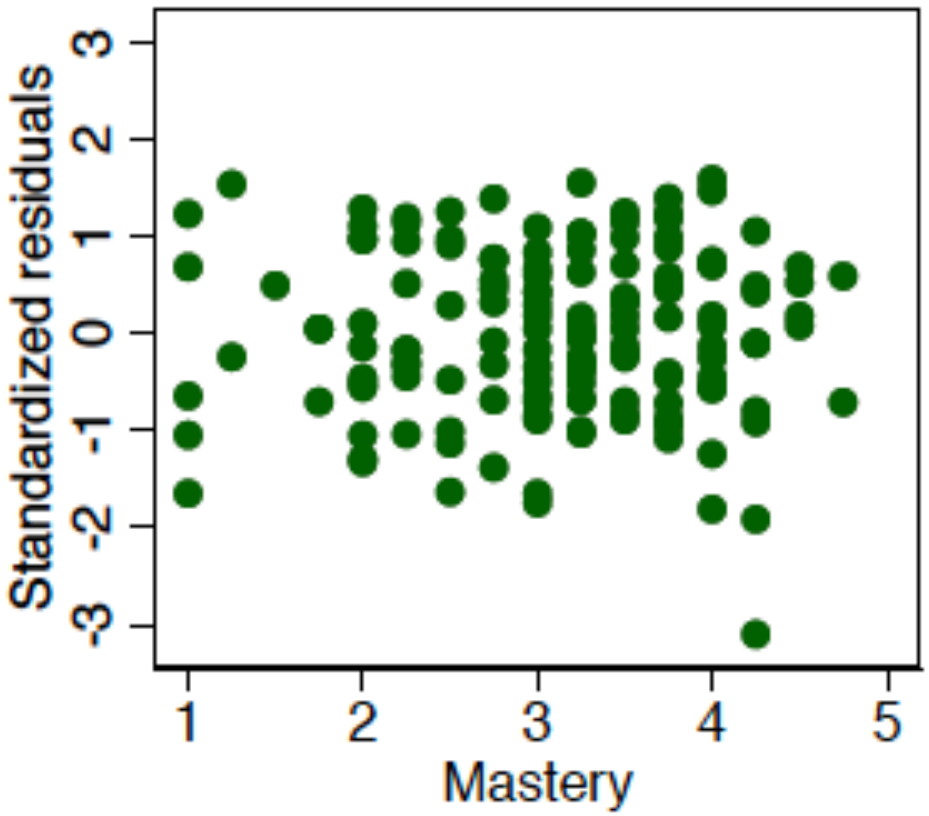

Figure K4: Linearity and homoscedasticity of variance between weekend mastery and the state of being recovered on Monday.

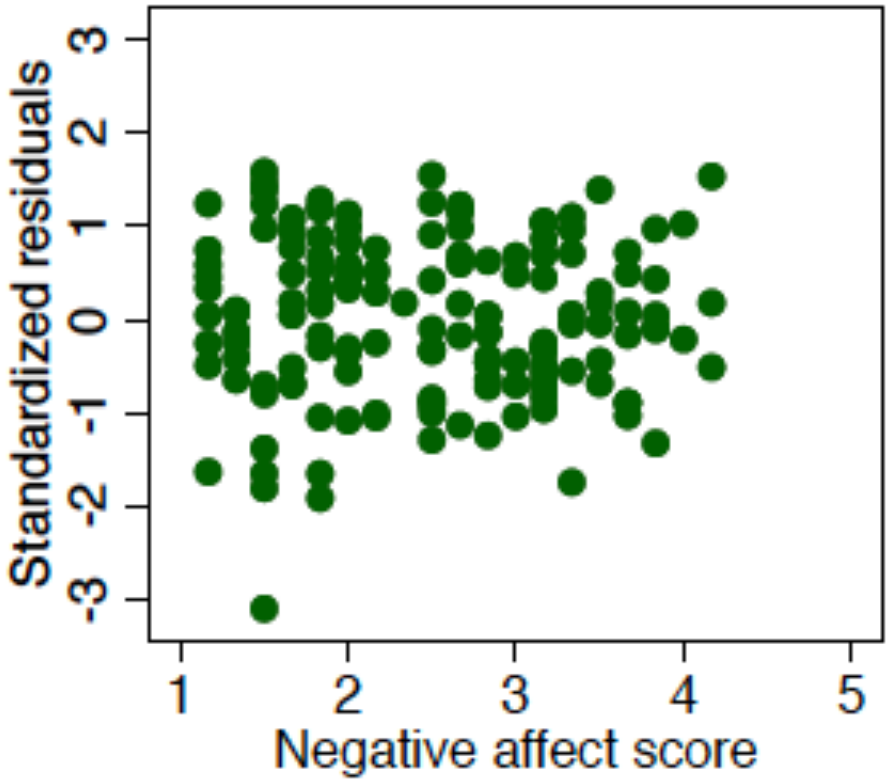

Figure K5: Linearity and homoscedasticity of variance between negative affect and the state of being recovered on Monday.

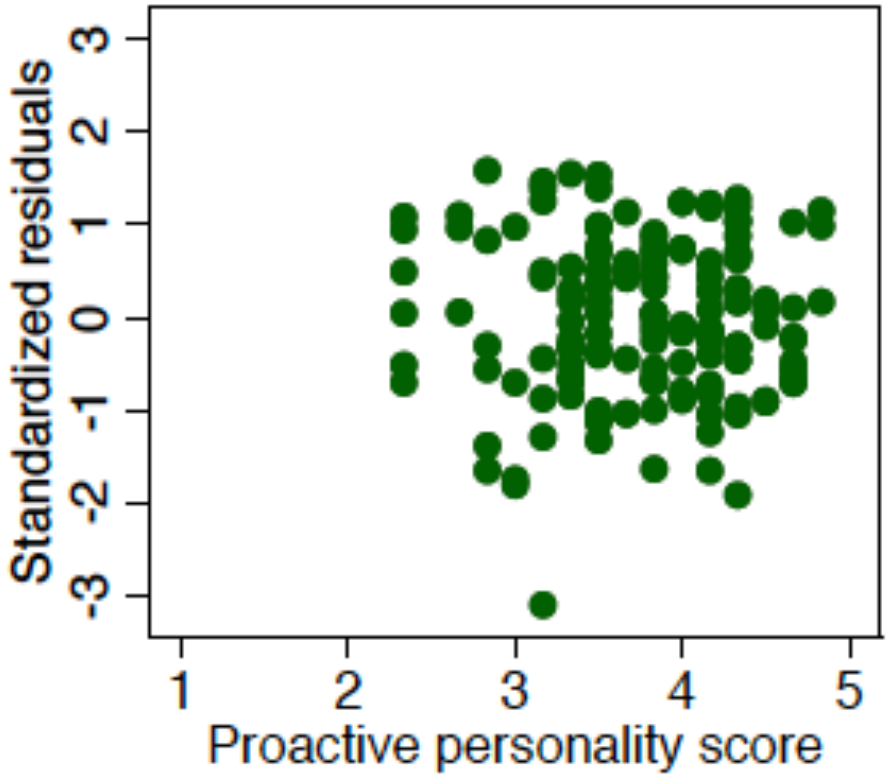

Figure K6: Linearity and homoscedasticity of variance between proactive personality and the state of being recovered on Monday.

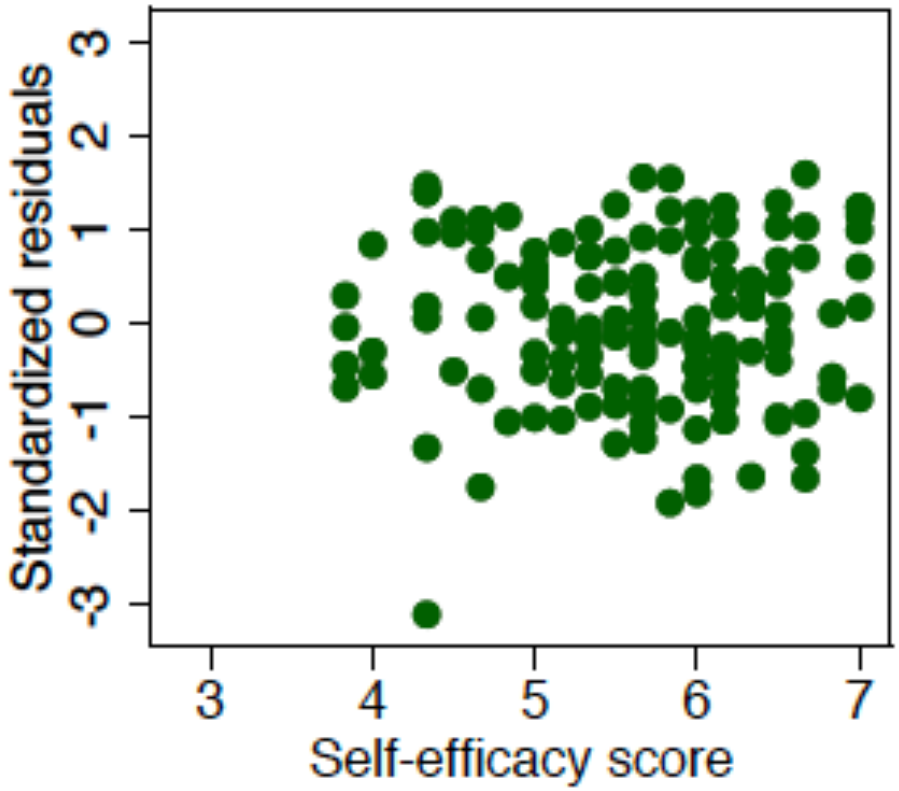

Figure K7: Linearity and homoscedasticity of variance between self-efficacy and the state of being recovered on Monday.

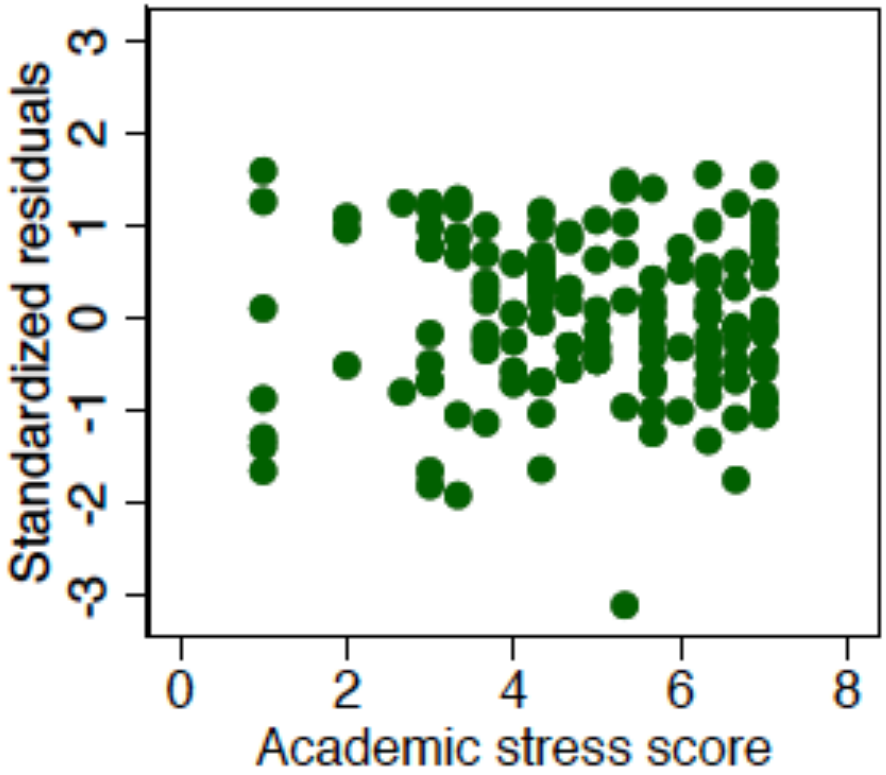

Figure K8: Linearity and homoscedasticity of variance between academic stress and the state of being recovered on Monday.

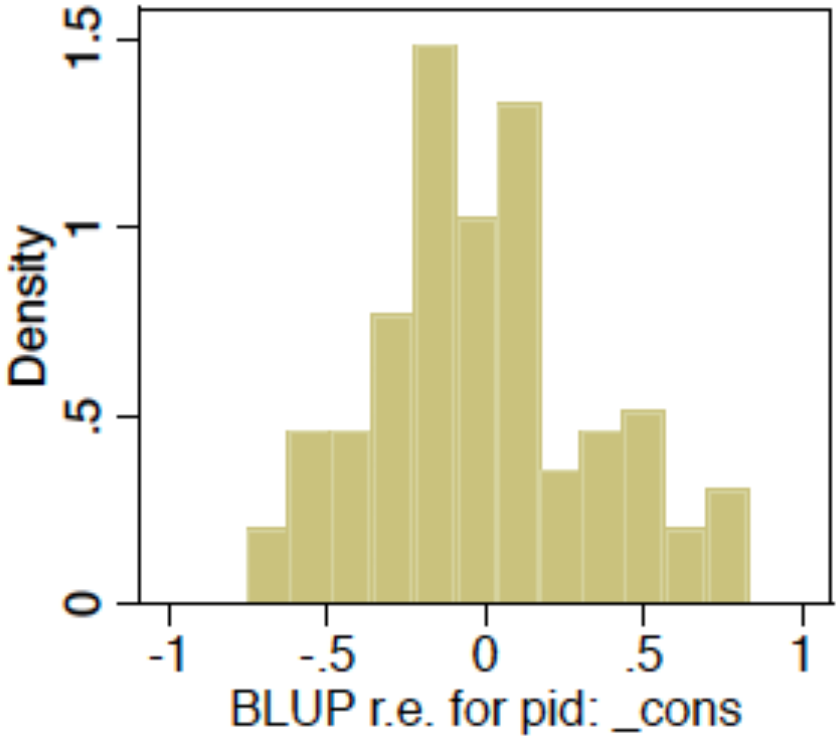

Figure K9: Normal distribution of the random effect parameters (week-level and person-level intercept variance)

Table K1

Outliers Identified in Multilevel Analysis (State of being Recovered on Monday)

ID	Standardised residual	Week	Age	Gender	State of being recovered	Psychological detachment	Relaxation	Mastery	NA	PP	SE	AS
10	-3.10	3	18	Male	1.75	3.5	5	4.25	1.5	3.17	4.33	5.33
88	-1.91	1	19	Male	1	1	1	4.25	1.83	4.33	5.83	3.33
25	-1.81	2	19	Male	1	2	2	4	1.5	3	6	3
36	-1.74	1	19	Female	1	1.5	5	3	3.33	3	4.67	6.67
14	-1.65	1	18	Female	1	2	2.25	3	1.83	4.17	6	3
95	1.39	3	19	Male	5	5	4	3.75	3.5	3.50	4.33	5.67
10	1.46	2	18	Male	5	3	5	4	1.5	3.17	4.33	5.33
63	1.54	1	21	Female	4.25	3	4	1.25	4.17	3.50	5.83	7
55	1.55	2	18	Male	4.50	2.75	3.25	3.25	2.50	3.33	5.67	6.33
26	1.59	3	18	Male	4.50	2.25	4	4	1.50	2.83	6.67	1

Note. 'ID' refers to the identity number assigned to each participant. 'Week' refers to the week the data was collected in. NA refers to negative affect, PP refers to proactive personality, SE refers to self-efficacy and AS refers to academic stress.

Table K2

Week-level reported by participant ID10

Variable	Variable score		
	Week 1	Week 2	Week 3
Standardised residual	1.39	1.46	-3.10
Weekend psychological detachment	1	3	3.5
Weekend relaxation	3.25	5	5
Weekend mastery	2.75	4	4.25
State of being recovered on Monday	4	5	1.75

Table K3

Person-level data reported by participant ID10

Person-level data	Variable score
Age	18
Gender	Male
Negative affect	1.5
Self-efficacy	4.33
Proactive personality	3.17
Academic stress	5.33

Table K4

Multilevel Model predicting State of Being Recovered on Monday (Excluding Case ID10)

	Model 2				
				95% confidence interval	
	Estimate	SE	z	Lower bound	Upper bound
Intercept	2.06	2.44	.84	-2.73	6.85
Weekend psychological detachment	.14	.08	1.80	-.01	.29
Weekend relaxation	.42	.08	5.16***	.26	.58
Weekend mastery	.04	.08	.44	-.13	.20
Age	-.05	.12	-.41	-.29	.19
Gender (Female)	-.62	.18	-3.44***	-.97	-.27
Negative affect	-.21	.14	-1.50	-.47	.06
Proactive personality	.04	.20	.20	-.35	.43
Self-efficacy	.12	.15	.81	-17	.42
Academic stress	-.01	.07	-.10	-.13	.12
-2LL	342.19				
Diff -2LL	-47.10				
Diff df	3				
Level 1 intercept variance	.25	.09		.13	.50
Level 2 intercept variance	.43	.07		.32	.59

Note. Gender: males (0), females (1). *N* on the person-level =66, *N* on the week-level =148. *$p < .05$; **$p < .01$; ***$p < .001$. 'Level 1' refers to week-level data, 'Level 2' refers to person-level data. Overall, the model is significant ($W^2(9) = 102.84$, $p < .001$). LR test vs. linear test shows the multilevel model fits the data significantly better than a linear model ($\overline{\chi}^2(1) = 13.03$, $p < .001$).

Appendix L

Assumptions of Multilevel Analysis: Weekly Task Performance

The assumptions of normal distribution of the residuals (Figure Q1), linearity and homoscedasticity of the model's predictors (Figures Q2- Q6) and normal distribution of the random effect parameters (Figure Q7) were met. Furthermore, a summary of the outliers present in the model are presented in Table Q1.

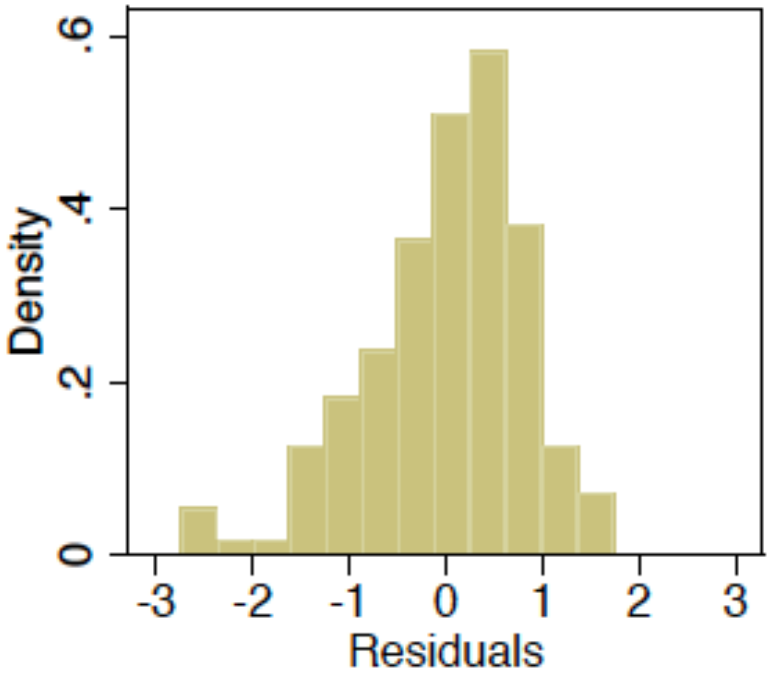

Figure L1: Normal distribution of the residuals.

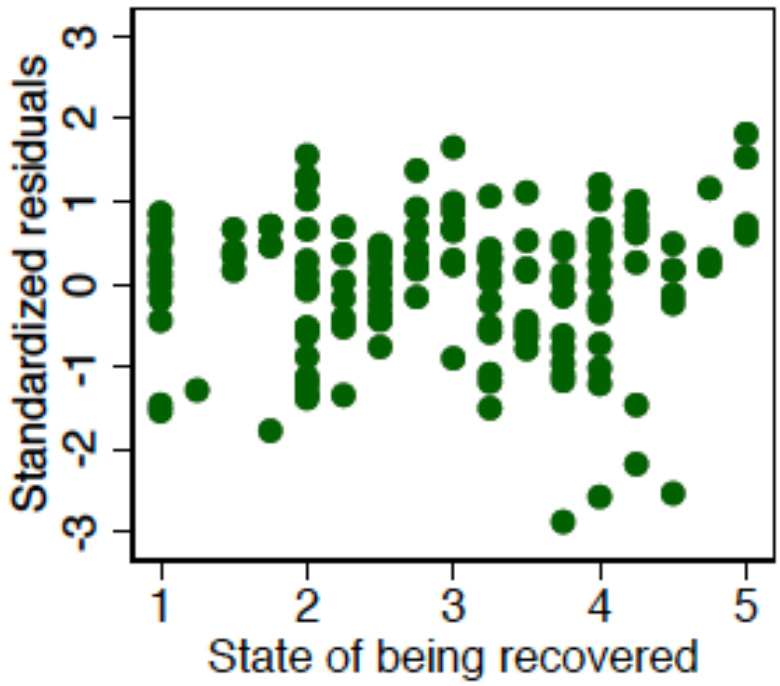

Figure L2: Linearity and homoscedasticity of variance between state of being recovered on Monday and weekly task performance.

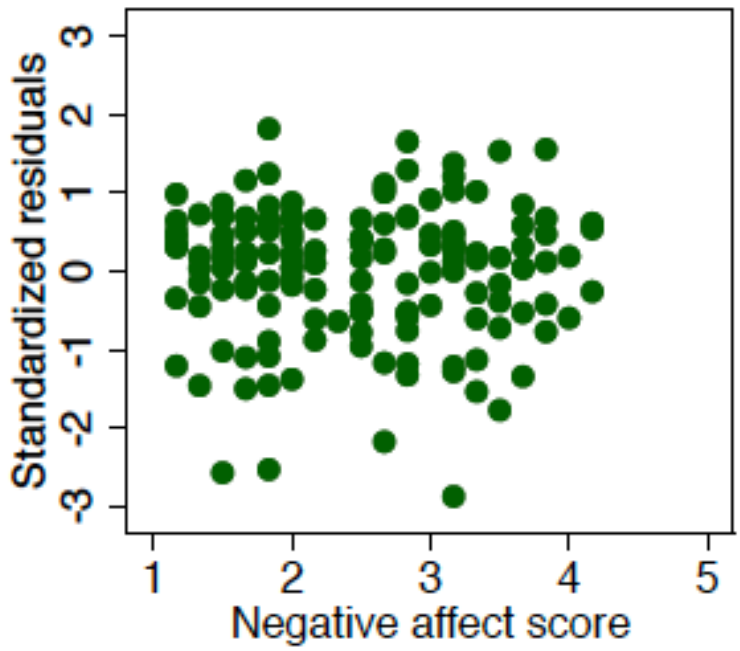

Figure L3: Linearity and homoscedasticity of variance between negative affect and weekly task performance.

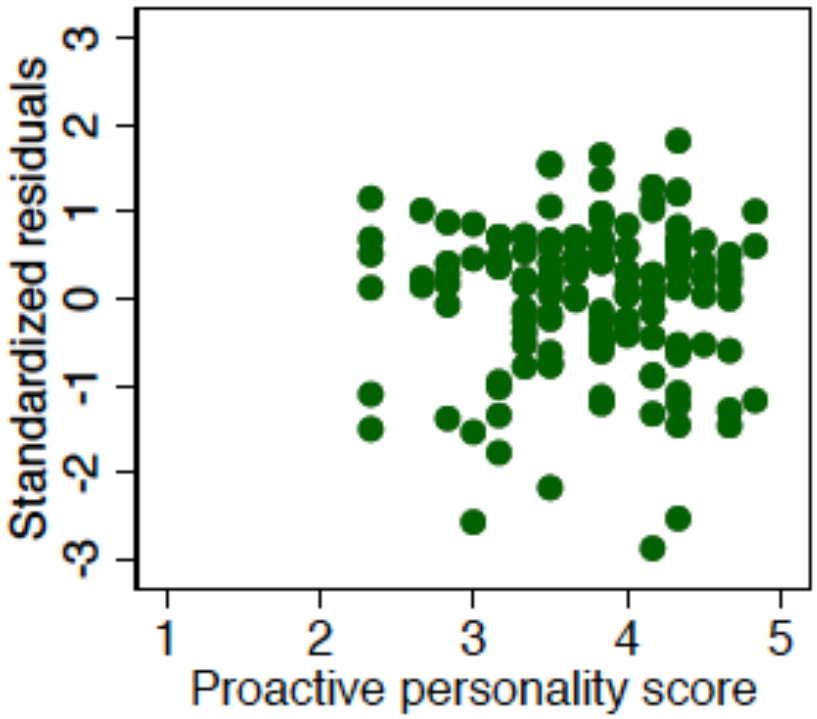

Figure L4: Linearity and homoscedasticity of variance between proactive personality and weekly task performance.

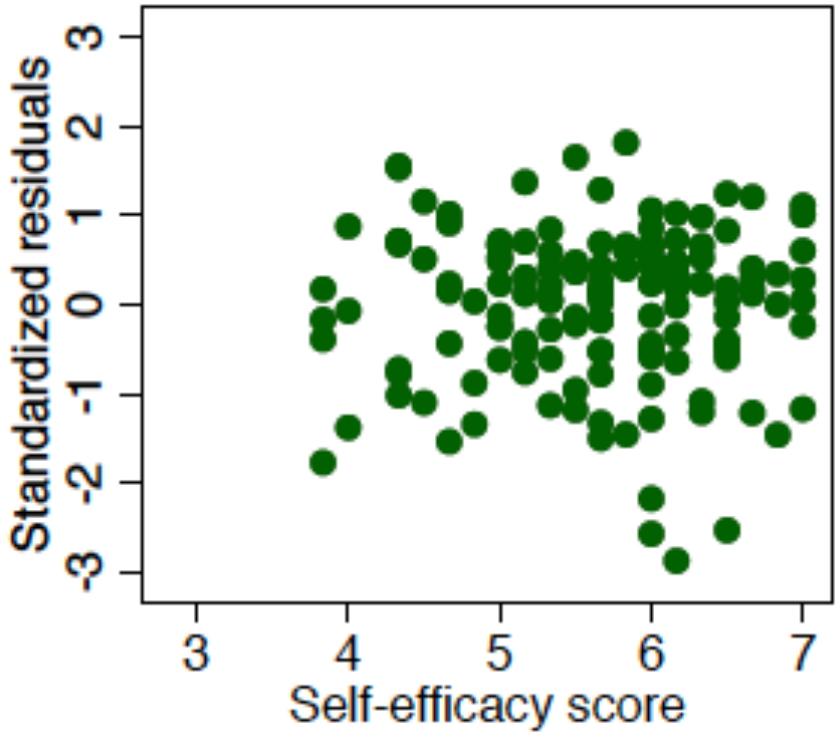

Figure L5: Linearity and homoscedasticity of variance between self-efficacy and weekly task performance.

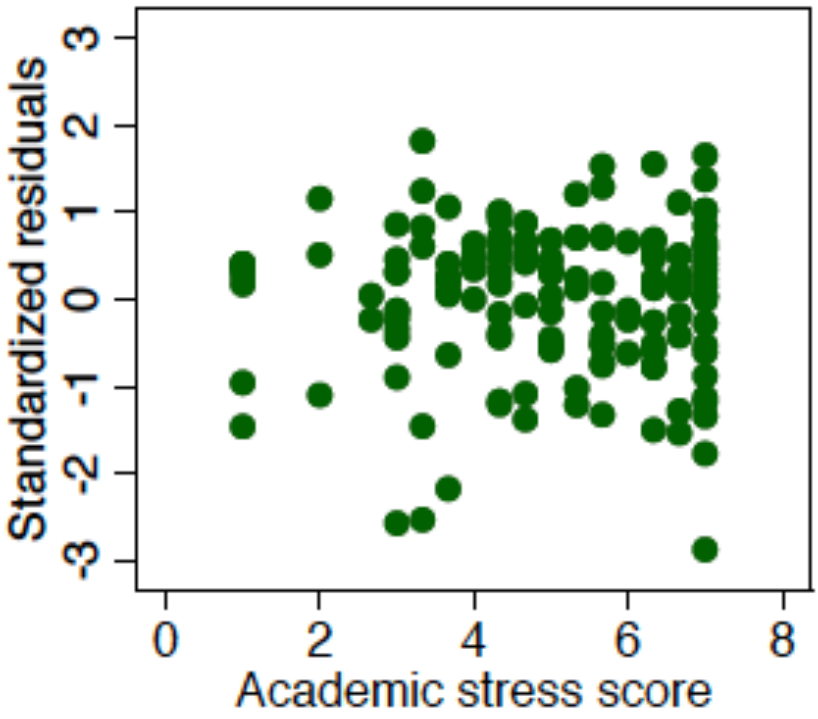

Figure L6: Linearity and homoscedasticity of variance between academic stress and weekly task performance.

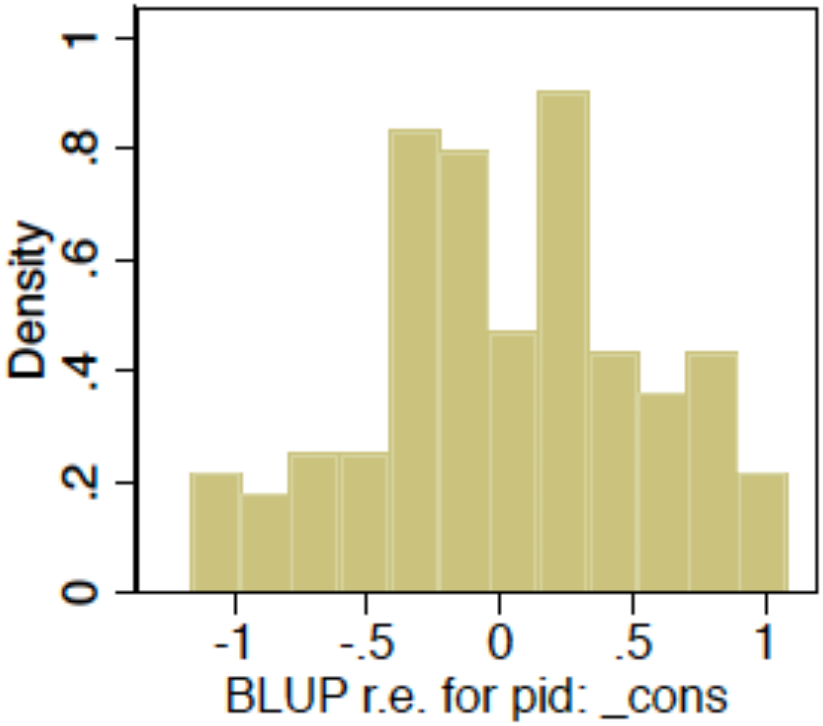

Figure L7: Normal distribution of the random effect parameters (week-level and person-level intercept variance)

Table L1

Outliers Identified in Multilevel Analysis: Weekly Task Performance

ID	Standardised residual	Week	Age	Gender	Task performance	State of being recovered	NA	PP	SE	AS
70	-2.87	3	19	Female	1	3.5	3.17	4.17	6.17	7
25	-2.57	3	19	Male	2.25	4	1.5	3	6	3
16	-2.53	3	19	Male	2.25	4.50	1.83	4.33	6.5	3.33
19	-2.17	3	19	Male	2.50	4.25	2.67	3.50	6	3.67
68	-1.77	1	18	Female	2.50	1.75	3.50	3.17	3.83	7
50	1.37	1	18	Female	7	2.50	3.17	3.83	5.17	7
95	1.53	3	19	Male	6.25	5	3.5	3.50	4.33	5.67
20	1.56	2	20	Male	7	2	3.83	3.50	4.33	6.33
39	1.66	2	19	Male	6.50	3	2.83	3.83	5.50	7
88	1.82	3	19	Male	7	5	1.83	4.33	5.83	3.33

Note. 'ID' refers to the identity number assigned to each participant. 'Week' refers to the week the data was collected in. NA refers to negative affect, PP refers to proactive personality, SE refers to self-efficacy and AS refers to academic stress.

Appendix M

Assumptions of Multilevel Analysis: Weekly Personal Initiative

The assumptions of normal distribution of the residuals (Figure R1), linearity and homoscedasticity of the model's predictors (Figures R2- R6) and normal distribution of the random effect parameters (Figure R7) were met. Furthermore, a summary of the outliers present in the model are presented in Table R1.

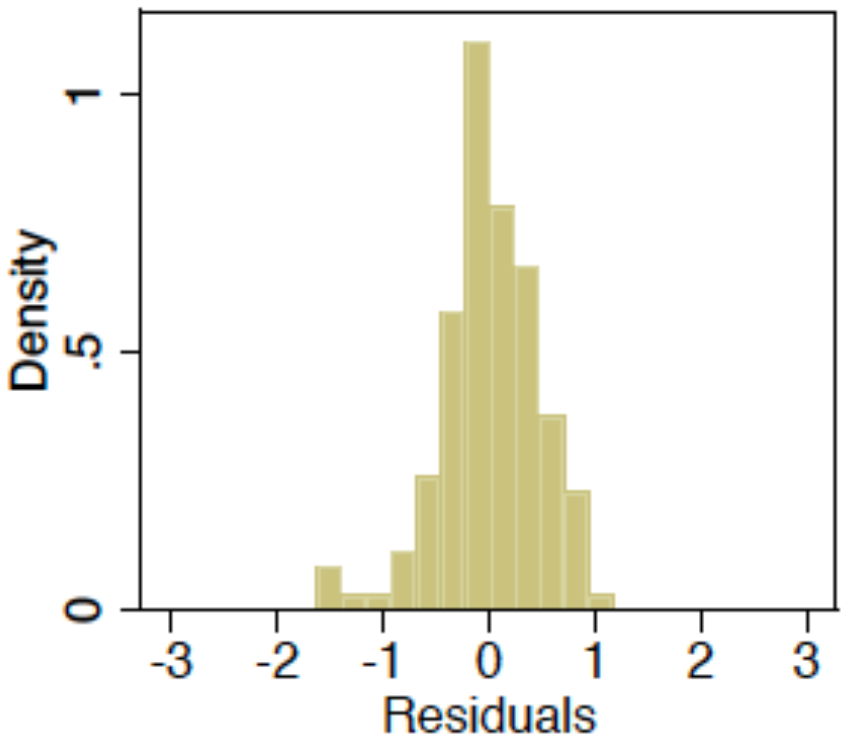

Figure M1: Normal distribution of the residuals.

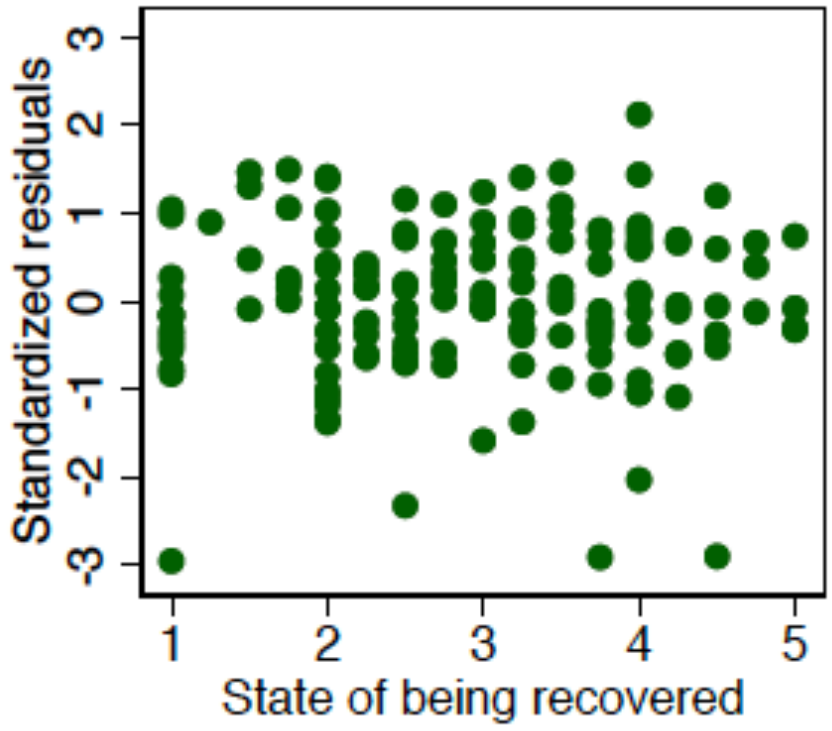

Figure M2: Linearity and homoscedasticity of variance between state of being recovered on Monday and weekly PI.

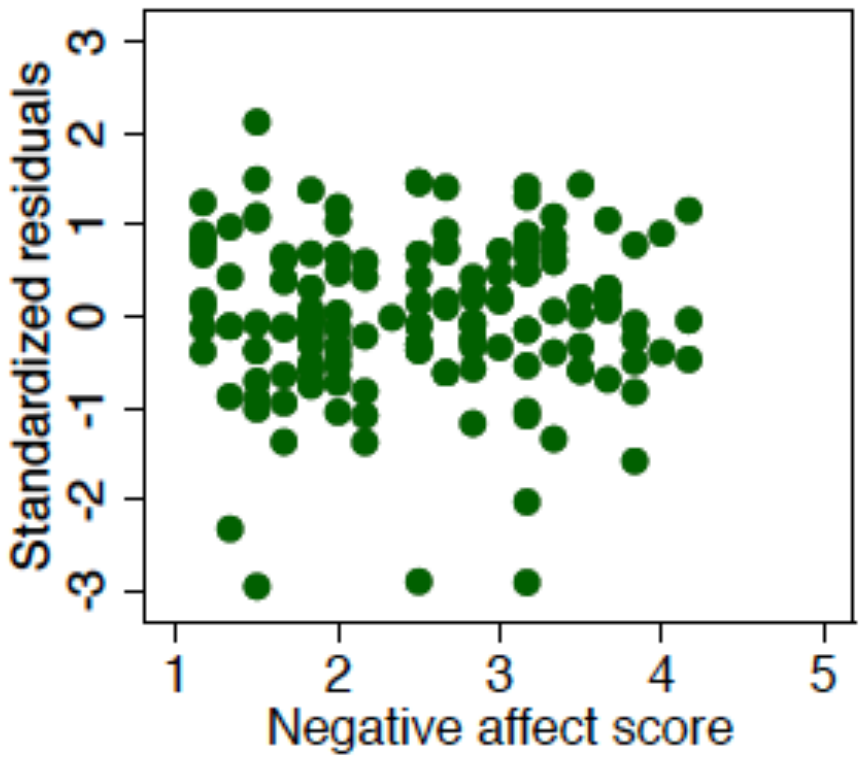

Figure M3: Linearity and homoscedasticity of variance between negative affect and weekly PI.

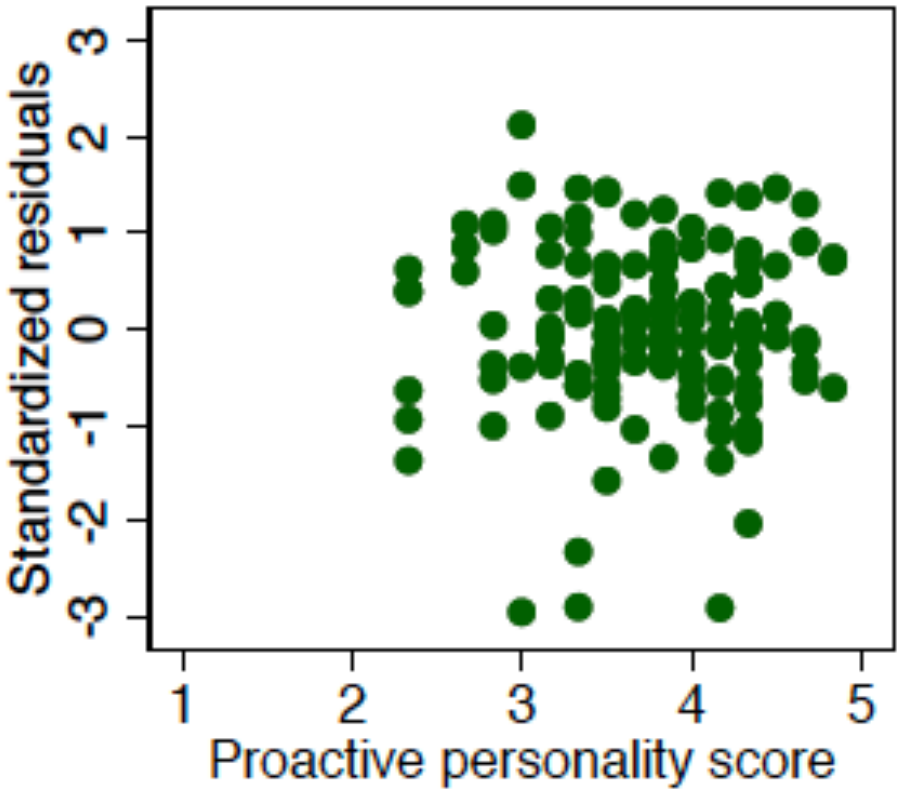

Figure M4: Linearity and homoscedasticity of variance between proactive personality and weekly PI.

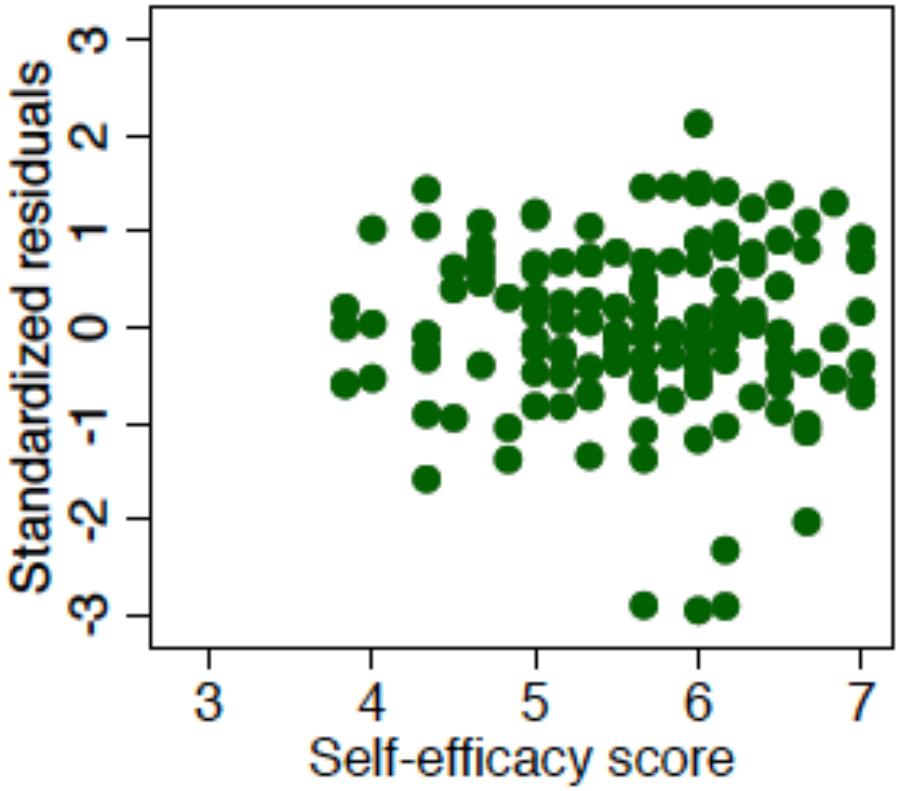

Figure M5: Linearity and homoscedasticity of variance between self-efficacy and weekly PI.

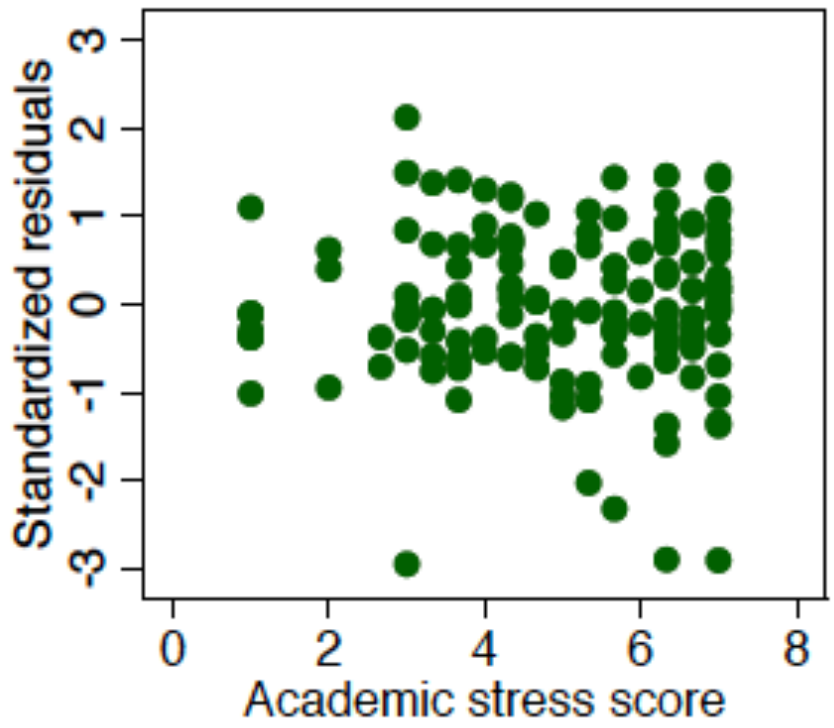

Figure M6: Linearity and homoscedasticity of variance between academic stress and weekly PI.

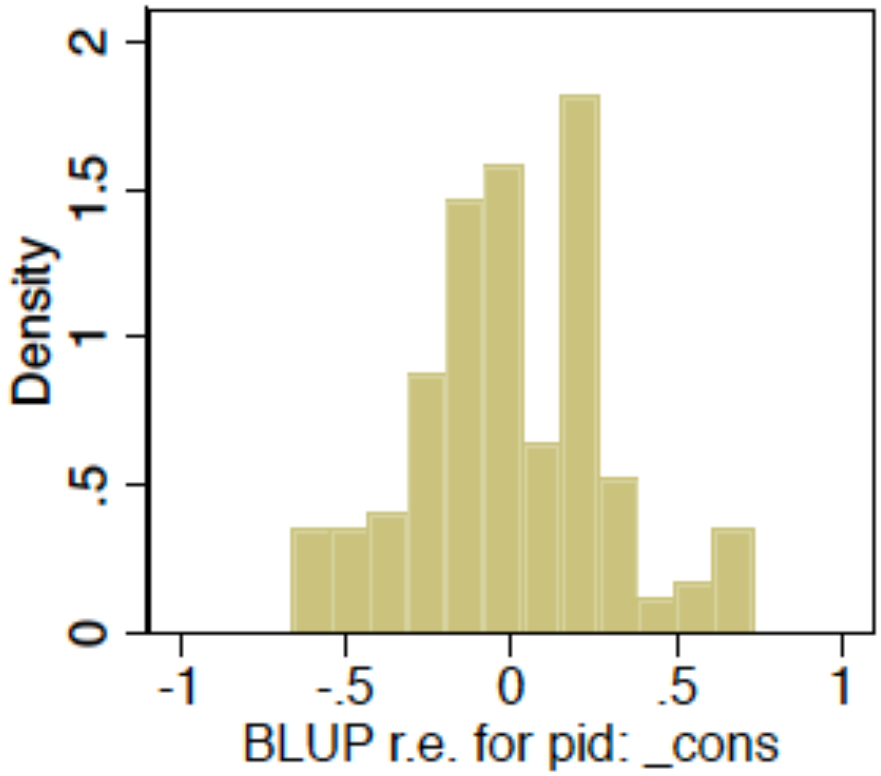

Figure M7: Normal distribution of the random effect parameters (week-level and person-level intercept variance)

Table M1

Outliers Identified in Multilevel Analysis (Weekly PI)

ID	Standardised residual	Week	Age	Gender	PI	State of being recovered	NA	PP	SE	AS
25	-2.95	2	19	Male	1.86	1	1.5	3	6	3
70	-2.92	3	19	Female	1	3.75	3.17	4.17	6.17	7
55	-2.90	2	18	Male	1.29	4.5	2.5	3.33	5.67	6.33
6	-2.32	1	19	Female	1.14	2.50	1.33	3.33	6.17	5.67
80	-2.02	3	19	Female	1.43	4	3.17	4.33	6.67	5.33
95	1.44	2	19	Male	4.43	4	3.50	3.50	4.33	5.67
55	1.46	3	18	Male	3.71	3.50	2.50	3.33	5.67	6.33
73	1.47	2	19	Female	4.43	1.50	2.50	4.50	5.83	7
25	1.50	1	19	Male	4.28	1.75	1.50	3	6	3
25	2.12	3	19	Male	4.57	4	1.50	3	6	3

Note. 'ID' refers to the identity number assigned to each participant. 'Week' refers to the week the data was collected in. NA refers to negative affect, PP refers to proactive personality, SE refers to self-efficacy and AS refers to academic stress.