The Impact of a Psychological Capital Micro-Intervention on Academic Engagement within a Student-University Context

by

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A Research Project

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Declaration

I declare that this research project is my own, unaided work. It has not been submitted for any other degree or examination at this or any other university.

Signed: Monique Passos

Date: 13 June 2024

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Abstract

Although the student experience is commonly praised for its empowerment, learning opportunities, and adventurous nature, it is important to acknowledge that students also face substantial pressure and stress throughout their academic journeys. This has been known to adversely affect student engagement (i.e., vigour, dedication, and absorption) levels, potentially diminishing academic performance and productivity levels, and increasing the likelihood of university dropouts (Jafri, 2017; Kuh et al., 2008). Fortunately, psychological capital (PsyCap); the combination of four psychological capacities (hope, self-efficacy, optimism, and resilience), has been cited as a significant contributor of academic engagement (Luthans et al., 2016; You, 2016). These constructs are explained by the Job Demands-Resources (JD-R) model as well as the Conservation of Resources (COR) theory. However, few studies have considered the relationship between PsyCap and academic engagement amongst first-year university students. This provided a unique and novel context for application, warranting future research. Thus, the purpose of the current study was to examine whether a micro PsyCap intervention had an effect upon the levels of academic engagement experienced by first-year university students.

The following three instruments were combined into an online questionnaire and used to collect the necessary data for the current study: 1) A demographic questionnaire was administered to gather information about the sample and sample characteristics; 2) the Utrecht Work Engagement Scale for Students (UWES-S) was used to measure academic engagement; 3) the Psychological Capital Questionnaire (PCQ) was used to measure psychological capital and/or personal resources. Data was collected at two different time periods (i.e., pre-intervention/time 0 and post-intervention/time 1), whereby the PCQ was used to measure levels of PsyCap, and the UWES-S was used to measure academic

engagement. The data was analysed using descriptive statistics, correlational analysis, and mixed-model analysis of variance (ANOVA). The final sample (N = 319) consisted of both full-time and part-time first-year students across different faculties of study (i.e., Humanities, Health Sciences, and Commerce, Law, and Management) at the University of the Witwatersrand in Johannesburg, South Africa.

Results of the current study demonstrated that a positive relationship exists between PsyCap and academic engagement. Specifically, the study revealed that students with higher levels of PsyCap tend to show more energy and enthusiasm (vigour), stronger commitment (dedication), and deeper absorption in their learning (absorption). These findings were supported by previous research.

However, the current study also revealed that the proposed PsyCap intervention failed to significantly affect the students' levels of vigour, dedication, and absorption over time. These results were surprising considering previous research but may be attributed to the inherent difficulties of developing an online intervention in South Africa, where there are significant variations in resource availability and economic status (especially amongst university students). Based on these challenges, future studies should incorporate face-to-face interventions to ensure inclusivity and participation from all participants; use larger and more representative samples; and embrace a mixed-methods approach to gain a deeper understanding of participant experiences. Nevertheless, the study's result does not invalidate prior research that has demonstrated the effectiveness of PsyCap interventions in enhancing academic engagement amongst university students.

Abstract

This study confirms a link between psychological capital (PsyCap) and student engagement, underlining the importance of personal resources in the student-university context. Further research is necessary to develop more effective iterations of the proposed PsyCap intervention aimed at effectively enhancing academic engagement and promoting overall student success.

Keywords: Psychological capital, PsyCap, engagement, academic engagement, Job Demands-Resources model, JD-R, Conservation of Resources theory, COR, micro intervention, first-year university students, South Africa

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Chapter 1: Introduction

"When we are open to new possibilities, we find them."

- Todd Kashdan –

Since the beginning of the century, increased attention has been paid to the field of positive psychology; otherwise known as the scientific study of human strength and optimal functioning (Shaufeli et al., 2006). Given the challenging trials and tribulations that accompany student life, it is unsurprising that the current emphasis on cultivating and nurturing positive health and wellbeing has garnered significant attention within the student-university context. While the student experience is often celebrated for its empowerment, learning opportunities, and adventurous spirit, it is essential to recognise that students also encounter significant pressure, anxiety, and strain during their educational journey (Bedewy & Gabriel, 2015; Karaman et al., 2019).

The challenging aspects of student life stem from the fact that students are consistently faced with physically, emotionally, and psychologically demanding situations, which heighten their susceptibility and vulnerability to stress development (Cushman & West, 2006 as cited in Providas, 2016). Juggling numerous tasks and assignments, striving to attain demanding goals, and dealing with the financial strain of student loans are some of the burdens students endure. With the changing landscape of the global economy, university students also encounter heightened pressure and obstacles stemming from the competitiveness, intricacy, and unpredictability of today's economic environment (Siu et al., 2013 as cited in Ali et al., 2022; Tulowitzki, 2020 as cited in Ali et al., 2022; Watts & Richardson, 2020 as cited in Ali et al., 2022; Khan et al., 2020a as cited in Ali et al., 2022). This is compounded by the constant evolution of technology, adding further complexity to their challenges (Siu et al., 2013 as cited in Ali et al., 2022; Tulowitzki, 2020 as cited in Ali

et al., 2022; Watts & Richardson, 2020 as cited in Ali et al., 2022; Khan et al., 2020a as cited in Ali et al., 2022). These factors play a crucial role in the amplification of stress levels within the academic setting (Karaman et al., 2019; Ramachandiran & Dhanapal, 2018). Consequently, students who find themselves in a high-stress academic environment may be more susceptible to experiencing reduced academic engagement. This, in turn, can have adverse effects on their academic achievements, success and overall well-being (Bedewy & Gabriel, 2015; Bernstein & Chemaly, 2017; Karaman et al., 2019).

Specifically, the transition from secondary to higher education poses a challenge for many first-year university students, as they are met with unforeseen time management and academic challenges (Ayala & Manzano, 2018). Additionally, autonomous learning and self-teaching play a bigger role in their academic performance (van deer Meer et al., 2010). In this light, a student's academic performance and their decision to stay or leave university might depend on: (a) ‘their ability to adapt to university life and to the challenges or obstacles they face at university’ (Allan et al., 2014; Ainscough et al., 2017), and (b) ‘the quality of effort students themselves devote to educationally purposeful activities that contribute directly to desired outcomes’ (Hu & Kuh, 2002).

Accordingly, academic engagement has been associated with a plethora of benefits, such as improved retention rates and persistence, increased academic success, and the promotion of lifelong learning (Freda et al., 2021; Jafri, 2017; Luthans et al., 2016). Specifically, academic engagement may be defined as “the measure of student involvement with university studies” (Horstmanshof & Zimitat, 2007, p. 705). According to Schaufeli et al. (as cited in Schaufeli & Bakker, 2004, p. 5), engagement is broadly characterised by vigour, dedication, and absorption: “Vigour is characterised by high levels of energy and mental resilience while

[studying], the willingness to invest effort in one's [studies], and persistence even in the face of difficulties. Dedication refers to being strongly involved in one's [studies] and experiencing a sense of significance, enthusiasm, inspiration, pride, and challenge. Absorption is characterised by being fully concentrated and happily engrossed in one's [studies], whereby time passes quickly and one has difficulties with detaching oneself from [one's studies]."

Given the apparent benefits of academic engagement, it seems relevant to explore the possible antecedents of engagement. Previous research has highlighted the potential role of psychological capital (PsyCap) as a significant variable in this context. These studies consistently demonstrate that interventions aimed at enhancing PsyCap often yield positive outcomes in terms of improved engagement (Alrashidi et al., 2016; Luthans et al., 2016; You, 2016). PsyCap is defined as "an individual's positive psychological state of development characterised by 1) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; 2) making a positive attribution (optimism) about succeeding now and in the future; 3) persevering toward the goals (hope), and when necessary, redirecting paths to goals in order to succeed; and 4) when beset by problems and adversity, sustaining and bouncing back and even beyond to attain success (resilience)" (Luthans et al., 2012, p. 254).

The concept of engagement can be effectively understood and explained through the lens of two theoretical frameworks: 1) The Job Demands-Resources (JD-R) model (Demerouti et al., 2001), and 2) the Conservation of Resources (COR) theory (Hobfoll, 1989). The former, which explores the interaction between job demands and job resources, can be applied to many occupational settings, including the student-university context (Ali et al., 2022; Bakker

& Leiter, 2010). In this context, the tasks students undertake share similarities with employment due to their hierarchical and structured nature. Similar to a job, they involve defined duties, deadlines for assignments and attendance, and specific responsibilities (Cotton et al., 2002 as cited in Providas, 2016; Shaufeli et al., 2019; Siu et al., 2014). The COR theory expands this understanding by emphasising the significance of personal resources and incorporating them into the framework. This framework recognizes the interplay between job demands, job resources, personal resources, and employee engagement (Carmona-Halty et al., 2021). Thus, by considering the interplay between these factors, these theoretical perspectives offer valuable insights into the factors that contribute to engagement within the academic environment; allowing researchers and practitioners to develop effective strategies to enhance engagement amongst students (Hobfoll et al., 2018; Providas, 2016).

Enhancing a student's academic engagement would be useful for first-year university students because they are most susceptible to the academic and emotional demands that are associated with the transition from secondary to tertiary learning (Larmar & Ingamells, 2010). While the association between PsyCap and engagement has been studied in previous years (Conley et al., 2013; Larmar & Ingamells, 2010; Luthans et al., 2016; Siu et al., 2013), few studies have considered how these function from the perspective of first-year university students. Thus, the purpose of the current study is to examine whether a micro PsyCap intervention has an effect upon the levels of academic engagement experienced by first-year university students.

Rationale

The current study focuses on first-year university students because they face considerable challenges during the transition from secondary to tertiary education. One of the biggest

challenges awaiting these transitioning students involves mastering the skills and abilities necessary for lasting academic success and, most importantly, the avoidance of dropout. Dropout negatively affects institutions in the reduction of enrolment and non-achievement of institutional goals, and these effects can result in staggering economic and social repercussions (Alban & Mauricio, 2019; Moodley & Singh, 2018). These include an increased need for governmental assistance due to higher unemployment rates which, in turn, limits a country's overall productivity and economic growth (Latif et al., 2015). Dropout has become a pertinent issue in recent years. From a first-world lens, according to the Organisation for Economic Cooperation and Development (OECD), European student dropout rates ranged between 30% and 50%, while the United States experienced a dropout rate of 37% in 2016 (Alban & Mauricio, 2019).

Unfortunately, there has been little improvement within the South African context. According to the Council on Higher Education (CHE), in 2005, the dropout rate was measured at 50% of the total number of students enrolled nationally (Moodley & Singh, 2015). Similarly, according to Statistics SA, in 2011, only 29% amongst those students who registered for undergraduate degrees managed to graduate within the stipulated time period. The rest were indicative of a low throughput rate, as these students either dropped out immediately or extended degree completion into 2016 and beyond. As Marwala and Mpedi (2015) noted, this 'revolving door syndrome' has long been used to describe the phenomenon of turnover in the education sector. It is estimated that over 40% of all first-year students in South Africa do not complete their degrees (Marwala & Mpedi, 2015). Specifically, according to a 2019 government review of the first 25 years of democracy, in the 2010 cohort, only 22% of students achieved a three-year degree within three years, 39% of students

had completed their degrees by the fourth year, and 56% of students completed their degrees by the sixth year (Marwala & Mpedi, 2022).

These statistics paint a grim picture of the dropout rate both nationally and internationally, suggesting that most university students either drop out without completing their specified qualifications or take far longer to complete them. Whilst a mix of individual and institutional reasons could play a role here, such as family demands, lack of money, change of major or poor psycho-social fit; it is undeniable that this is an urgent problem in need of a solution (Kuh et al., 2008).

Previous research has suggested that a student's successful academic experience depends upon the "quality of effort students themselves devote to educationally purposeful activities that contribute directly to desired outcomes" (Ayala & Manzano, 2018, p. 2). Since engagement involves developing a "sense of dynamic and affective connection with academic activities," it is highly likely that this variable plays a significant role in achieving academic success (Ayala & Manzano, 2018, p. 3). Accordingly, prior research has demonstrated that engagement has a significant positive influence upon student learning and outcomes, particularly outcomes represented by a persistence to reach higher academic levels (Ayala & Manzano, 2018; Christenson et al., 2012; Kuh et al., 2008; Lester, 2013;). This is because the more students participate and stay involved in academic activities, the more likely they are to persist with their studies (Larmar & Ingamells, 2010). Thus, academic engagement has been consistently linked to reduced dropout rates, increased academic success, and stronger psychosocial development (Jafri, 2017). Additionally, engaged students have been shown to demonstrate higher levels of curiosity and interest, are motivated by challenges, and show higher levels of persistence (Shih, 2008; Skinner & Belmont, 1993 as

cited in You, 2016). In this way, engagement 'makes learning possible' and is an essential tool for first-year university students seeking a successful tertiary experience.

Fortunately, a positive psychological state has been known to contribute towards the improvement of an individual's overall engagement levels. Specifically, PsyCap has become associated with promoting goal achievement and personal growth, improved performance, and greater resistance to stress (Luthans et al., 2016; Diseth, 2011 as cited in You, 2016; Valentine et al., 2004 as cited in You, 2016; Gilman et al., 2006 as cited in You, 2016; Seirup & Rose, 2011 as cited in You, 2016; Ruthig et al., 2004 as cited in You, 2016; Solberg et al., 2009 as cited in You, 2016). Beyond this, PsyCap has been found to increase students' overall psychological well-being, as well as enhance effective coping strategies (Jafri, 2017). Interestingly, however, while research has explored the importance of personal psychological resources for engagement more generally, there is a lack of evidence in examining the role of PsyCap interventions and their impact upon student engagement (Luthans et al., 2016).

Research has shown that the implementation of micro-training interventions has helped develop PsyCap resources within individuals (Luthans et al., 2016). The potential relationship between PsyCap and academic engagement can be inferred from studies that have recognised the conceptual links between both variables, particularly in terms of PsyCap's four components. Firstly, research has confirmed that optimism is positively associated with stronger academic engagement because having a positive outlook often enhances an individual's willingness to engage with academic activities (Snyder, 2002 as cited in You, 2016; Jafri, 2017). Secondly, self-efficacy has been found to significantly affect students' cognitive engagement levels because it helps them 'guide their own learning' (Jafri, 2017; Larmar & Ingamells, 2010; Chemers et al., 2001 as cited in You, 2016; Valentine et al., 2004

as cited in You, 2016). Thirdly, studies have demonstrated that hope is strongly related to college completion, particularly because hopeful individuals develop and maintain the will power to engage with and achieve their goals (Fati et al., 2019; Jafri, 2017; Snyder et al., 2002 as cited in You, 2016). Finally, resilience is recognised as a successful factor in proactively engaging with and surviving challenging circumstances. This aids individuals in achieving overall satisfaction and academic achievement (Jafri, 2017).

Numerous studies (Ayala & Manzano, 2018; Kuh et al., 2008) highlight the benefits experienced by students attending universities that prioritise and implement a range of effective educational approaches. These students are more likely to demonstrate improved academic performance, higher satisfaction levels, and increased persistence leading to graduation (Ayala & Manzano, 2018). Among these initiatives, which often encompass mentoring, hosting first-year seminars, and well-designed orientation practices, integrating resilience training into orientation programs could potentially yield additional benefits (Ayala & Manzano, 2018; Conley et al., 2013; Kuh et al., 2008). However, it is important to realise that the mere provision of such practices does not ensure their desired impact on student success. Rather, "institutional practices must be of high quality, customised to meet the needs of students they are intended to reach" (Kuh et al., 2008, p. 556).

Additionally, as McKenzie and Schweitzer (2001) note: "Although students are responsible for improving their levels of engagement, universities could also contribute to their improvement through specific programs that train students in searching for creative responses, in the adaptation to change, in assertive communication, in relaxation techniques, in the accomplishment of a better understanding of their strengths and weaknesses, and in the development of skills to help them cope with different kinds of situations optimistically and

courageously" (as cited in Ayala & Manzano, 2018, p. 12). This further warrants a need to explore the feasibility of piloting a reputable intervention tailored to enhance first-year student engagement.

Given that there is a growing recognition that students are grappling with strain due to their academic pursuits, it becomes imperative to explore the possibility of implementing a mitigating intervention in this context. Thus, it follows that a micro PsyCap intervention might prove to effectively impact upon academic engagement amongst first-year university students. Considering the information above, the current study is worthwhile because it could prove to increase students' overall engagement levels which may help them develop the skills and abilities necessary for lasting academic success.

Chapter 2: Literature Review

Introduction

Although much research has considered the importance of PsyCap and academic engagement, few studies have examined the direct relationship between these variables for first-year university students. This review will focus on four themes which emerge repeatedly throughout the reviewed literature. These include definition and scope, benefit factors, the link between PsyCap and academic engagement, and the types of interventions which improve PsyCap. Leveraging the Job Demands-Resources (JD-R) model and Conservation of Resources (COR) theory, this review will also delve into how personal resources and academic engagement develop. Whereas the literature presents these themes in a broader context, this review will focus on their application to first-year university students.

An Overview of Academic Stress

According to Lazarus and Cohen (1977) (as cited in Hamaideh, 2011, p. 70), stress means "any event in which internal and/or environmental demands exceed the adaptive resources of an individual or social system." It follows that academic stress encompasses the emotional and physiological strain experienced by students due to perceived threats to their academic success and available resources. The transition to university presents unique challenges, particularly for first-year students who may struggle with adapting to new environments and forming social connections. Research has shown that common stressors among university students include academic workload, competition with peers, financial pressures, time constraints, and difficulty in balancing demands of family and friends (Karaman et al., 2019; Kauser, 2010). Additionally, students often face challenges such as managing family expectations, navigating career aspirations, and adjusting to the demands of university life (Bernstein & Chemaly, 2017; Johnson & Hinton, 2018).

South African university students may encounter additional stressors related to cultural diversity and socio-economic factors, which further exacerbate their stress levels (Jones et al., 2017). Specifically, many students migrate from small hometowns and rural villages to attend tertiary institutions. This relocation, away from familiar surroundings and family support networks, presents a significant challenge during their initial year of transition (Bernstein & Chemaly, 2017). Additionally, language barriers may pose a concern. Despite South Africa's eleven official languages, nine of which are Black African languages, English or Afrikaans serves as the primary medium of instruction in major tertiary institutions. Thus, since a considerable portion of the South African student body comprises of Black students, many may struggle with language barriers, exacerbating their stress levels (Bernstein & Chemaly, 2017).

Furthermore, academic stressors such as familial expectations for success, scholarship requirements, and classroom competition are prevalent (Beiter et al., 2015; Misra & Castillo, 2004; Robothan & Julian, 2006). Within the South African context, these stressors carry a heavier weight for Black students. For them, university education is a crucial path out of poverty, making academic pressure even more significant. Often hailing from economically disadvantaged backgrounds, these students bear immense pressure to succeed, as their educational attainment is viewed as instrumental in uplifting their families and securing future social mobility (Bernstein & Chemaly, 2017).

Importantly, research indicates that students from financially unstable families are disproportionately prone to anxiety and depression compared to their wealthier counterparts (Eisenberg et al., 2007). These financial stressors have catalysed widespread protests within South Africa, epitomised by the '#Feesmustfall' movement that gained momentum in 2015.

Amongst others, the movement's demands ranged from freezing fee hikes to advocating for free education (Bernstein & Chemaly, 2017). Thus, considering the aforementioned factors, many students within South African universities are undoubtedly under immense stress and pressure.

The impact of academic stress extends beyond individual well-being to affect institutional outcomes, such as retention and dropout rates (Bernstein & Chemaly, 2017). High levels of stress can undermine students' motivation, engagement, and overall academic performance. Due to its detrimental effect on students' ability to work effectively (Yang & Farn, 2005), stress can erode their work ethic and damage their relationship with the university. This not only jeopardizes their individual educational futures but also risks diminishing the overall appeal of universities, potentially impacting current and future enrolment rates (Du Plessis & Gerber, 2012; Gauche, 2006; Pienaar & Sieberhagen, 2005).

Researchers argue that coping responses are important for university students' development and become problematic when stress outweighs these mechanisms (Karaman et al., 2019). Thus, addressing academic stress is essential for promoting student well-being and academic success. By understanding the factors contributing to stress and its effects on students, universities can develop targeted interventions to support students' mental health and enhance their academic performance (Karaman et al., 2019; Smith & Johnson, 2020). Empirical research plays a crucial role in identifying effective strategies for mitigating stress and promoting resilience among students in higher education. Therefore, continued investigation into the impact of student stress on important academic outcomes, such as academic engagement, is essential for informing evidence-based interventions and fostering

student success in universities. Below, I broadly define work engagement as a precursor to understanding academic engagement.

Engagement in the Workplace

Work engagement broadly refers to the extent to which employees are emotionally invested in and committed to their work roles (Schaufeli et al., 2002). It has garnered significant attention in organisational research due to its profound impact on employee performance, satisfaction, and organisational success (Barik & Kochar, 2017; Bhuvanaiah & Raya, 2014; Borah & Barua, 2018). Engaged employees are characterised by their proactive involvement in their roles, a strong sense of belonging, and a willingness to go above-and-beyond to contribute to organisational success (Bakker & Albrecht, 2018; Salanova et al., 2005).

Work engagement stands apart from other forms of employee well-being, such as burnout, boredom, workaholism, and job satisfaction (Schaufeli et al., 2019). Initially, work engagement was conceived as the positive counterpart to burnout, a work-related condition marked by mental exhaustion, thereby suggesting a negative correlation between burnout and work engagement (Maslach et al., 2001). Similarly, job boredom, akin to burnout, entails low arousal and displeasure (Loukidou et al., 2009), whereas work engagement is characterised by high arousal and pleasure. Additionally, work engagement differs from workaholism, which denotes a strong internal drive to work excessively hard, also featuring high arousal and displeasure (Schaufeli et al., 2008). Lastly, work engagement can be distinguished from job satisfaction. Although both entail a sense of pleasure, the level of arousal is higher for engagement compared to job satisfaction (Christian et al., 2011).

Research suggests that engaged employees outperform their disengaged counterparts across various performance metrics (Bakker et al., 2008; Bakker & Xanthopoulou, 2009). This can be attributed to the fact that engaged employees often experience a surge of positive emotions like happiness, joy, and enthusiasm (Bakker et al., 2008). Engagement has also been shown to promote innovative behaviour of employees (Bedarkar & Pandita, 2014; Borah & Barua, 2018; Kular et al., 2008). Moreover, employees tend to enjoy better psychological and physical health, which enables them to cope more effectively with workplace challenges (Bakker & Demerouti, 2008). Furthermore, engaged employees are adept at creating their own job-related and personal resources, such as autonomy, support networks, and developmental opportunities (Bakker & Bal, 2010). They are also skilled at transferring their engagement to others in the workplace, fostering a positive organisational culture (Bakker et al., 2008).

The impact of employee engagement extends beyond individual performance to organisational outcomes. Studies have shown that organisations with higher levels of employee engagement experience greater levels of satisfaction, service climate, and employee loyalty and commitment (Bakker & Demerouti, 2008; Hakanen & Schaufeli, 2012). The Watson Wyatt Survey (2008) discovered that engaged employees exceeded the expected level of performance, demonstrated greater resilience in the face of organisational change, and expressed a stronger sense of connection to the organisation (Bhuvanaiah & Dhanapal, 2018). This finding corresponds to the fact that engagement has been linked to reduced levels of depressive symptoms and turnover intentions among employees (Salanova et al., 2005). Thus, it is clear that organisations that prioritise engagement initiatives can expect to reap the benefits of improved performance, retention, and general happiness among their workforces.

Academic Engagement

The dimensions of work engagement may also be applied to a student-university context. In this setting, academic engagement can be understood from two perspectives. From a behavioural perspective, it reflects a blend of intellectual curiosity, dedication (conscientiousness), and active participation in learning, all driven by a sense of purpose (McInnis et al., 1995, 2000 as cited in Hortsmanshof & Zimitat, 2007). From a psychological perspective, engagement is understood as the student's commitment to their studies and the investment of their mental energy in their educational journey (Astin, 1984 as cited in Hortsmanshof & Zimitat, 2007).

While engagement principles have been broadly defined since the 1950's, they have not been systematically categorized until recently. Engagement is still loosely defined, but a wave of research is promoting deeper inspection aimed at providing clarity around the construct (Lester, 2013). Rather than a fleeting reaction, engagement represents a sustained and deeply ingrained state that integrates emotions and thoughts, extending beyond any particular object, event, or interaction (Schaufeli & Bakker, 2004). As mentioned previously, engagement is often defined in a work context, where it has been negatively correlated with burnout. Thus, since burnout has been defined in terms of exhaustion, cynicism and reduced professional efficacy (Schaufeli & Bakker, 2004; Schaufeli et al., 2019), it follows that engagement can be defined as a "positive, fulfilling, work-related state of mind that is characterized by vigour, dedication, and absorption" (Wickramasinghe et al., 2018, p. 1).

According to Schaufeli et al. (2006, p. 702), "vigour is characterised by high levels of energy and mental resilience while working, the willingness to invest effort in one's work, and persistence even in the face of difficulties. Dedication refers to being strongly involved in

one's work and experiencing a sense of significance, enthusiasm, inspiration, pride, and challenge." Finally, absorption is "characterised by being fully concentrated and happily engrossed in one's work, whereby time passes quickly, and one has difficulties with detaching oneself from work" (Shaufeli et al., 2006, p. 702). Research has shown that individuals who score highly on vigour portray more energy, zest and stamina while working; those who score highly on dedication feel more enthusiastic and prouder about their work because they experience it as meaningful, inspiring, and challenging; and people who score highly on absorption are often more happily engrossed in their work (Schaufeli & Bakker, 2004).

However, these definitions can also be extended to the student-university context because many researchers have argued that students' core activities, such as attending lectures and studying, can also be considered as 'work.' Like employees, students also strive towards specific goal attainment such as academic performance and course completion (Alrashidi et al., 2016; Siu et al., 2013). Specifically, academic engagement reflects students' cognitive, behavioural, and emotional learning experiences (You, 2016), where it has often been viewed as an outcome of successful academic and social integration within the university-student environment (Tinto, 1993 as cited in Horstmanshof & Zimitat, 2007). A core idea widely shared is that engaged students are also the type of students who sustain efforts, commitment, self-regulate behaviours and choices, share goals with others, and accept the challenges present in every learning process (Freda et al., 2021). Thus, for an individual, academic engagement is best defined as "the amount of physical and psychological energy that a student devotes to the academic experience" (Horstmanshof & Zimitat, 2007, p. 705).

Benefits of Academic Engagement in a Student-University Context

Since engagement has been studied extensively in the student-university context, there is strong empirical support for its association with positive academic outcomes (Alrashidi et al., 2016; Ayala & Manzano, 2018; Luthans et al., 2016). To quote Pascarella and Terenzini (1991): "One of the most inescapable and unequivocal conclusions […] is that the impact of college is largely determined by the individual's quality of effort and level of involvement in both academic and non-academic activities" (as cited in Luthans et al., 2016, p. 1101). Specifically, studies have found that engaged students demonstrate higher levels of curiosity and interest, and exhibit higher levels of intrinsic commitment, persistence, and performance (Alrashidi et al., 2016; Ayala & Manzano, 2018; Kuh et al., 2008; You, 2016). Additionally, academic engagement has been associated with enhanced motivation and involvement in university-related activities, and lower levels of dropout (Freda et al., 2021).

Engagement has also been found to be a strong predictor of learning and personal development (Alrashidi et al., 2016; Luthans et al., 2016; Schaufeli & Bakker, 2004). According to Carini et al. (2006), engagement fuels both authentic learning and personal development because students actively involved in educational activities cultivate lifelong learning habits that promote their continuous growth. (Luthans et al., 2016). Additional research supports this finding by illustrating that engagement has a positive influence upon graduation rates, overall retention and persistence in the working world, and overall life satisfaction (Kuh et al., 2008; Luthans et al., 2016; Ray & Kafka, 2014).

The Job Demands-Resources (JD-R) Model

To further understand the factors that impact student engagement, it is useful to draw from literature examining the Job Demands-Resources (JD-R) model. This is a heuristic,

theoretical framework widely used to explore employee well-being and stress in the workplace (Demerouti et al., 2001; Halbesleben & Demerouti, 2005; Schaufeli & Bakker, 2004; Xanthopoulou et al., 2007). However, since it has been established that university tasks mirror job-like responsibilities (Cotton et al., 2002), this model can also be applied to the student-university context. Consequently, insights from job design and work stress theories, as highlighted by Breso et al. (2007), can inform our understanding of student well-being and performance in academic settings.

According to the JD-R model, individual well-being is influenced by factors present in the work environment, which can be broadly categorised as job demands and job resources (Bakker & Leiter, 2010; Demerouti et al., 2001; Schaufeli & Bakker, 2004). While every job entails specific stressors and challenges, the psychosocial work environment generally comprises these two fundamental elements (Bakker & Demerouti, 2017).

Job Demands

Job demands refer to "those physical, social, or organisational aspects of the job that require sustained physical and/or psychological effort on the part of the employee and are therefore associated with certain physiological and/or psychological costs" (Bakker & Leiter, 2010, p. 86). While job demands are not inherently negative in nature, they could become taxing when meeting them requires great effort on behalf of the individual to sustain an expected performance level (Bakker & Leiter, 2010). When this happens, these demands often incur physiological and psychological costs, leading to strain and burnout (Bakker et al., 2003). Examples of job demands include unmanageable workloads, task ambiguity, lack of social support and feedback, and time pressure (Shaufeli et al., 2019). Accordingly, in the student-university context, these demands can include heavy workloads, competitive

environments, social pressures, and financial concerns (Rioli et al., 2012 as cited in You, 2016; Cho, 2013 as cited in You, 2016; Luthans et al., 2014 as cited in You, 2016).

Extensive research consistently indicates a positive correlation between job demands and burnout, as well as a negative correlation with engagement (Bakker et al., 2003; Bakker et al. 2005; Hakanen et al., 2006; Schaufeli & Bakker, 2004). These findings underscore the detrimental consequences of high job demands on employee well-being and organisational outcomes, indicating that employees facing high job demands are prone to experiencing physical and mental health problems, reduced engagement, and decreased job performance (Bakker & Leiter, 2010). Similarly, in the student-university context, a highly demanding environment can result in poor academic performance, mental health problems (such as anxiety and sleep issues), social isolation, and in severe cases, dropout (Bedewy & Gabriel, 2015; Bernstein & Chemaly, 2017; Jafri, 2017; Karaman et al., 2019).

Job Resources

In contrast, job resources refer to "those physical, psychological, social or organisational aspects of the job that may reduce job demands and the associated physiological and psychological costs; are functional in achieving work goals; and stimulate personal growth, learning and development" (Bakker & Leiter, 2010, p. 86). Examples of job resources include supervisory support, skill variety, autonomy, and developmental opportunities (Bakker & Bal, 2010). Accordingly, in the student-university context, resources can include supportive relationships (e.g., family, friends, peers, mentors etc.), academic support services, mental health services and individual coping mechanisms (Bakker & Leiter, 2010; Cox & Griffiths, 2010 as cited in Providas, 2016).

Research consistently shows that access to resources at work empowers employees to achieve goals, fosters personal growth, and facilitates efficient learning (Bakker & Leiter, 2010; Sonnentag & Frese, 2003). Moreover, studies reveal a positive link between job resources (relative to demands) and employee engagement, while a negative correlation exists with burnout (Bakker et al., 2003; Shaufeli et al., 2019). Moreover, a study by Oldham (2003) found that employees who have access to abundant job resources, such as opportunities for skill development and meaningful work, are not only more engaged but also demonstrate higher levels of creativity and innovation in their roles. This suggests that job resources not only support employees in coping with job demands but enable them to thrive and contribute positively to organisational outcomes. These findings underscore the importance of organisations investing in the creation of supportive and resource-rich work environments for their employees. Given the aforementioned connection between educational and organisational contexts, it follows that these findings may be applied to academic engagement as well (Cotton et al., 2002).

Underlying Psychological Processes of the JD-R Model: Health Impairment Process and Motivation Process

The JD-R model suggests that two separate psychological processes, termed the health impairment process and the motivation process, contribute to the emergence of burnout and engagement in individuals (Demerouti et al., 2001).

The Health Impairment Process. This process clarifies how job demands can lead to detrimental health outcomes and reduced engagement among individuals (Bakker & Demerouti, 2017; Bakker & Leiter, 2010). In situations where job design is inadequate or job demands persistently exceed manageable levels, employees are compelled to exert sustained

effort (Demerouti et al., 2001). This prolonged exertion can deplete employees' physical and mental resources, resulting in diminished energy reserves and heightened strain (Bakker & Demerouti, 2007). This prolonged exposure to stressors can result in emotional exhaustion, cynicism, and a reduced sense of personal accomplishment, which are hallmark features of burnout (Schaufeli et al., 2002). Moreover, research has discovered that chronic stress from high job demands can undermine individuals' motivation and capacity to engage fully in their work tasks and responsibilities (Bakker & Demerouti, 2014).

The Motivation Process. This process focuses on how job resources can lead to positive outcomes such as increased engagement among individuals (Bakker & Demerouti, 2017; Bakker & Leiter, 2010). In situations where individuals have access to job resources like social support, autonomy, and opportunities for skill development, they are more likely to feel motivated and committed to their work (Bakker & Demerouti, 2007). These resources provide individuals with the necessary tools and support to effectively manage job demands and achieve their work-related goals (Bakker & Demerouti, 2014). Furthermore, job resources play a crucial role in fostering a sense of meaning and significance in one's work, which is essential for maintaining high levels of engagement (Bakker & Demerouti, 2007). For example, studies show that when employees receive positive feedback, recognition, and opportunities for growth and advancement, they are more likely to feel invested in their work, resulting in higher levels of engagement (Bakker & Demerouti, 2014; Demerouti et al., 2001; Hakanen et al., 2006).

For the purpose of this research, this model views engagement through the lens of resource balance. Specifically, engagement flourishes when available resources are sufficient to meet situational demands; while excessive demands coupled with limited resources can lead to

burnout (Bakker & Leiter, 2010; Schaufeli et al., 2019). Importantly, previous research on the JD-R model has demonstrated that personal resources are particularly beneficial in fostering engagement (Luthans et al., 2016; Shaufeli et al., 2019). Since personal resources have been found to promote positive adaptation in the workplace, particularly through promoting goal achievement and encouraging personal growth, learning and development, it follows that they may have a similar effect upon student engagement (Luthans et al., 2016).

Conservation of Resources (COR) Theory

The COR theory and JD-R model complement each other (Robins et al., 2015). The JD-R model provides a robust framework for understanding burnout and engagement, while the COR theory highlights the crucial role of personal resources in this process (Akhtar & Lee, 2010). The COR theory defines resources as "[…] entities that either are centrally valued in their own right, or act as a means to obtain centrally valued ends" (Hobfoll, 2002, p. 307). According to this model, individuals strive to acquire, retain, and protect valuable resources such as time, energy, and social support, as these resources are essential for coping with stressors and achieving personal goals (Hobfoll, 1989). Consequently, the COR theory suggests that university students should invest resources to protect themselves against and to recover from resource loss, and to gain new resources (Vîrgă et al., 2020).

In a student-university context, the COR theory offers insights into how burnout and engagement are perceived concerning resource depletion and accumulation, respectively. Burnout is characterised by a gradual decline in resources over time, while engagement involves the accumulation and abundance of resources over time (Hobfoll et al., 2018). Within the realm of engagement, the COR model posits that individuals possessing sufficient personal resources are better equipped to manage academic demands and sustain high levels

of engagement (Bakker & Leiter, 2010). For example, research indicates that students with strong social support networks or effective coping strategies may exhibit greater resilience to stressors and maintain motivation and enthusiasm for their academic tasks (Hobfoll, 2002).

Furthermore, the COR theory emphasises the importance of resource gain cycles, whereby the acquisition of new resources can enhance well-being and facilitate greater engagement in work activities (Hobfoll, 2002). For example, research suggests that receiving recognition for one's achievements at work or gaining opportunities for skill development can contribute to a sense of fulfilment and increase engagement levels among employees (Harter et al., 2002; Saks, 2006). Thus, the COR theory outlines resource loss and gain spirals, where the loss of one resource may lead to further losses, while gaining resources fuels the accumulation of additional resources (Robins et al., 2015).

Psychological Capital (PsyCap)

A useful personal resource that may foster academic engagement is psychological capital (PsyCap) (Providas, 2016; Vîrgă et al., 2020). This was developed from the positive psychology movement, which emerged in response to the preoccupation that psychology held with the negative aspects of human functioning and behaviour. Specifically, well-known research psychologist, Martin Seligman, and his colleagues, believed that too much attention in the field was being placed on pathological human functioning, and not enough attention was being directed toward optimal human functioning (Luthans et al., 2012). Thus, the goal of the positive psychology movement is to promote the factors that "focus on health and vitality, make people's lives better and to build on the strengths of people rather than being preoccupied with their weaknesses" (Luthans et al., 2012, p. 254).

Drawing from this positive psychology movement, Luthans (2002) initiated the search for research demonstrating the applicability of positive psychological capacities in the workplace. Accordingly, Luthans (2002) coined the term 'positive organisational behaviour' (POB) to define "the study and application of positively oriented human resource strengths and psychological capacities that can be measured, developed and effectively managed for performance improvement in today's workplace" (Luthans et al., 2012, p. 254). Thus, POB focuses on the idea that individuals' strengths and potentials should be amplified, and their growth improved through positive intervention use (Bakker & Derks, 2010; Luthans, 2002 as cited in Providas, 2016).

In order to distinguish POB and its constructs from self-help or traditional positively oriented organisational behaviour constructs, it needs to meet certain inclusion criteria (Luthans 2002; Luthans et al., 2007). These include:

1) Constructs must be grounded in theory and research,
2) Constructs must have reliable and valid measures,
3) Constructs must be state-like and thus open to change and development,
4) Constructs must have a positive impact on individual-level performance and satisfaction.

After much investigation, Luthans et al. (2007) identified four positive psychological constructs that meet these criteria. These constructs include self-efficacy, optimism, hope and resilience which, when combined, characterise what has been labelled as 'psychological capital' (PsyCap) (Luthans et al., 2012). PsyCap was identified as going "beyond traditional economic capital (what you have), human capital (what you know), and social capital (who you know), and consists of who you are and what you can become" (Luthans et al., 2012, p.

254). Thus, PsyCap represents the crux of POB by signifying the positive agentic resources that individuals possess which enable them to flourish and succeed in life (Siu et al., 2013).

Specifically, PsyCap may be defined as:

> "an individual's positive psychological state of development characterized by 1) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; 2) making a positive attribution (optimism) about succeeding now and in the future; 3) persevering toward the goals, and when necessary, redirecting paths to goals (hope) in order to succeed; and 4) when beset by problems and adversity, sustaining and bouncing back and even beyond (resilience) to attain success" (Luthans et al., 2012, p. 254).

Both theoretical and empirical research shows PsyCap is a complex, higher-order construct with predictive power beyond its individual components (Luthans et al., 2007; Luthans et al., 2012). According to Luthans et al. (2007), PsyCap combines optimism, resourcefulness, and a belief in personal effort and determination. This synergy, where the whole is greater than the sum of its parts, aligns with the COR theory which views individual resources as aspects of an underlying core construct (Hobfoll, 2002). Other studies support this perspective (Luthans et al., 2007; Luthans et al., 2010; Luthans et al., 2012; Siu et al., 2014).

Importantly, the dimensions of PsyCap are not positive states (i.e., momentary, and very changeable), nor are they 'trait-like' (i.e., relatively stable, and difficult to change) (Luthans et al., 2007). Rather, they are 'state-like' constructs, indicating that while they are amenable to change and growth, they also possess a degree of stability over time (Luthans et al., 2016;

Youssef & Luthans, 2007). This implies that these resources can be actively managed and enhanced through targeted interventions to improve performance, motivation, and overall well-being (Bakker & Derks, 2010; Brouze, 2013). For example, Luthans and Avey (2014) investigated the effectiveness of a positive psychological intervention program aimed at enhancing PsyCap among employees in a large healthcare organisation. The results showed that participants who underwent the intervention exhibited significant improvements in their levels of PsyCap compared to a comparison group. Specifically, the intervention led to increases in self-efficacy, optimism, hope, and resilience among employees, which in turn contributed to enhanced job performance and job satisfaction. This evidence suggests that organisational interventions aimed at fostering personal resources, such as PsyCap, have the potential to alleviate initial experiences of stress and boost engagement among employees.

To gain a comprehensive understanding of PsyCap, it is necessary to delve deeper into the dimensions of hope, optimism, self-efficacy, and resilience, examining each construct individually. Therefore, a brief discussion of these components and their significance will follow.

Hope

Hope is best defined as a "positive motivational state based on an interactively derived sense of successful agency (goal directed energy) and pathways (planning to meet goals)" (Luthans et al., 2012, p. 255). Agency encompasses the level of motivation an individual has to ascertain a goal, whereas pathways represent an individual's ability to generate strategies aimed at accomplishing goals and overcoming obstacles (Luthans et al., 2016; You, 2016). Thus, hope involves identifying and pursuing the way to success (Avolio et al., 2007). Individuals high in hope not only think independently but also identify the means to achieve

goals and consider multiple paths should they confront any barriers in the process (Luthans et al., 2016; You, 2016). Consequently, hope has been found to lead to higher work performance outcomes across multiple studies (Luthans et al., 2005; Peterson & Luthans, 2003; Peterson & Byron, 2007; Youssef & Luthans, 2007).

Optimism

According to Scheirer and Carver (1985), optimism "provides the energy for motivation in that having the expectation of future success results in more devoted effort in the present" (You, 2016, p. 18). Thus, it can be understood as the explanatory style an individual uses in response to all situations and/or events (Luthans et al., 2012). Those with optimistic styles attribute negative events and problems as being temporary, situation or case-specific, and external, and thus completely in their control (Luthans et al., 2016). Therefore, optimistic individuals face challenges head-on, and often engage in more controlled and focused coping strategies (Siu et al., 2013).

Self-efficacy

With roots in Bandura's (1997) social cognitive theory, applied to the workplace, self-efficacy has been defined as "one's conviction to mobilize the motivation, cognitive resources or courses of action needed to successfully execute a specific task within a given context" (Luthans et al., 2016, p. 1105). Thus, it refers to the personal belief that one can accomplish a specific task successfully (You, 2016). Individuals with low self-efficacy often show lower work involvement and are more likely to abandon difficult tasks. Conversely, those with high self-efficacy tend to be more engaged and motivated, leading to better performance (Siu et al., 2013; Chemers et al., 2001 as cited in You, 2016; Valentine at al., 2004 as cited in You, 2016).

Resilience

Resilience is characterised by positive coping and adaptation in the face of hardship or adversity (Avolio et al., 2007; Luthans et al., 2012). Specifically, it is best defined as: "The positive psychological capacity to rebound, to 'bounce back' from adversity, uncertainty, conflict, failure, or even positive change, progress, and increased responsibility" (Avolio et al., 2007, p. 546). Previous research has demonstrated that resilient individuals perceive difficulties in a more positive light because they find value and/or meaning in resolving such problems (Bonanno, 2005 as cited in You, 2016; Luthans, 2002 as cited in You, 2016). Richardson (2002) argues that those higher in resilience bounce back psychologically to levels at, or even beyond, previous levels of homeostasis or equilibrium. Thus, individuals high in resilience cope better with failures, mistakes, and setbacks, and thrive in the face of adversity (Siu et al., 2013; Luthans et al., 2016).

Benefits of PsyCap in a Student-University Context

A large and continually growing body of research has shown that PsyCap, including its four dimensions of self-efficacy, optimism, hope and resilience, are significantly related to positive outcomes in the academic domain. Generally, research has indicated that PsyCap improves academic performance, develops effective coping strategies, and increases overall psychological well-being (Jafri, 2017; Luthans et al., 2016; You, 2016). Moreover, PsyCap has been shown to positively impact performance and efficacy at individual and group levels of analyses (Luthans et al., 2012).

Hope

From an educational standpoint, there is a growing body of research suggesting that students with elevated levels of hope experience a range of advantages. These students

demonstrate a propensity to maintain focus on their academic objectives, exhibit a heightened sense of mastery over their surroundings, display improved academic performance, and secure higher graduation rates (Lester, 2012; Luthans et al., 2012; Snyder et al., 2002; Snyder & Lopez, 2002). Additionally, hurdles are perceived as opportunities for growth rather than insurmountable barriers. Students with high hope levels are adept at viewing obstacles as challenges to conquer, employing a variety of strategies such as seeking assistance and exploring alternative pathways to navigate through difficulties (Snyder & Lopez, 2002).

Studies corroborate these findings, suggesting a significant correlation between hope and academic success (Chang et al., 2015; Lopez et al., 2013). For example, a longitudinal study by Lopez and colleagues (2013) found that students with higher hope levels demonstrated greater persistence in their academic pursuits, leading to improved grades and overall achievement. Similarly, research by Chang and colleagues (2015) identified hope as a strong predictor of academic performance, highlighting its role in fostering resilience and adaptability among students facing academic challenges.

Optimism

Optimism has also emerged as a crucial factor influencing various aspects of academic life and has been linked to greater academic achievement amongst university students (Luthans et al., 2012). Multiple empirical studies have specifically demonstrated that optimistic students often outperform their pessimistic counterparts, and that their optimism is a direct predictor of the types of positive coping mechanisms that help carry them through their tertiary studies (Luthans et al., 2016; Ruthig et al., 2004 as cited in You, 2016; Valentine et al., 2004 as cited in You, 2016).

Building upon this, Chemers et al. (2001) conducted a longitudinal study focusing on first-year university students, revealing robust correlations between academic optimism, performance, and adjustment in the university environment. Their findings underscored the pivotal role of academic optimism in facilitating successful transitions and adaptation to the challenges of higher education.

Moreover, recent research by Chang et al. (2019) delved into the mechanisms underlying the relationship between optimism and academic performance. They found that optimistic individuals tend to adopt adaptive coping strategies when faced with academic challenges, such as seeking social support and engaging in proactive problem-solving. These coping mechanisms, in turn, contribute to better academic outcomes and psychological well-being among students.

Self-efficacy

Many research studies have discovered that self-efficacy stands as a strong predictor of first-year students' academic performance and success (Luthans et al., 2012; Chemers et al., 2001 as cited in You, 2016; Valentine et al., 2004 as cited in You, 2016). Typically, students with higher levels of academic self-efficacy are more likely to exhibit increased levels of engagement and reduced symptoms of burnout, thereby being more actively involved in their learning process and functioning more effectively within the academic setting (Breso et al., 2011; Kauser, 2010).

Seminal studies have further elucidated the intricate relationship between self-efficacy and various aspects of academic performance and engagement. Notably, Bandura (1997) highlighted the role of self-efficacy beliefs in shaping students' academic aspirations and

persistence. Bandura (1997) found that individuals with high self-efficacy are more likely to set challenging academic goals and exhibit greater perseverance in the face of obstacles, leading to improved academic outcomes. Recent research has corroborated this finding by revealing that efficacy exists as a mediating variable that influences students' overall levels of effort, persistence, and perseverance (Luthans et al., 2016).

Furthermore, research by Zimmerman (2000) emphasised the dynamic nature of self-efficacy, highlighting its role in influencing students' self-regulatory processes and academic performance over time. Zimmerman's (2000) findings demonstrated that fluctuations in self-efficacy beliefs corresponded closely with changes in students' academic performance and engagement, further underscoring the importance of nurturing and maintaining self-efficacy throughout the educational journey.

Resilience

Research conducted within educational settings has consistently highlighted the significant role of academic resilience in shaping various outcomes for students. For example, Martin and Marsh (2006) found that academic resilience strongly predicts outcomes such as enjoyment, participation, and increased self-esteem. Moreover, Gayles (2005) identified a strong association between academic resilience and academic achievement, underscoring the importance of resilience in fostering positive educational outcomes.

Notably, Kotze and Kleynhans (2013) investigated the impact of psychological well-being and resilience on academic performance among first-year students. Their study revealed that burnout and resilience were significant predictors of academic success. This suggests that fostering resilience and managing burnout are critical factors in promoting academic

achievement among students. Similarly, resilience has been shown to serve as a protective factor against adverse experiences and stressors (Masten & Reed, 2002). This suggests that developing resilience can equip students with the ability to navigate challenges effectively and thrive in academic settings. It is also for this reason that students' levels of academic resilience have been closely tied to improvements in self-esteem and mental health (Luthans et al., 2016).

The aforementioned findings underscore the importance of fostering hope, optimism, self-efficacy, and resilience (and thus, PsyCap) as a key personal resource in promoting positive educational outcomes, well-being, and success among students.

The Association between PsyCap and Academic Engagement

The association between PsyCap and academic engagement has garnered attention, particularly in student-university contexts, although research remains limited. Luthans et al. (2016) found a significant link between the academic PsyCap of undergraduate business students and their overall engagement with their studies. Furthermore, empirical studies have demonstrated a reciprocal relationship between academic PsyCap and engagement across diverse student populations (Jafri, 2017; Siu et al., 2013; Siu et al., 2014). For example, Datu et al. (2016) reported that academic PsyCap enhances motivation, cognitive and affective engagement, and achievement among students. Additionally, Bakker and Demerouti (2008) suggested that personal resources, including PsyCap, facilitate engagement by transforming study demands into challenges and motivating individuals to focus on their work.

Psychological constructs such as efficacy, hope, optimism, and resilience have also been linked to various dimensions of academic engagement. Studies indicate that students with

higher levels of self-efficacy, hope, optimism, and resilience tend to exhibit greater engagement with their academic pursuits (e.g., Curry et al., 1997; Martin & Marsh, 2008; Ruthig et al., 2004; Snyder et al., 2002). For example, self-efficacy has been identified as a significant predictor of academic performance and retention because students who are motivated to succeed are more likely to engage with the university context and flourish in their studies (Lent et al., 1987). Self-efficacy also been consistently associated with higher levels of engagement in tertiary studies (Alrashidi et al., 2016; Larmar & Ingamells, 2010). Hope and optimism have been associated with positive outcomes including academic performance, achievement and a positive 'mental state of flow' (Adil & Ghayas, 2019; Snyder et al., 2002). Resilience has been found to predict educational and psychological outcomes such as class participation and general self-esteem (Martin & Marsh, 2006). It is no surprise then that studies have signalled a connection between resilience and academic engagement, aiding students in coping with stress and achieving academic satisfaction and success (Ayala & Manzano, 2018; Beauvais et al., 2014; Li et al., 2015).

Despite the insightful aforementioned evidence, further investigation is warranted to better understand the nuanced relationship between PsyCap and academic engagement in student-university contexts.

Interventions that Improve PsyCap Resources

In line with the previous evidence, research has demonstrated that interventions may help students develop PsyCap resources (Conley et al., 2013; Luthans et al., 2016). After discovering that resilience and engagement play a fundamental role in improving academic performance, Ayala and Manzano (2018, p. 12) suggested that "programs should be designed to help students learn a positive give-and-take feedback, to develop patience and tolerance, to

learn from mistakes and to build confidence in themselves [as] these programs could help first-year university students increase their resilience and engagement, which would ultimately contribute to improving their academic performance and reducing dropout." This corresponds to Tinto's (2002) research finding that student engagement can only be promoted once overarching institutional commitment is involved in the process; as well as Lowe and Cook's (2003) knowledge-based claim that 'intrusive, proactive strategies' of academic support delivered by universities early in a student's academic career may prevent them from experiencing disengagement in their studies (as cited in Larmar & Ingamells, 2010, p. 211).

These developmental guidelines, coupled with PsyCap's synergistic nature, often informed short PsyCap training interventions. Originally, this led Luthans and colleagues (2006) to develop a prototype for Psychological Capital Interventions (PCI's) that aimed to develop these resources simultaneously (Carter & Youssef-Morgan, 2022). The effectiveness of this approach has been found to mirror the effectiveness of positive psychology interventions in general (Seligman et al., 2005; Sin & Lyubomirsky, 2009).

The PCI is a two-hour micro-training intervention which uses exercises and discussions to boost participants' levels of optimism, self-efficacy, resilience, and hope (Luthans et al., 2016). Through goal setting, pathway brainstorming, obstacle identification, resource listing, and mental rehearsal, PCI strengthens these psychological resources (Carter & Youssef-Morgan, 2022). For example, findings from a 2-hour web-based online intervention conducted by Luthans et al. (2008) indicated a significant increase in participants' PsyCap. This study involved 364 working adults from diverse organisations, job levels, and job types (Luthans et al., 2008). Employing a pretest–post-test control group experimental design, the treatment group, which was randomly allocated to receive the PCI, demonstrated a significant

increase in PsyCap levels. Conversely, the comparison group, which received a different intervention, did not exhibit any significant increase in PsyCap levels. The pre- and post-intervention results suggest that an individual's PsyCap can be improved and developed with short training interventions, serving as inspiration for the current study (Cenciotti et al., 2017; Luthans et al., 2012).

Importantly, while the original PCI developed by Luthans et al. (2006) was conducted in a face-to-face environment, subsequent studies indicate that online learning can also effectively enhance participants' PsyCap (Carter & Youssef-Morgan, 2022). The ability to develop PsyCap remotely through technologically enabled learning tools is particularly attractive in today's environment, characterised by the widespread transition of work, education, and services to virtual platforms. This trend was already gaining momentum before the COVID-19 pandemic but has been accelerated by it (Carter & Youssef-Morgan, 2022). Furthermore, the successful implementation and experience gained during the pandemic are likely to ensure the persistence of this trend in the long term. Broad and Luthans (2020) argue that developing PsyCap remotely using new technologies is essential in the emerging 'fourth industrial revolution,' hastened not only by COVID-19 but also by the increasingly 'Volatile, Uncertain, Complex, and Ambiguous' (VUCA) environment that we live in. This serves as further inspiration for the current study.

Hope

Accordingly, PsyCap's dimensions can be developed through a range of interventions. Specifically, hope can be nurtured through targeted strategies designed to empower individuals in surmounting challenges and pursuing their goals with confidence. Firstly, by identifying and leveraging their strengths, individuals establish a sense of competence and

capability, laying the groundwork for hopeful thinking (Luthans et al., 2012). Secondly, hope can be cultivated through the practice of effective goal-setting strategies, enabling individuals to set clear objectives and envision a positive future, thereby fostering direction and purpose. Thirdly, mental rehearsals of challenging pathways and goals play a pivotal role in hope development. Through proactive visualization, individuals envision themselves successfully navigating obstacles and achieving desired outcomes (Youssef-Morgan & Dahms, 2016). Finally, contingency planning allows individuals to anticipate potential setbacks and devise strategies for overcoming them, thereby enhancing their sense of agency and control over their circumstances. By proactively addressing obstacles, individuals can foster a sense of preparedness and adaptability, both crucial components of hopeful thinking (Luthans et al., 2012).

Optimism

Alongside employing positive self-affirmations (Schneider, 2001), optimism can be enhanced through various cognitive and behavioural practices. Research by Seligman (2006) suggests that optimism can be cultivated through learned thinking patterns such as cognitive restructuring, where individuals challenge negative beliefs and replace them with more positive and realistic ones. By reframing negative experiences in a more positive light, individuals can develop a more optimistic outlook on life. Similarly, studies by Lyubomirsky et al. (2005) have demonstrated that practicing gratitude and appreciation for the present moment can significantly increase levels of optimism and well-being. Additionally, research by Carver and colleagues (2010) highlights the importance of proactive problem-solving and goal setting in promoting optimism. By identifying obstacles as challenges to be overcome rather than insurmountable barriers, individuals can develop a sense of agency and optimism about their ability to achieve their goals.

Self-efficacy

Developing self-efficacy can involve various components. Firstly, Bandura's (1997) research indicates that engaging in mastery experiences is invaluable. Such experiences not only bolster individuals' confidence in their abilities but are also fundamental for achieving success (Luthans et al., 2012; Stajkovic et al., 2018). Secondly, participating in vicarious learning or modelling enables individuals to witness others, particularly role models, succeed through sustained effort, thereby enhancing their belief in their own capabilities to master similar activities (Newman et al., 2018). As justification, Bandura (1999) noted that if individuals observe relevant others succeed, then they have will increased efficacy in their own ability to succeed. Thirdly, emphasizing effort and persistence, as advocated by research on growth mindset (Dweck, 2006), plays a significant role in self-efficacy development. Praising individuals for their effort rather than innate abilities fosters a growth mindset and enriches self-efficacy by underlining the importance of perseverance in attaining success. Finally, encouraging self-reflection, as emphasized by Zimmerman (2000), allows individuals to assess their progress and set realistic goals for improvement, leading to higher levels of self-efficacy and academic achievement.

Resilience

Werner and Smith (1982, 1992), in what has been described as "the most significant longitudinal study on resilience to date" (Masten & Reed, 2002, p. 80), discovered that resilience does indeed evolve over time. Substantial research in clinical and positive psychology, along with human resource development, affirms the idea that resilience can be nurtured through training interventions (Luthans et al., 2010). Specifically, resilience can be developed by practicing cognitive restructuring which, as suggested by Bonanno (2008), involves challenging and reframing negative thoughts, thus promoting adaptive coping

strategies, and reducing the impact of stressors on mental health. Moreover, social support networks can play a crucial role in building resilience, as highlighted by research conducted by Masten and Obradović (2006). Strong connections with family, friends, and community members provide individuals with emotional support and a sense of belonging, contributing to resilience in the face of adversity. Similarly, developing problem-solving skills, as identified by Compas and colleagues (2001), enables individuals to navigate challenges more effectively, enhancing their resilience. Additionally, finding meaning and purpose in difficult experiences, as suggested by Park and colleagues (2008), fosters growth and resilience over time.

Luthans and colleagues (2006) designed the PCI to help individuals improve their PsyCap using practical methods, and their findings affirm that psychological capacities can indeed be cultivated and enhanced. However, since few studies have examined this idea in a student-university context, this warrants further investigation.

Conclusion

This review considered the trends found in various academic engagement and psychological capital studies. While these topics have been thoroughly researched, it is clear that very few studies have considered the relationship between these variables amongst first-year university student populations. This field of inquiry is crucial because it influences the lives and well-being of first-year university students. Thus, in order to bridge this research gap, the current study will examine whether a micro PsyCap intervention has an effect upon the levels of academic engagement experienced by first-year university students.

Research Questions

Main Research Question

Does a micro psychological capital intervention have an effect upon the levels of academic engagement (i.e., vigour, dedication, and absorption) amongst first-year university students?

Sub-Research Questions

1. Does a micro psychological capital intervention have an effect upon the psychological capital scores of first-year university students?
2. What is the relationship between psychological capital and academic engagement (i.e., vigour, dedication, and absorption) scores at each time period (i.e., time 0 and time 1)?

Chapter 3: Methodology

Introduction

This chapter includes the methods, processes and techniques used to conduct the current study. These include the research design, sample and sampling techniques, instrumentation, procedure, relevant ethical considerations, as well as the necessary statistical analyses conducted.

Research Design

The current study applied a quantitative, quasi-experimental, longitudinal, pre-test post-test research design. It is classified as a quantitative design because it was subjected to statistical analyses which were used to draw inferences from their findings; and quasi-experimental because it involved the control and manipulation of variables (Shields & Smyth, 2015). It was considered longitudinal in nature because it involved observations over a one-week period (Hua & David, 2008). Moreover, this study is considered a pre-test post-test measure because it involved a design in which one or more groups were exposed to an intervention (experimental group), and then compared to one or more groups who did not receive the intervention (control group) (Dimitrov & Rumrill, 2003). More specifically, it attempted to investigate whether a psychological capital micro-intervention had an impact upon academic engagement within a student-university context.

The pretest-post-test research design was chosen because it is simple and easy to implement, controls for participants' prior knowledge, attitudes, or skills, and provides better evidence for the effectiveness of interventions (Shields & Smyth, 2015). By utilizing a pre-test measure and control group, this design also helps control for internal threats to validity (Shields & Smyth, 2015). Additionally, a pretest-post-test design permits a researcher to

study the effects of an intervention over time because it allows for the evaluation of the counterfactual (Dimitrov & Rumrill, 2003). That is, because one group does not receive the intervention, the design allows for the attribution of group differences in outcomes to the intervention (Dimitrov & Rumrill, 2003; Shields & Smyth, 2015). Whilst a pretest-post-test design can sometimes be susceptible to interactions that take place before and post-intervention, it remains a useful method for measuring the effects of administered interventions (Dimitrov & Rumrill, 2003).

Sample and Sampling

The final sample used in the current study consisted of both full-time and part-time first-year students across different faculties of study (i.e., Health Sciences, Humanities, and Commerce, Law, and Management) at the University of the Witwatersrand in Johannesburg, South Africa. These students were required to be aged 18 and above with access to the Internet and a suitable electronic device. These students were also required to have access to a quiet place to undertake the interventions and to be willing to commit to three questionnaires (i.e., an environmental questionnaire, time one questionnaire, and time two questionnaire) and one set of interventions throughout the research process. In order to be included in this study, participants had to meet these inclusion criteria. The study aimed to construct a sample of at least 150 students.

A non-probability, convenience sampling technique was utilised to obtain the intended sample of students. Non-probability sampling involves selecting a sample based on the subjective judgment of the researcher, which means that the probability that an individual will be selected in the sample is known in advance (Sedgwick, 2013). Additionally, convenience sampling involves selecting individuals who are convenient and easily

accessible to the researcher, and willing to participate in the research (Etikan et al., 2015). Therefore, a non-probability, convenience sampling technique was needed to accommodate for such characteristics.

A total of 568 students accessed and submitted the questionnaire. However, 249 students were excluded from further analysis as they failed to provide sufficient responses for the Utrecht Work Engagement Scale-Student (UWES-S) and/or the Psychological Capital Questionnaire (PCQ) post-intervention. In order to be considered for the analysis, participants had to complete a minimum of 70% of each questionnaire at each time period (i.e., time zero and time one). Individuals who did not meet this criterion were excluded from subsequent analyses. Thus, a total of 319 complete data sets were obtained and used in the current study; and the final sample size included 319 students enrolled at the University of the Witwatersrand. Some participants omitted demographic questions, resulting in minor missing data. While this does not affect analyses as such, these values have been included in the sample demographic characteristic total tables that follow.

The student sample comprised of 259 females (81.2%), making up the majority; 53 males (16.6%); 6 non-binary individuals (1.9%) and 1 individual who identified as gender fluid (0.3%) (See Table 1). Their ages ranged from 17-39 years (M = 19.28, $Median$ = 19, SD = 1.85) (See Table 2), with the majority of the sample falling between the ages of 17-19 (74.2%), followed by those between the ages of 20-23 (22%), 24-27 (1.8%), and 2 students aged 31 (0.3%) and 39 (0.3%), respectively (See Table 3). This is in line with the bracket of students in which one would expect undergraduate students to fall. In terms of race/ethnicity, 59.6% of the sample were Black/African, followed by White/Caucasian (16.3%), Indian

(14.4%), Coloured (7.8%), and Asian (0.3%) (See Table 4). Notably, 5 individuals identified as belonging to the Mixed race (1.6%) (See Table 4).

Additionally, 13 different languages were identified as home languages spoken by the student sample. The distribution was as follows: English (43.9%), IsiZulu (15.4%), Setswana (8.2%), Sesotho (7.2%), Sepedi (6.6%), IsiXhosa (6.6%), Afrikaans (3.8%), Tshivenda (2.8%), Xitsonga (2.5%), isiNdebele (1.3%), Siswati (0.9%), Urdu/Punjabi (0.6%) and Oshiwambo (0.3%) (See Table 5). Most of the students in the sample were from the Humanities faculty (87.1%), followed by the Health Science faculty (11.6%) and the Commerce, Law, and Management faculty (0.9%) (See Table 6). The majority of the sample were full-time students (99.4%), while the minority were part-time students (0.6%) (See Table 7).

Table 1

Sample Demographic Characteristic: Gender

Gender	Frequency	Percentage (%)
Female	259	81.2
Male	53	16.6
Non-binary	6	1.9
Gender fluid	1	0.3
Total	319	100

Table 2

Sample Demographic Characteristic: Age

Mean	19.28
Median	19
Mode	19
Standard Deviation	1.85
Total	315
Missing	4

Table 3

Sample Demographic Characteristic: Age

Age	Frequency	Percentage (%)
17 – 19	237	74.2
20 – 23	70	22
24 - 27	6	1.8
31	1	0.3
39	1	0.3
Total	315	98.7
Missing	4	1.3
Total	319	100

Table 4

Sample Demographic Characteristic: Race/Ethnicity

Race/Ethnicity	Frequency	Percentage (%)
Black	190	59.6
White	52	16.3
Indian	46	14.4
Coloured	25	7.8
Mixed	5	1.6
Asian	1	0.3
Total	319	100

Table 5

Sample Demographic Characteristic: Home Language

Home Language	Frequency	Percentage (%)
English	140	43.9
IsiZulu	49	15.4
Setswana	26	8.2
Sesotho	23	7.2
Sepedi	21	6.6
IsiXhosa	21	6.6
Afrikaans	12	3.8
Tshivenda	9	2.8
Xitsonga	8	2.5
IsiNdebele	4	1.3
SiSwati	3	0.9
Oshiwambo	1	0.3
Urdu/Punjabi	2	0.6
Total	319	100

Table 6

Sample Demographic Characteristic: Faculty Registration

Faculty Registration	Frequency	Percentage (%)
Humanities	278	87.1
Health Science	37	11.6
Commerce, Law, and Management	3	0.9
Total	319	100

Table 7

Sample Demographic Characteristic: Full-time/Part-time

Full-time/Part-time	Frequency	Percentage (%)
Full-time	317	99.4
Part-time	2	0.6
Total	319	100

Procedure

The procedure that was followed to secure the intended sample and collect the relevant data for the current study was as follows. As an initial step, ethical clearance was requested from the University of the Witwatersrand's Human Ethics Committee (non-medical) [MORG/22/14] (See Appendix A). This was done by submitting an online application, which detailed the overall purpose of this research study and what it entailed. Thereafter, permission was requested from the University registrar for conducting research involving students. This was done via a written letter (See Appendix B). Upon obtaining permission from the registrar, the researcher approached and liaised with the relevant first-year course-coordinators of the Department of Psychology to request permission to use their students as potential participants for the current study, as well as to request lists of tutorial groups to aid with the management of students (See Appendix B). These course-coordinators were approached via email, whereby a meeting was organised. This enabled the researcher to outline the overall purpose of the study, as well as emphasise the importance of the students' participation in the study.

Once this permission was granted, prospective students received an invitation to participate in the study via the 'uLwazi' site, which is the online learning platform at the University of the Witwatersrand. This invitation included a consent form (See Appendix F), a link (using the 'SurveyMonkey' platform) where students registered interest by providing their email addresses, and a participant information sheet (PIS) specifying details about the current study (See Appendix C). These details included the approximate time it would take to complete the online questionnaire (approximately 15-20 minutes), as well as information notifying students that participation was strictly voluntary in nature and that they had a right to withdraw from the study at any time prior to final submission of the questionnaire without

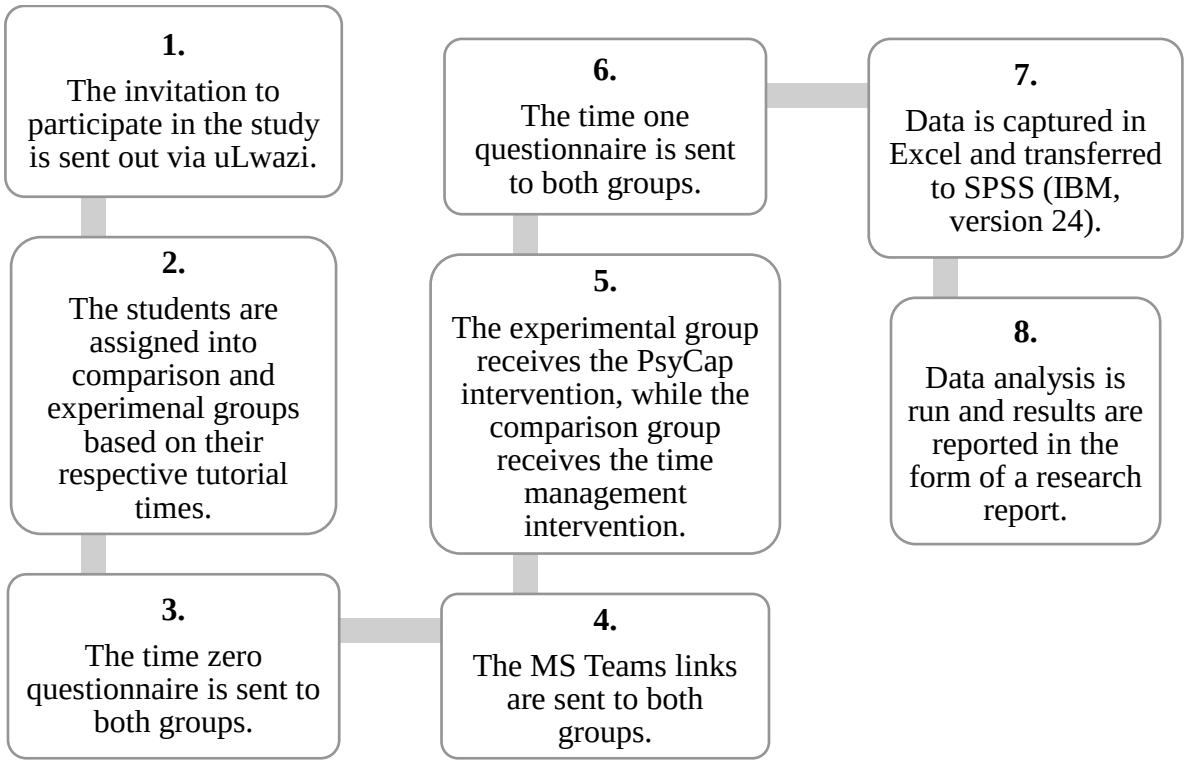
any repercussions (See Appendix C). First-year psychology students, in particular, were also informed that they would receive an additional 1% toward their final semester mark for participation in the research study. This was aligned with departmental policy.

Using specific student email addresses, willing participants were then assigned into control and experimental groups based on their tutorial times in order to run the micro-interventions. Accordingly, participants either joined 'slot A' or 'slot B,' based on their respective tutorial times. Next, participants were given a pre-measure of PsyCap and engagement, which served as 'time zero' in the analysis. At this time, a questionnaire was sent out which detailed information regarding student numbers, demographics, PsyCap and engagement. Thereafter, both the control and experimental groups received MS Teams links to participate in the relevant interventions.

The micro-interventions occurred over a one-week period and included a PsyCap intervention, which the experimental group completed, as well as a time management intervention, which the comparison group completed. These interventions ran for no longer than 60 minutes, and participants were given the chance to interact with the facilitator and ask relevant questions during each session. Once a week had passed, participants were asked to complete a questionnaire to measure their PsyCap and engagement post-intervention, which served as 'time one' in the analysis. This questionnaire took no longer than 30 minutes to complete. Once the micro-interventions were complete, data was entered into Microsoft Excel and cleaned and coded before being imported into SPSS (IBM, version 24) for data analysis to proceed. The eight-step procedure is outlined in Figure 1.

Figure 1

Timeline of Procedure



The PsyCap Intervention Explained

The premise behind the PsyCap intervention is to aid individuals in becoming more productive and actualizing their full potential by maximizing the components of hope, self-efficacy, resilience, and optimism. This intervention reflected the premise behind Luthans and colleagues' (2006) prototype for Psychological Capital Interventions (PCI's). During the PsyCap intervention session, participants were first given a brief presentation outlining the history of PsyCap; the eight-step intervention; and the questionnaire process (See Appendix K). Participants also received a PsyCap intervention worksheet which enabled them to follow along and complete each of the following eight steps during the session (See Appendix L).

The 8-step PsyCap intervention is outlined in Figure 2. The eight steps were as follows:

1) Participants were asked to describe a challenging situation that they had dealt with in the past.

2) Participants were asked to take a moment to reflect upon their mindset during which the challenging situation occurred, once they had assessed the risk associated with the situation. They were asked to consider the following questions: How did you respond? Were you energised and ready to rise to the challenge, or were you feeling overwhelmed, defeated or something else?

3) Participants were asked to reframe the situation in terms of its actual impact. They were asked to consider the following questions: What is the real risk? Is this risk something in or out of your control? Is it possible that your initial mindset worsened your first assessment? Are there any different ways to look at the situation that will allow you more options or control over your success?

4) Participants were asked to identify and define any skills (e.g., self-discipline, punctuality, adaptability etc.) and resources (e.g., social resources like friends' and family support, or personal resources like knowledge, energy, and attitude) that they used to tackle the situation. They were also asked to consider if there were any other resources available to them that could have been utilised.

5) Participants were asked to set a SMART (Specific, Measurable, Attainable, Relevant, Time-based) goal aimed at overcoming their identified challenge.

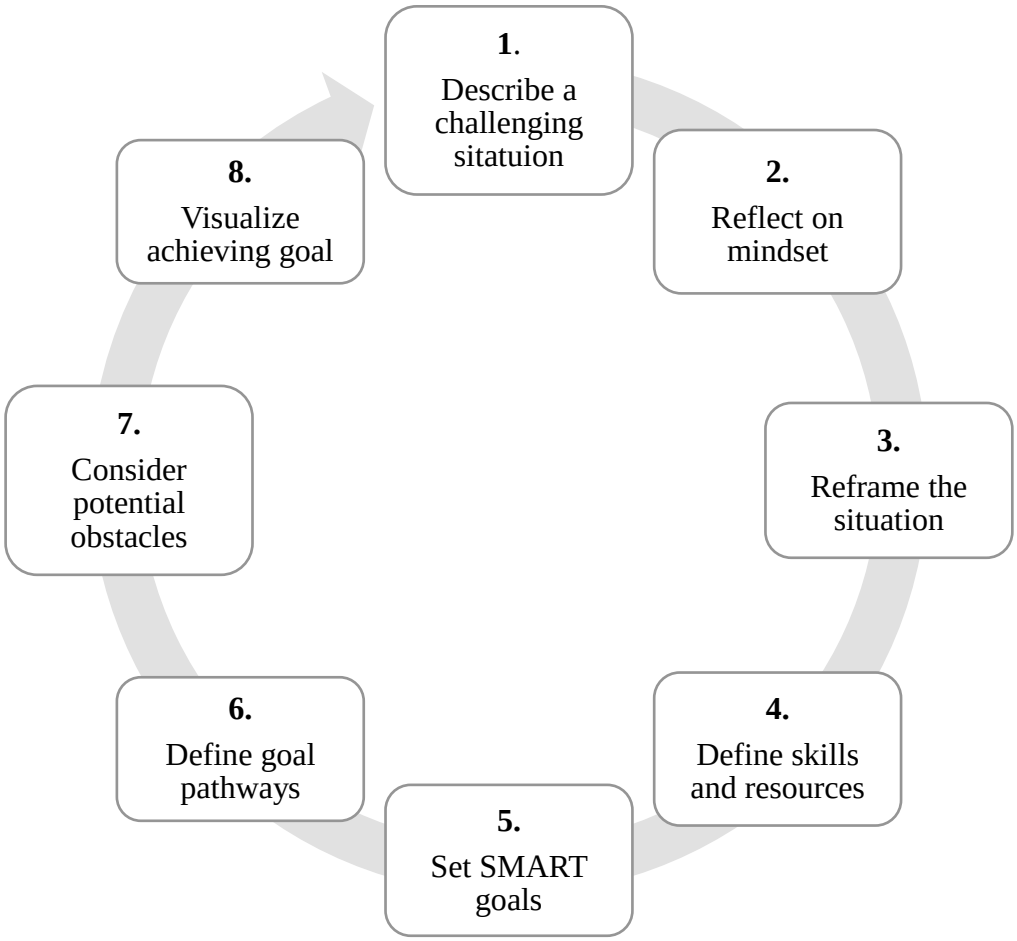
6) Participants were asked to identify and define multiple goal pathways related to step 5. In doing so, they were asked to list the skills and resources needed for each goal pathway. For example, if one identified goal pathway was a dedicated workspace, then one required resource would have been maintaining a quiet room free from distractions.

7) Participants were asked to identify and plan ways to overcome potential obstacles that could get in the way of each goal pathway identified in step 6. For example, family disruptions could have been an obstacle of maintaining a dedicated workspace. To overcome this obstacle, one could have set clear boundaries and a strict schedule.

8) Finally, participants were asked to set some time aside to visualize their success of achieving their goal/s. Specifically, participants were asked to imagine using their resources to navigate the different goal pathways and overcome obstacles in the process.

Figure 2

Overview of the PsyCap Intervention



The Time Management Intervention Explained

The time management intervention was administered using the Pomodoro method, which was invented by Francesco Cirillo in the 1980's. This method utilizes a timer to break down work tasks into smaller intervals, separated by short breaks. A traditional Pomodoro is 25 minutes, where 25 minutes is dedicated to working without distractions, followed by a 5-minute break to revitalise oneself. After 4 Pomodoro sessions, a longer 20–30-minute break follows (Swan et al., 2020). Thus, the premise behind the time management intervention is to alleviate anxiety around completing work tasks, enhance focus and concentration by reducing interruptions, increase decision-making, bolster motivation, and improve the work process (Swan et al., 2020).

During the time management intervention session, participants were first given a brief presentation outlining the history of the Pomodoro technique; how the method works; how to apply and enact the method; and the questionnaire process (See Appendix M). The three-step intervention was aimed at accurately estimating how much time participants spend to complete items on a personalised to-do list.

The five-step time management intervention is outlined in Figure 3. The five steps were as follows:

1) Participants began by creating a comprehensive list of tasks they needed to accomplish.

2) Participants created an activity inventory of their tasks, estimating the time needed for each to gain a clearer understanding of their overall workload.

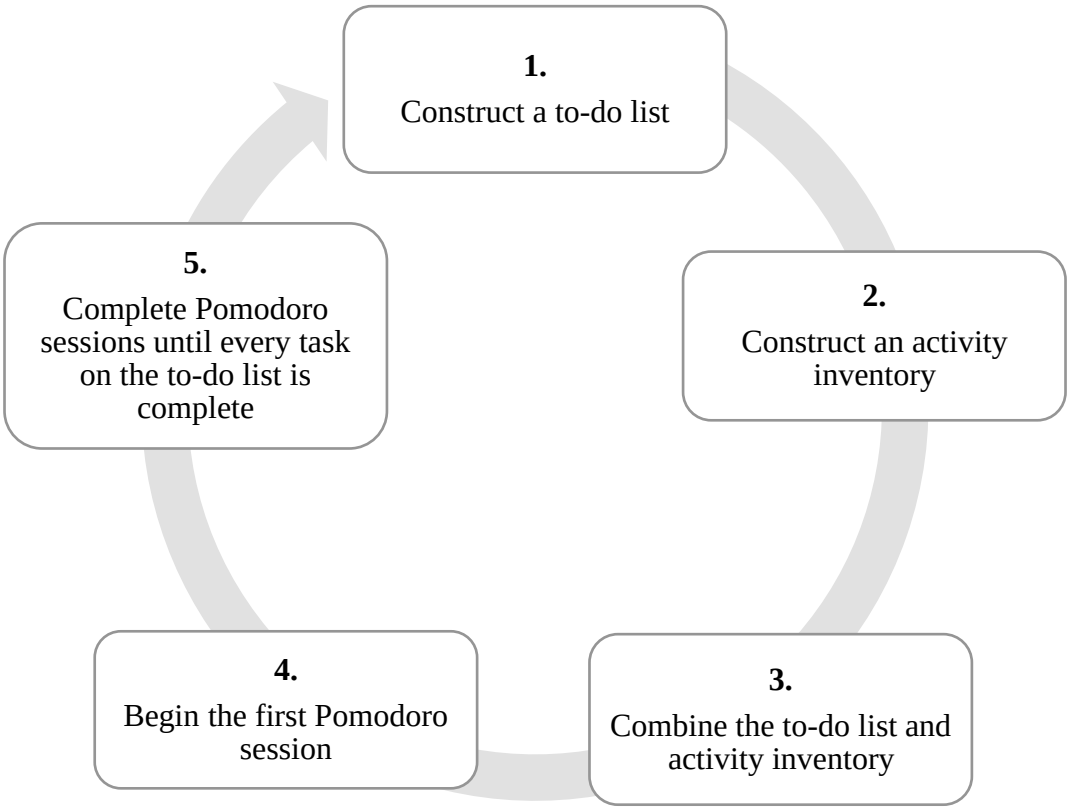
3) Integrating their to-do list and activity inventory, participants determined the number of Pomodoro sessions (25-minute focused work intervals) each task would likely require.

4) Participants initiated their first Pomodoro session, concentrating on the topmost task on their list.

5) Participants proceeded through Pomodoro sessions, working through their to-do list until all tasks were finished.

Figure 3

Overview of the Time Management Intervention



Upon completion of both interventions, participants were asked to complete a questionnaire focused on measuring their PsyCap and engagement precisely one-week post-intervention/s. Once the micro-interventions were complete and a sufficient number of

responses were received, data was extracted, entered, and stored into Microsoft Excel where it was cleaned and coded before being imported into SPSS (IBM, version 24) for data analysis to proceed.

Instrumentation

The following three instruments were combined into one questionnaire and used to collect the necessary data for the current study: 1) A demographic questionnaire was administered to gather information about the sample and sample characteristics; 2) the Utrecht Work Engagement Scale for Students (UWES-S) was used to measure academic engagement; 3) the Psychological Capital Questionnaire (PCQ) was used to measure psychological capital and/or personal resources. The entire questionnaire took participants 15-20 minutes to complete.

Demographic Questionnaire

A self-developed demographic questionnaire was administered to participants to examine and describe demographic characteristics of the sample (See Appendix D). It included open-ended and close-ended questions and generated questions pertaining to age, gender, race, home language, the registered faculty of the participant, and the nature of the participant's study (i.e. full-time or part-time). It also included environmental questions designed to evaluate the suitability of the participants' external environments prior to participation in the study (See Appendix E). Though student numbers were initially collected from first-year psychology students for course credit and to track participation across the study, they were removed from the final dataset for ethical reasons (see the ethical considerations section for details).

The Utrecht Work Engagement Scale for Students (UWES-S)

Academic engagement was measured using the Utrecht Work Engagement Scale for Students (UWES-S) (Shaufeli et al., 2002) (See Appendix G). It is important to note that this is a modified version of the original Utrecht Work Engagement (UWES) that was developed by Schaufeli and colleagues (1996), in order to better suit a student sample. The UWES-S is a 14-item scale that consists of three sub-scales, namely vigour, dedication, and absorption. The vigour sub-scale has five items, and the dedication and absorption sub-scales have five items and four items, respectively. An example of a vigour item is as follows: "When I am studying, I feel mentally strong." An example of a dedication item is as follows: "My studies inspire me." An example of an absorption item is as follows: "When I study, I forget everything else around me." All items are rated on a seven-point Likert-type scale, ranging from 1 (strongly disagree) to 7 (strongly agree). Higher scores on vigour, dedication and absorption are attributed to higher levels of academic engagement.

The original UWES scale has encouraging psychometric features. Reliability has been ensured as Cronbach alpha coefficients have been previously reported as ranging between 0.80 and 0.90 for vigour, dedication, and absorption (Demerouti et al., 2001; Durán et al., 2004; Montgomery et al., 2003; Salanova et al., 2001; Schaufeli & Bakker, 2004). Specifically, for the UWES-S, Cronbach alpha coefficients have been previously reported as ranging between 0.68 and 0.81 for vigour; 0.67 and 0.91 for dedication; and 0.67 and 0.82 for absorption, thereby indicating acceptable to strong measures of internal validity (Schaufeli et al., 2002). Similarly, the validity of the original UWES has been ensured through factorial validity, where previous confirmatory factor analyses have identified that the three-factor structure fits well to different contextual samples (Schaufeli et al., 2002). Additionally, the

UWES-S has been used in both an international and local context, thereby signifying a strong measure of contextual relevance (Carmona-Halty et al., 2019).

In the current study, the Cronbach alpha scores for vigour, dedication, and absorption at time zero were found to be 0.83, 0.76 and 0.68, respectively (See Table 9). Whilst the score for absorption is considered to be 'just acceptable' according to Walker and Almond (2010), it is deemed acceptable for research purposes. At the time one period, the Cronbach alpha scores for vigour, dedication and absorption were found to be 0.87, 0.80, and 0.75, respectively (See Table 10). Walker and Almond (2010) would consider these scores as ranging from 'fairly good' to 'good.'

The Psychological Capital Questionnaire (PCQ-24)

Psychological capital was measured using an adapted version of the original Psychological Capital Questionnaire (PCQ-24) (Luthans et al., 2007) (See Appendix H). This adaptation took place in a previous study (Luthans et al., 2012) to better represent a student population and help monitor academic performance. The modified version of the PCQ was obtained from MindGarden (www.mindgarden.com) before it was utilized. Appendix I contains a letter granting permission to use the scale in the current study. Due to copyright limitations, the complete questionnaire cannot be included here. However, three sample items are provided for illustrative purposes, adhering to fair use guidelines.

The PCQ is a 24-item scale that consists of four sub-scales with equal weight, namely self-efficacy, hope, resilience, and optimism. Each of these sub-scales have six items. Each of the four subscales are drawn from established scales previously published, tested and used in past and recent studies. More specifically, the self-efficacy items from Parker's (1998) measure of

Self-efficacy in the Workplace; the hope items from Snyder and colleagues' (1996) State Hope Scale; the resilience items from Wagnild and Young's (1993) Resilience Scale and the optimism items from and Carver's (1985) Measure of Optimism. Considering the adapted version of the PCQ, an example item for self-efficacy from the original PCQ is as follows: "I feel confident setting targets/goals for my studies." An example item for hope is as follows: "There are a lot of ways around any problem concerning my studies." An example item for resilience is as follows: "I can get through difficult times during my studies because I have experienced difficulty before." Since the current study is only permitted to reproduce three sample items, an example item for optimism was excluded.

The PCQ uses a 6-point Likert scale (1 = strongly disagree, 6 = strongly agree) to measure PsyCap. Higher scores generated across the PCQ scale indicate elevated levels of overall PsyCap. Similarly, higher scores generated on each of its four subscales (i.e., self-efficacy, hope, resilience, optimism) indicate greater levels of those psychological resources. Subscale scores are calculated by averaging all six items within each subscale, whereas the overall PsyCap score is the average of all 24 items. Importantly, reverse scoring is required for items 13, 20 and 23.

The original PCQ has encouraging psychometric features. Validity has been ensured through measures of convergent and discriminant validity (Luthans et al., 2007), which other researchers have confirmed (Avey et al., 2006). However, few studies have considered examining validity measures for the adapted PCQ. Nevertheless, the original PCQ has been used in both an international and local context, thereby signifying a measure of contextual relevance (Matos & De Andrade, 2021). Reliability has been ensured through Cronbach alpha coefficients as these values have been previously reported as ranging between 0.72 and 0.80

for hope; 0.75 and 0.85 for self-efficacy; 0.66 and 0.72 for resilience; and 0.69 and 0.79 for optimism (Luthans et al., 2007). These authors also reported the Cronbach alpha coefficient for the overall PCQ scale as ranging between 0.88 and 0.89, which closely coincides with Avey et al.'s (2006) finding of 0.90. Importantly, the Cronbach alpha coefficient for measuring overall PsyCap using the adapted PCQ scale within an educational context has been previously reported as 0.90 (Luthans et al., 2012).

In the current study, items 13, 20 and 23 were reversed scored, and scores for overall PsyCap and the four subscales (i.e. self-efficacy, hope, resilience, and optimism) were subsequently calculated for the time zero and time one periods. At time zero, the Cronbach alpha scores for the subscales were found to be 0.74, 0.82, 0.65 and 0.62, respectively (See Table 9). Whilst the scores for resilience and optimism are considered to be 'just acceptable' according to Walker and Almond (2010), they are deemed acceptable for research purposes. At time one, the Cronbach alpha scores for the subscales were found to be 0.75, 0.84, 0.72 and 0.70, respectively (See Table 10). Walker and Almond (2010) would consider these scores as ranging from 'fairly good' to 'good.' At time one and two, the Cronbach alpha scores for overall PsyCap were 0.88 and 0.91, respectively (See Tables 9 and 10). According to Walker and Almond (2010), such values are considered 'good.'

Table 8

Measures of Reliability Interpretation

Cronbach Alpha Value (α)	**Interpretation**
0.8 +	Good
0.7 – 0.79	Fairly good
0.6 – 0.69	Just acceptable
< 0.6	Unacceptable

Table 9

Cronbach Alpha Coefficients for the Main Variables at Time 0

Variable	Item(s)	Cronbach Alpha (α)
Vigour	4	0.83
Dedication	5	0.76
Absorption	4	0.68
Self-efficacy	6	0.74
Hope	6	0.82
Resilience	6	0.65
Optimism	6	0.62
Psychological Capital (PsyCap)	24	0.88

Table 10

Cronbach Alpha Coefficients for the Main Variables at Time 1

Variable	Item(s)	Cronbach Alpha (α)
Vigour	4	0.87
Dedication	5	0.80
Absorption	4	0.75
Self-efficacy	6	0.75
Hope	6	0.84
Resilience	6	0.72
Optimism	6	0.70
Psychological Capital (PsyCap)	24	0.91

As previously discussed in Chapter One, theory and research conceptualises PsyCap as a multi-dimensional higher-order core construct that integrates four psychological components (i.e., self-efficacy, hope, resilience, and optimism) (Luthans et al., 2010). This combined approach creates a synergy, where the impact of the higher-order construct is greater than the sum of its individual parts (Sweetman et al., 2010). Thus, PsyCap is considered to be greater than the sum of its individual components, relating to stronger measures of attitudes, behaviours, and performance (Luthans et al., 2010). Notably, researchers note that PsyCap is

best understood as a core construct, suggesting that it is more valuable to study its individual components together, as synergistic indicators of a higher-order strength (Luthans et al., 2010). It is for this reason that PsyCap is treated as a composite score in this study.

Ethical Considerations

This section outlines the relevant ethical concerns for the current study. Before this study could begin, ethical clearance needed to be obtained from the University of the Witwatersrand's Human Research Ethics Committee (non-medical) [MORG/22/14]. The appropriate ethical clearance was approved and acquired (See Appendix A). The university's registrar was also contacted to receive permission to approach students for research purposes (See Appendix B). Thereafter, permission was obtained from the relevant course-coordinators of first-year Psychology in order to utilise their students as potential participants for the study (See Appendix B).

In terms of instrument use, approval for remote online instrument use and adaptation was obtained from MindGarden (www.mindgarden.com) in order to utilize an adapted form of their PCQ in an online environment (See Appendix I). Confidentiality was maintained by ensuring that only the researcher and her supervisor had access to the individual data responses.

Anonymity could not be fully assured in this study because student numbers were initially required during the data collection period. However, once the data was captured and individuals' responses across the two analysis times were matched using their student numbers, these student numbers were removed from the final data set, replaced with unidentifiable participant numbers, and saved in a separate password-protected file. This

guaranteed confidentiality, which was further maintained by the fact that only the researcher and her supervisor had access to the data responses.

There were limited foreseeable risks, and no reported harm was experienced by any individual who chose to participate in the current study; and all participation was strictly voluntary in nature. Participants had the right to withdraw from the study any time prior to final submission of the questionnaire without penalties or repercussions. Informed consent was demonstrated by means of a consent form (See Appendix F), a participant information sheet (See Appendix C), stipulating and informing students of pertinent research information, as well as final completion and submission of the questionnaire. Therefore, once the participant had completed and submitted the questionnaire, informed consent was deemed to have been given.

It was the responsibility of the researcher to fully inform participants of the research purpose, duration, and relevant procedures. Therefore, to ensure that the debriefing process and rights of participants were maintained throughout the study, the participant information sheet indicated that limited harm or foreseeable risks were associated with participation since there was a slight risk posed by creating a situation whereby participants were required to reflect directly on their feelings and experiences during the intervention process (Nosek et al., 2002). However, this was addressed by specifying a front-end referral process where participants were provided with CCDU and Emthonjeni contact details should they have felt that they were affected by the nature of the study in any way. Furthermore, the participant information sheet ensured that first-year Psychology students were informed that they would receive an additional 1% towards their final term mark as a reward for participation in the

current study. Those that did receive a 1% addition were deemed advantaged by their participation, but this was, nonetheless, in accordance with departmental policy.

Feedback was provided in the form of a summary of the overall findings of the current study to the relevant course-co-ordinators. Students could also access a similar summary via a link on uLwazi, as detailed in the participant information sheet. Participants were welcome to contact the researcher or supervisor with any questions or concerns during the process. The final results of the study have been presented in a Master's research report format which will be submitted to the University of the Witwatersrand's WIReDSpace Institutional Repository. Therefore, any individual with access to the WIReDSpace Institutional Repository will effectively have access to the final research report.

Data Analysis

Once the data gathered from the questionnaire was collected, sorted, and coded into a secure Excel spreadsheet, the coded spreadsheet was imported into SPSS (IBM, version 24) for statistical analysis. Analyses relating to the main research question and sub-questions were conducted using correlational analysis and mixed-model analysis of variance (ANOVA). Additionally, descriptive statistics, summary statistics, and normality checks were carried out for the current study. Reliability scores in the form of Cronbach alpha coefficients for the instruments (scales) used to gather the data were calculated and addressed.

Simple Statistics

According to Cooksey (2020), descriptive statistics are useful because they facilitate the meaningful description and summation of data. This includes frequencies, measures of central tendency (i.e. mean, median and mode) and measures of spread (i.e. range, quartiles,

variance, and standard deviation). As an initial step, descriptive statistics such as the mean, standard deviation and frequency were run in order to describe the demographic characteristics of the sample. In addition, summary statistics were used to examine the scale and subscale totals. Thereafter, normality of the variables was determined through the examination of histograms and skewness and kurtosis coefficients. The normality results will be discussed in Chapter Four.

Reliability

Huck (2004) defines reliability as the dependability and stability of the instrumentation used to measure particular constructs in a study. Internal consistency reliability refers to the degree to which different facets of an instrument relate to or measure the same concept (Huck, 2004). Therefore, internal consistency reliability assesses reliability by using the study participants' responses at one point in time to establish the extent to which the items in the scales or subscales measure the same concept (Huck, 2004). In this study, Cronbach's alpha coefficients were calculated for each scale and subscale to assess their internal consistency reliability.

Analysis of Variance (ANOVA)

An Analysis of Variance (ANOVA) is a statistical method used to analyse the difference between the means of more than two groups. However, a mixed-model ANOVA is used to compare group means on a dependent variable across repeated measures of time (Krueger & Tian, 2004). To answer the main research question as well as the first sub-research question, four mixed-model ANOVA's were utilized. Specifically, these tests assessed the extent to which the PsyCap intervention impacted upon academic engagement.

Before analysis, the assumptions of normality, presence of non-significant outliers, homogeneity of variances, and sphericity were tested (Field, 2017). The dependent variable was also required to be continuous, and the intercorrelation pattern for each level of *within-subjects* variable needed to be equal (Field, 2017). Statistical significance of all results was interpreted at the 5% significance level ($p<0.05$) (Field, 2017). In addition, the effect sizes of each of the variables were computed using Eta squared (η^2). These results will be discussed in Chapter Four.

Correlational Analysis

Correlational analysis is a statistical method used to determine whether a relationship between two variables exists (Field, 2009). To answer the second sub-research question, correlational analysis was used. Specifically, correlational analysis assessed whether a difference existed in the relationship between PsyCap and academic engagement at each time period (i.e., time zero and time one) in the analysis. In order to determine whether to use a Pearson's or Spearman's test, certain parametric assumptions were tested. In order for parametric assumptions to be met, variables needed to be interval in nature and normally distributed, and principles of independence and homogeneity of variance had to be satisfied (Garson, 2012). The coefficient of determination assessed the effect size of these associations, where a larger r-squared value indicated a better fit for the model (Field, 2017). Both Pearson's and Spearman Rho's correlation coefficients are used to quantitatively address the strength and direction of association that exists between two variables (Huck, 2004). It is important to note that these coefficients merely examine the linear relationship between two variables and do not imply causality (Howell, 2011).

The coefficient values range from 0.00 to + 1.00 and 0.00 to -1.00, where a value of 0.00 indicates no relationship between two variables and values closer to +/- 1.00 indicates a stronger relationship (Garson, 2012). A correlation of +/- 1.00 suggests a perfect positive/negative correlation. The positive and negative signs indicate the direction of the relationship between the two variables. A positive correlation suggests that there is a direct linear relationship between two variables, where high values of the one variable are associated with high values for the other (Garson, 2012). Conversely, a negative correlation coefficient suggests an inverse linear relationship between the variables, where high values for one variable are associated with low values of the other variable (Garson, 2012). Specifically, having a correlation statistic fall between the range of 0.0 to 0.3 will indicate a very weak or negligible correlation; between 0.3 to 0.5 will indicate a weak correlation; between 0.5 to 0.7 will indicate a moderate correlation; between 0.7 to 0.9 will indicate a strong correlation; and between 0.9 to 1 will indicate a very strong correlation (Field, 2017). Statistical significance of all results will be interpreted at the 5% significance level ($p<0.05$) (Field, 2017).

Conclusion

In summary, this quantitative study consisted of a questionnaire, comprised of three main sections, administered to a sample of 319 undergraduate students at the University of the Witwatersrand. The data was analysed using descriptive statistics, correlational analysis, and mixed-model analysis of variance (ANOVA). Having described the methods used to conduct the current study, the following chapter describes the statistical results obtained.

Chapter 4: Results

Introduction

The following chapter provides a description of the statistical results obtained from the data that was collected, sorted, and analysed. Statistics were produced using SPSS Version 24. In the first phase, data was screened for missing data, and tests of normality and assumptions were conducted. In the second phase, research questions were investigated using mixed-model analysis of variance (ANOVA) and correlational analysis. The narration is organised in accordance with the order of the research questions posed earlier. Descriptive statistics are initially provided followed by inferential statistics.

Missing Data

The data was cleaned and checked for accuracy before analysis occurred. Upon inspection, it became clear that some participants neglected to complete the questionnaire at time two in the current study. In order to be considered for the analysis, participants had to complete a minimum of 70% of each questionnaire at each time period (i.e., time zero and time one). Individuals who did not meet this criterion were excluded from subsequent analyses. Consequently, only participants who completed questionnaires at time zero and one in the analysis were included in the current study. This decreased the original sample size from 568 students to 319 students. Reasons for the dropout rate will be discussed in the limitations section of Chapter Five.

Descriptive Statistics and Normality

Descriptive statistics, skewness and kurtosis coefficients, and Kolmogorov-Smirnov Test results were obtained for each of the main variables in order to examine the degree of normality of the data (See Tables 11 - 18). This allowed for the determination of which

means of analysis, parametric or non-parametric, to use to address the current study's research questions. Skewness and kurtosis coefficients that fall between -1 and +1 indicate normality and normal distribution of the data (Field, 2017). Similarly, a non-significant result ($p>0.05$) on the Kolmogorov-Smirnov Test is indicative of a normal distribution of the data (Field, 2017). In addition, histograms (See Figures 4 - 19 in Appendix N) and scatterplots (See Figures 20 - 35 in Appendix O) were utilised to assist in determining normality.

Table 11

Descriptive Statistics for the Main Variables for the Comparison Group at Time 0 (N=153)

Variable	Minimum	Maximum	Mean (M)	Standard Deviation (SD)
Vigour	1.40	7.00	3.77	1.21
Dedication	2.00	6.80	4.88	1.02
Absorption	1.75	6.75	4.41	1.23
Psychological Capital (PsyCap)	2.38	5.79	4.07	0.65

Table 12

Descriptive Statistics for the Main Variables for the Comparison Group at Time 1 (N=153)

Variable	Minimum	Maximum	Mean (M)	Standard Deviation (SD)
Vigour	1.00	7.00	3.92	1.27
Dedication	1.80	7.00	4.82	1.07
Absorption	1.00	7.00	4.49	1.27
Psychological Capital (PsyCap)	2.53	6.00	4.33	0.67

Table 13

Skewness and Kurtosis Statistics for the Main Variables for the Comparison Group at Time 0 (N=153)

Variable	Skewness coefficient	Kurtosis coefficient
Vigour	0.24	-0.68
Dedication	-0.45	-0.46
Absorption	-0.17	-0.70
Psychological Capital (PsyCap)	-0.13	-0.23

Table 14

Skewness and Kurtosis Statistics for the Main Variables for the Comparison Group at Time 1 (N=153)

Variable	Skewness coefficient	Kurtosis coefficient
Vigour	0.18	-0.56
Dedication	-0.32	-0.01
Absorption	-0.60	-0.41
Psychological Capital (PsyCap)	-0.18	-0.39

Table 15

Descriptive Statistics for the Main Variables for the Experimental Group at Time 0 (N=166)

Variable	Minimum	Maximum	Mean (M)	Standard Deviation (SD)
Vigour	1.00	6.40	3.58	1.35
Dedication	1.60	7.00	4.81	1.20
Absorption	1.75	6.25	4.19	1.35
Psychological Capital (PsyCap)	2.33	6.00	4.10	0.69

Table 16

Descriptive Statistics for the Main Variables for the Experimental Group at Time 1 (N=166)

Variable	Minimum	Maximum	Mean (M)	Standard Deviation (SD)
Vigour	1.40	7.00	3.81	1.35
Dedication	2.80	7.00	4.79	1.21
Absorption	2.00	6.75	4.29	1.26
Psychological Capital (PsyCap)	2.71	6.06	4.41	0.67

Table 17

Skewness and Kurtosis Statistics for the Main Variables for the Experimental Group at Time 0 (N=166)

Variable	Skewness coefficient	Kurtosis coefficient
Vigour	-0.29	-0.12
Dedication	-0.78	0.56
Absorption	-0.29	-1.03
Psychological Capital (PsyCap)	-0.21	-0.20

Table 18

Skewness and Kurtosis Statistics for the Main Variables for the Experimental Group at Time 1 (N=166)

Variable	Skewness coefficient	Kurtosis coefficient
Vigour	-0.05	-0.61
Dedication	-0.50	-0.41
Absorption	-0.35	-0.47
Psychological Capital (PsyCap)	0.12	-0.43

On average, participants from the comparison group at time zero in the study reported relatively high levels of vigour (M = 3.77, SD = 1.21), with responses ranging from 1.4 to 7. These participants also reported high levels of dedication (M = 4.88, SD = 1.02), with responses ranging from 2 to 6.8; and high levels of absorption (M = 4.41, SD = 1.23), with responses ranging from 1.75 to 6.75. Similarly, participants reported high levels of PsyCap (M = 4.07, SD = 0.65), with responses ranging from 2.38 to 5.79.

On average, participants from the comparison group at time one in the study reported similar results to the comparison group at time zero. Specifically, these participants reported relatively high levels of vigour (M = 3.92, SD = 1.07), with responses ranging from 1 to 7. Participants also reported high levels of dedication (M = 4.82, SD = 1.07), with responses ranging from 1.8 to 7; and high levels of absorption (M = 4.49, SD = 1.27), with responses ranging from 1 to 7. Similarly, participants reported high levels of PsyCap (M = 4.33, SD = 0.67), with responses ranging from 2.53 to 6.

On average, participants from the experimental group at time zero in the study reported relatively high levels of vigour (M = 3.58, SD = 1.35), with responses ranging from 1 to 6.40. These participants also reported high levels of dedication (M = 4.81, SD = 1.20), with responses ranging from 1.6 to 7; and high levels of absorption (M = 4.19, SD = 1.35), with responses ranging from 1.75 to 6.25. Similarly, participants reported high levels of PsyCap (M = 4.10, SD = 0.69), with responses ranging from 2.33 to 6.

On average, participants from the experimental group at time one in the study reported very similar results to the experimental group at time zero. Specifically, participants reported moderate levels of vigour (M = 3.81, SD = 1.35), with responses ranging from 1.4 to 7. These

participants also reported high levels of dedication (M = 4.79, SD = 1.21), with responses ranging from 2.8 to 7; and high levels of absorption (M = 4.29, SD = 1.26), with responses ranging from 2 to 6.75. Similarly, participants reported high levels of PsyCap (M = 4.41, SD = 0.67), with responses ranging from 2.71 to 6.06.

Both the skewness and kurtosis coefficients for both comparison and experimental groups at time zero and one in the current study indicated that the variables were normally distributed due to the fact that all the coefficient values fell within the ranges of -1 and +1 (See Tables 13, 14, 17 and 18). In addition, the histograms further indicated a normal distribution (See Figures 4 - 19 in Appendix K). Since the data was thus proposed to be normal in nature, parametric analysis was used to answer the current study's research questions.

Inferential Statistics: Correlations

As an initial investigation, Pearson's correlation coefficients were calculated, and correlation matrices were obtained (See Tables 19 and 20) in order to explore the nature of the relationships existing between the variables in the current study. Specifically, this explored the relationship between PsyCap and academic engagement. To do so, correlational analyses were run to investigate the relationships between:

1. PsyCap and vigour.
2. PsyCap and dedication.
3. PsyCap and absorption.

Table 19

Pearson's Correlation Coefficients for PsyCap and Engagement at Time 0

Variables		PsyCap	Vigour	Dedication	Absorption
PsyCap	**Pearson Correlation**	1.00	0.63**	0.60**	0.45**
	Sig. (2-tailed)		<0.001	<0.001	<0.001
	N	319	319	319	319

Note: PsyCap = Psychological Capital. ** Correlation is significant at the 0.01 level (2-tailed).

Table 20

Pearson's Correlation Coefficients for PsyCap and Engagement at Time 1

PsyCap	**Pearson Correlation**	1.00	0.56**	0.56**	0.43**
	Sig. (2-tailed)		<0.001	<0.001	<0.001
	N	319	319	319	319

Note: PsyCap = Psychological Capital. ** Correlation is significant at the 0.01 level (2-tailed).

The Relationship between PsyCap and Engagement at Time Zero

Table 19 presents the correlation matrix for the relationship between PsyCap and engagement (i.e., vigour, dedication, and absorption) at time zero. PsyCap was significantly related to student engagement. More specifically, PsyCap was significantly and positively related to vigour (r = 0.63, p = 0.001), dedication (r = 0.60, p = 0.001) and absorption (r = 0.45, p = 0.001). This suggests that high values of PsyCap are associated with high values of vigour, dedication, and absorption at time zero in the study.

The Relationship between PsyCap and Engagement at Time One

Table 20 presents the correlation matrix for the relationship between PsyCap and engagement (i.e., vigour, dedication, and absorption) at time one in the current study. PsyCap

was significantly related to student engagement. More specifically, PsyCap was significantly and positively related to vigour (r = 0.56, p = 0.001), dedication (r = 0.43, p = 0.001) and absorption (r = 0.45, p = 0.001). This suggests that high values of PsyCap are associated with high values of vigour, dedication, and absorption at time one in the study.

Inferential Statistics: Mixed-model ANOVA's

Mixed-model ANOVAs were conducted to answer the following research questions:

1. Main Research Question: Does a micro psychological capital intervention have an effect upon the levels of academic engagement (i.e., vigour, dedication, and absorption) amongst first-year university students?
2. First Sub-Research Question: Does a micro psychological capital intervention have an effect upon the psychological capital scores of first-year university students?

Before these research questions were addressed, the researcher considered descriptive statistics, skewness coefficients and kurtosis coefficients. These are presented in Tables 11 – 18. The skewness and kurtosis coefficients fell between the values of -1 and +1, indicating that the variables were normally distributed.

Furthermore, the Kolmogorov-Smirnov Test of normality was assessed, where p-values greater than 0.05 were indicative of normal distribution. The Kolmogorov-Smirnov Test was utilized because it is the better suited normality test for larger sample sizes (n>50) (Field, 2017). These results are reported in Tables 21-24. Accordingly, PsyCap was normally distributed for the experimental group at both time zero and one, as well as for the comparison group at time one in the analysis (p>0.05) (See Table 21). However, PsyCap was not normally distributed for the comparison group at time zero (p<0.05) (See Table 21).

Vigour was normally distributed for the comparison group at time zero, as well as for the comparison and experimental group at time zero and one in the analysis ($p>0.05$) (See Table 22). However, vigour was not normally distributed in the experimental group at time zero ($p<0.05$) (See Table 22). Dedication was not normally distributed for the comparison and experimental group at neither time zero nor time one in the analysis ($p<0.05$) (See Table 23). Finally, absorption was only normally distributed for the experimental group at time zero and one in the analysis ($p>0.05$) (See Table 24).

Due to the disruptions in normality for each of these variables, histograms (See Figures 4 – 19 in Appendix N) and scatterplots (See Figures 20 -35 in Appendix O) were generated to graphically represent normality. These were indicative of normal distribution with limited evidence of significant outliers. Considering this observation, as well as the fact that the ANOVA is typically robust against violations of normality (Field, 2017), the data was determined to be sufficiently normal for the purposes of ANOVA analysis.

Table 21

Normality Test for PsyCap

		Kolmogorov-Smirnov[a]		
	Group	**Statistic**	**df**	**Sig.**
T0_PsyCap_Average	Comparison	0.77	153	0.03
	Experimental	0.06	166	0.20*
T1_PsyCap_Average	Comparison	0.07	153	0.09
	Experimental	0.05	166	0.20*

Note: T0 = Time 0; T1 = Time 1; PsyCap = Psychological Capital. * This is a lower bound of the true significance.

a. Lilliefors Significance Correction.

Table 22

Normality Test for Vigour

		Kolmogorov-Smirnov[a]		
	Group	**Statistic**	**df**	**Sig.**
T0_Vig_Average	Comparison	0.06	153	0.20*
	Experimental	0.07	166	0.03
T1_Vig_Average	Comparison	0.06	153	0.20*
	Experimental	0.05	166	0.20*

Note: T0 = Time 0; T1 = Time 1; PsyCap = Psychological Capital. * This is a lower bound of the true significance.

a. Lilliefors Significance Correction.

Table 23

Normality Test for Dedication

		Kolmogorov-Smirnov[a]		
	Group	**Statistic**	**df**	**Sig.**
T0_Ded_Average	Comparison	0.08	153	0.02
	Experimental	0.08	166	0.01
T1_Ded_Average	Comparison	0.08	153	0.02
	Experimental	0.08	166	0.03

Note: T0 = Time 0; T1 = Time 1; Ded = Dedication. * This is a lower bound of the true significance.

a. Lilliefors Significance Correction.

Table 24

Normality Test for Absorption

		Kolmogorov-Smirnov[a]		
	Group	**Statistic**	**df**	**Sig.**
T0_Abs_Average	Comparison	0.09	153	0.00
	Experimental	0.06	166	0.10
T1_Abs_Average	Comparison	0.09	153	0.01
	Experimental	0.05	166	0.20*

Note: T0 = Time 0; T1 = Time 1; Abs = Absorption. * This is a lower bound of the true significance.

a. Lilliefors Significance Correction.

Vigour

There was homogeneity of variances ($p > 0.05$) and covariances ($p > 0.001$) as assessed by Box's M test and Levene's test of homogeneity of variances respectively (See Tables 25 and 26). Since the current study only included two within-subject factor categories, Mauchly's test of sphericity was assumed to have been met (See Table 27). There was no statistically significant interaction between the intervention and time on vigour, $F(1, 317) = 0.53$, $p > 0.05$, partial $\eta^2 = 0.00$ (See Table 28). This is further displayed in the profile plot (See Figure 36 in Appendix P). Whilst the profile plot represents change, the magnitude of the change was not sufficient enough to reach a level of significance.

The main effect of time showed a statistically significant difference between time zero and time one, $F(1, 317) = 13.81$, $p < 0.05$, partial $\eta^2 = 0.04$ (See Table 28). As such, the Pairwise Comparisons table was considered, and the mean difference between the two time periods is 0.19, which suggests that there was not much of a positive difference identified between the two time periods (See Table 29). The main effect of group showed that there was no

statistically significant difference in mean scores of vigour between intervention times, $F(1, 317) = 1.14$, $p > 0.05$, partial $\eta^2 = 0.00$ (See Table 30).

Table 25

Box's M Test of Equality of Covariance Matrices for Vigour

Box's M	2.06
F	0.68
df1	3.00
df2	21951078.68
Sig.	0.56

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

Table 26

Levene's Test of Equality of Error Variances for Vigour

		Levene Statistic	df1	df2	Sig.
T0_Vig_Average	Based on Mean	2.65	1	316	0.10
	Based on Median	2.32	1	316	0.13
	Based on Median and with adjusted df	2.32	1	313.89	0.13
	Based on trimmed mean	2.74	1	316	0.09
T1_Vig_Average	Based on Mean	0.85	1	316	0.36
	Based on Median	0.85	1	316	0.36
	Based on Median and with adjusted df	0.85	1	315.88	0.36
	Based on trimmed mean	0.85	1	316	0.36

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

Note: T0 = Time 0; T1 = Time 1; Vig = Vigour.

Table 27

Mauchly's Test of Sphericity for Vigour

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[b]		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Time	1.00	0.00	0	.	1.00	1.00	1.00

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

Table 28

Tests of Within-Subjects Effects for Vigour

		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Time	Sphericity Assumed	5.64	1	5.64	13.81	<0.001	0.04
	Greenhouse-Geisser	5.64	1	5.64	13.81	<0.001	0.04
	Huynh-Feldt	5.64	1	5.64	13.81	<0.001	0.04
	Lower-bound	5.64	1	5.64	13.81	<0.001	0.04
Time * Group	Sphericity Assumed	0.22	1	0.22	0.53	0.47	0.00
	Greenhouse-Geisser	0.22	1	0.22	0.53	0.47	0.00
	Huynh-Feldt	0.22	1	0.22	0.53	0.47	0.00
	Lower-bound	0.22	1	0.22	0.53	0.47	0.00
Error (Time)	Sphericity Assumed	129.14	316	0.41			
	Greenhouse-Geisser	129.14	316	0.41			
	Huynh-Feldt	129.14	316	0.41			
	Lower-bound	129.14	316	0.41			

Table 29

Pairwise Comparisons for Vigour

(I) Time	(J) Time	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
1	**2**	-0.19*	0.05	<.001	-0.29	-0.09
2	**1**	0.19*	0.05	<.001	0.09	0.29

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

Table 30

Tests of Between-Subjects Effects for Vigour

	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	9022.21	1	9022.21	3063.34	<.001	0.91
Group	3.36	1	3.36	1.14	0.29	0.00
Error	930.69	316	2.95			

Dedication

There was homogeneity of variances ($p > 0.05$) and covariances ($p > 0.001$) as assessed by Box's M test and Levene's test of homogeneity of variances, respectively (See Tables 31 and 32). Since the current study only included two within-subject factor categories, Mauchly's test of sphericity was assumed to have been met (See Table 33). There was no statistically significant interaction between the intervention and time on dedication, $F(1, 317) = 0.13$, $p > 0.05$, partial $\eta^2 = 0.00$ (See Table 34). This is further displayed in the profile plot (See Figure 37 in Appendix P). Whilst the profile plot represents change, the magnitude of the change was not sufficient enough to reach a level of significance.

The main effect of time showed no statistically significant difference between time zero and time one, $F(1, 317) = 0.65$, $p > 0.05$, partial $\eta^2 = 0.00$ (See Table 34). The main effect of group showed that there was no statistically significant difference in mean scores of dedication between intervention times, $F(1, 317) = 0.15$, $p > 0.05$, partial $\eta^2 = 0.00$ (See Table 35).

Table 31

Box's M Test of Equality of Covariance Matrices for Dedication

Box's M	4.78
F	1.58
df1	3.00
df2	21951078.68
Sig.	0.19

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

Table 32

Levene's Test of Equality of Error Variances for Dedication

		Levene Statistic	df1	df2	Sig.
T0_Ded_Average	Based on Mean	5.14	1	316	0.02
	Based on Median	4.83	1	316	0.03
	Based on Median and with adjusted df	4.83	1	310.89	0.03
	Based on trimmed mean	5.11	1	316	0.02
T1_Ded_Average	Based on Mean	2.41	1	316	0.12
	Based on Median	2.24	1	316	0.14
	Based on Median and with adjusted df	2.24	1	312.30	0.14
	Based on trimmed mean	2.34	1	316	0.13

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

Note: T0 = Time 0; T1 = Time 1; Ded = Dedication.

Table 33

Mauchly's Test of Sphericity for Dedication

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[b]		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Time	1.00	0.00	0	.	1.00	1.00	1.00

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

Table 34

Tests of Within-Subjects Effects for Dedication

		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Time	Sphericity Assumed	0.20	1	0.20	0.65	0.42	0.00
	Greenhouse-Geisser	0.20	1	0.20	0.65	0.42	0.00
	Huynh-Feldt	0.20	1	.020	0.65	0.42	0.00
	Lower-bound	0.20	1	0.20	0.65	0.42	0.00
Time * Group	Sphericity Assumed	0.04	1	0.04	0.13	0.72	0.00
	Greenhouse-Geisser	0.04	1	0.04	0.13	0.72	0.00
	Huynh-Feldt	0.04	1	0.04	0.13	0.72	0.00
	Lower-bound	0.04	1	0.04	0.13	0.72	0.00
Error (Time)	Sphericity Assumed	96.14	316	0.30			
	Greenhouse-Geisser	96.14	316	0.30			
	Huynh-Feldt	96.14	316	0.30			
	Lower-bound	96.14	316	0.30			

Table 35

Tests of Between-Subjects Effects for Dedication

	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	14797.07	1	14797.08	6517.31	<.001	0.95
Group	0.35	1	0.35	0.15	0.70	0.00
Error	717.46	316	2.27			

Absorption

There was homogeneity of variances ($p > 0.05$) and covariances ($p > 0.001$) as assessed by Box's M test and Levene's test of homogeneity of variances, respectively (See Tables 36 and 37). Since the current study only included two within-subject factor categories, Mauchly's test of sphericity was assumed to have been met (See Table 38). There was no statistically significant interaction between the intervention and time on absorption, $F(1, 317) = 0.02$, $p > 0.05$, partial $\eta^2 = 0.00$ (See Table 39). This is further displayed in the profile plot (See Figure 38 in Appendix P). Whilst the profile plot represents change, the magnitude of the change was not sufficient enough to reach a level of significance.

The main effect of time showed no statistically significant difference between time zero and time one, $F(1, 317) = 2.73$, $p > 0.05$, partial $\eta^2 = 0.01$ (See Table 39). The main effect of group showed that there was no statistically significant difference in mean scores of absorption between intervention times, $F(1, 317) = 2.37$, $p > 0.05$, partial $\eta^2 = 0.01$ (See Table 40).

Table 36

Box's M Test of Equality of Covariance Matrices for Absorption

Box's M	2.33
F	0.77
df1	3.00
df2	21951078.68
Sig.	0.51

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

Table 37

Levene's Test of Equality of Error Variances for Absorption

		Levene Statistic	df1	df2	Sig.
T0_Abs_Average	Based on Mean	2.38	1	316	0.12
	Based on Median	2.29	1	316	0.13
	Based on Median and with adjusted df	2.29	1	315.81	0.13
	Based on trimmed mean	2.35	1	316	0.13
T1_Abs_Average	Based on Mean	0.06	1	316	0.81
	Based on Median	0.06	1	316	0.81
	Based on Median and with adjusted df	0.06	1	314.56	0.81
	Based on trimmed mean	0.07	1	316	0.79

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

Note: T0 = Time 0; T1 = Time 1; Abs = Absorption.

Table 38

Mauchly's Test of Sphericity for Absorption

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[b]		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Time	1	0.00	0	.	1	1	1

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

Table 39

Tests of Within-Subjects Effects for Absorption

		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Time	Sphericity Assumed	1.25	1	1.25	2.73	0.10	0.01
	Greenhouse-Geisser	1.25	1	1.25	2.73	0.10	0.01
	Huynh-Feldt	1.25	1	1.25	2.73	0.10	0.01
	Lower-bound	1.25	1	1.25	2.73	0.10	0.01
Time * Group	Sphericity Assumed	0.01	1	0.01	0.02	0.90	0.00
	Greenhouse-Geisser	0.01	1	0.01	0.02	0.90	0.00
	Huynh-Feldt	0.01	1	0.01	0.02	0.90	0.00
	Lower-bound	0.01	1	0.01	0.02	0.90	0.00
Error (Time)	Sphericity Assumed	144.85	316	0.46			
	Greenhouse-Geisser	144.85	316	0.46			
	Huynh-Feldt	144.85	316	0.46			
	Lower-bound	144.85	316	0.46			

Table 40

Tests of Between-Subjects Effects for Absorption

	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	11981.65	1	11981.65	4243.86	<.001	0.93
Group	6.68	1	6.68	2.37	0.13	0.01
Error	892.16	316	2.82			

PsyCap

There was homogeneity of variances ($p > 0.05$) and covariances ($p > 0.001$) as assessed by Box's M test and Levene's test of homogeneity of variances, respectively (See Tables 41 and 42). Since the current study only included two within-subject factor categories, Mauchly's test of sphericity was assumed to have been met (See Table 43). There was no statistically significant interaction between the intervention and time on PsyCap, $F(1, 317) = 0.80$, $p > 0.05$, partial $\eta^2 = 0.00$ (See Table 44). This is further displayed in the profile plot (See Figure 39 in Appendix P). Whilst the profile plot represents change, the magnitude of the change was not sufficient enough to reach a level of significance.

The main effect of time showed a statistically significant difference between time zero and time one, $F(1, 317) = 117.12$, $p < 0.05$, partial $\eta^2 = 0.27$ (See Table 44). As such, the Pairwise Comparisons table was considered, and the mean difference between the two time periods is 0.28, which suggests that there was not much of a positive difference identified between the two time periods (See Table 45). The main effect of group showed that there was no statistically significant difference in mean scores of PsyCap between intervention times, $F(1, 317) = 1.14$, $p > 0.05$, partial $\eta^2 = 0.00$ (See Table 46).

Table 41

Box's M Test of Equality of Covariance Matrices for PsyCap

Box's M	2.40
F	0.79
df1	3.00
df2	22936143.00
Sig.	0.50

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

Table 42

Levene's Test of Equality of Error Variances for PsyCap

		Levene Statistic	df1	df2	Sig.
T0_PsyCap_Average	Based on Mean	0.28	1	317	0.60
	Based on Median	0.34	1	317	0.56
	Based on Median and with adjusted df	0.34	1	316.75	0.56
	Based on trimmed mean	0.26	1	317	0.60
T1_PsyCap_Average	Based on Mean	0.32	1	317	0.57
	Based on Median	0.32	1	317	0.57
	Based on Median and with adjusted df	0.32	1	315.98	0.57
	Based on trimmed mean	0.31	1	317	0.58

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.
Note: T0 = Time 0; T1 = Time 1; PsyCap = Psychological Capital.

Table 43

Mauchly's Test of Sphericity for PsyCap

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.	Epsilon[b]		
					Greenhouse-Geisser	Huynh-Feldt	Lower-bound
Time	1.00	0.00	0.00	.	1.00	1.00	1.00

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

Table 44

Tests of Within-Subjects Effects for PsyCap

		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Time	Sphericity Assumed	12.79	1	12.79	117.12	<.001	0.27
	Greenhouse-Geisser	12.79	1	12.79	117.12	<.001	0.27
	Huynh-Feldt	12.79	1	12.79	117.12	<.001	0.27
	Lower-bound	12.79	1	12.79	117.12	<.001	0.27
Time * Group	Sphericity Assumed	0.09	1	0.09	0.80	0.37	0.00
	Greenhouse-Geisser	0.09	1	0.09	0.80	0.37	0.00
	Huynh-Feldt	0.09	1	0.09	0.80	0.37	0.00
	Lower-bound	0.09	1	0.09	0.80	0.37	0.00
Error (Time)	Sphericity Assumed	34.62	317	0.11			
	Greenhouse-Geisser	34.62	317	0.11			
	Huynh-Feldt	34.62	317	0.11			
	Lower-bound	34.62	317	0.11			

Table 45

Pairwise Comparisons for PsyCap

(I) Time	(J) Time	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
1	**2**	-0.28*	0.03	<.001	-0.34	-0.23
2	**1**	0.28*	0.03	<.001	0.23	0.34

Based on estimated marginal means.

*. The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Bonferroni.

Table 46

Tests of Between-Subjects Effects for PsyCap

	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	11378.40	1	11378.40	14398.98	<.001	0.98
Group	0.45	1	0.45	0.57	0.45	0.00
Error	250.50	317	0.79			

Conclusion

Accounting for the results presented above, it was concluded that there is evidence of a significant relationship between PsyCap and engagement (i.e., vigour, dedication, and absorption). However, there is no evidence that the PsyCap intervention under study has a significant effect on the PsyCap and academic engagement scores amongst first-year university students. In the chapter that follows, implications of the current study's findings in relation to previous literature will be discussed.

Chapter 5: Discussion

Introduction

This study sought to examine the relationship between PsyCap and academic engagement by assessing the extent to which PsyCap is related to academic engagement amongst first-year university students. By building upon previous research of PsyCap and academic engagement, this study aimed to add to the existing body of literature by testing whether a proposed intervention had any impact upon the level of PsyCap and academic engagement experienced amongst this target audience. This investigation is relevant and important due to the paradoxical nature of the student experience. While often characterised by empowerment, learning and adventure, it is also frequently marked by significant pressure, anxiety, and strain. This has been known to limit engagement and performance levels and increase the risk of university-wide dropouts. The following chapter will discuss the findings of the study in relation to the insights provided by existing literature. It includes a discussion of the implications for theory and practice, as well as the limitations of the study. This chapter will conclude with a few directions for future research.

Overall Discussion of Findings

The results depict that PsyCap is closely related to how engaged first-year students are in their studies. Specifically, students with higher levels of PsyCap tend to show more energy and enthusiasm (vigour), stronger commitment (dedication), and deeper absorption in their learning (absorption). However, and interestingly, the results indicate that the proposed PsyCap intervention did not have a significant impact on the students' levels of vigour, dedication, and absorption over time. Despite some observed changes over time in measures of vigour and PsyCap, these changes were not statistically significant, indicating that they were possibly due to the intrinsic challenges (e.g., variations in access to resources and wealth levels) associated with developing an online intervention in the South African context

rather than the intervention itself. Additionally, there were no significant differences between the intervention and comparison groups, suggesting that the intervention did not lead to noticeable improvements compared to students who did not receive the intervention. Thus, the study suggests that the proposed PsyCap intervention may not be effective in enhancing academic engagement and psychological capital as intended.

Relationship between PsyCap and Academic Engagement

The current study explored the potential relationship between PsyCap and academic engagement (i.e., vigour, dedication, and absorption), and the results were conclusive. Firstly, PsyCap was significantly and positively related to vigour at both time zero and time one in the study, indicating that PsyCap plays a role in shaping the level of energy and enthusiasm that students invest in their studies. Similarly, PsyCap was significantly and positively related to dedication at both time zero and time one in the study, indicating that students with higher levels of PsyCap tend to be more strongly dedicated to their academic endeavours. PsyCap was also significantly and positively related to absorption at both time zero and time one in the study, indicating that students with higher levels of PsyCap tend to be more deeply absorbed in their academic learning. Thus, these findings indicate that PsyCap is closely linked to how engaged students are in their studies.

The current study's findings provide sufficient evidence for the relationship between PsyCap and academic engagement. These findings are consistent with previous research (Jafri, 2017; Salanova et al., 2010; Siu et al., 2013). Notably, You's (2016) study illustrated that PsyCap cultivates an individual's drive for learning, consequently augmenting their engagement in the learning process. This further supports the fact that interventions aimed at enhancing PsyCap have shown promising results, supporting the developmental nature of this

construct and its potential to improve student engagement and performance (Ertosun et al., 2015; Luthans et al., 2014).

As outlined in the literature review, PsyCap, conceptualized as a higher-order construct, encompasses four key psychological capacities: Self-efficacy, hope, optimism, and resilience (Luthans et al., 2007). Although it is advised to examine these components collectively because of their synergistic impact when combined, previous studies undertaken have shown evidence of the association between each individual component and academic engagement. For example, self-efficacy has been consistently identified as a significant predictor of academic performance, with meta-analyses confirming its robust relationship with academic achievement and engagement (Chemers et al., 2001; Fredricks et al., 2004; Greene et al., 2004; Stajkovic & Luthans, 1998; Valentine et al., 2004; Walker et al., 2006). Furthermore, the quality of students' engagement has been consistently correlated with the amount of effort and persistence (i.e. key components of efficacy) they put into their learning (e.g. Fredricks et al., 2004; Greene et al., 2004; Walker et al., 2006). Similarly, optimism has been associated with academic success, with optimists consistently outperforming pessimists in various academic settings (Ruthig et al., 2004; Solberg et al., 2009; Valentine et al., 2004).

Historically, studies on hope have demonstrated strong predictive power in academic performance and student outcomes (Snyder et al., 1991). As mentioned previously, students with higher levels of hope exhibit greater effort, persistence, and perseverance in their academic pursuits (Pajares, 1996; Zeldin and Pajares, 2000; Zimmerman et al., 1992). Similarly, much research has illustrated that students with higher levels of resilience exhibit stronger academic engagement because they tend to 'push through' any difficulties and

failures encountered during their studies (Fredricks et al., 2004; Martin & Marsh, 2008; Valentine, DuBois, & Cooper, 2004).

Impact of the Proposed PsyCap Intervention

PsyCap Intervention and Engagement (i.e., vigour, dedication, and absorption). The PsyCap intervention yielded insignificant effects on students' levels of vigour, dedication, and absorption. Despite observing a slight difference in vigour levels post-intervention, the mean difference was deemed negligible and could be owed to chance alone. Similarly, no significant changes were noted over time or between intervention and comparison groups for dedication or absorption. Overall, the PsyCap intervention did not demonstrate a substantial impact on enhancing these aspects of student engagement.

PsyCap Intervention and Psychological Capital. Similarly, the PsyCap intervention yielded no significant impact on students' psychological capital over time. Despite a significant difference observed between initial (time zero) and post-intervention (time 1) psychological capital levels, the mean difference was deemed negligible and likely attributable to chance alone. Overall, the intervention failed to produce a discernible difference in psychological capital compared to the comparison group.

The current study's findings indicate that the proposed PsyCap intervention did not have a significant impact upon the students' measure of psychological capital or engagement (i.e., vigour, dedication, and absorption) over time. Reasons for this will be outlined in full in the limitations section. Nevertheless, while the suggested intervention did not yield the desired results, its lack of effectiveness does not imply that intervening in this area is without merit. Historically, previous experimental studies have revealed that PsyCap can indeed be

developed, and that change is achieved through short training interventions similar to this study's proposed intervention (Conley et al., 2013; Dello Russo & Stoykova, 2015; Demerouti et al., 2011; Luthans et al., 2007; 2010; 2012; 2016). As mentioned in the literature review, this includes Luthans and colleagues' (2006) original prototype for Psychological Capital Interventions (PCI's), which was successful in this regard.

Additionally, previous studies have illustrated that PsyCap's dimensions can be developed through different intervention types. Specifically, *hope* can be nurtured through targeted strategies designed to empower individuals in surmounting challenges and pursuing their goals with confidence (Luthans et al., 2012; Youssef-Morgan & Dahms, 2016). *Optimism* can be enhanced through cognitive and behavioural practices (e.g., employing positive self-affirmations, engaging in cognitive restructuring, and practicing gratitude and appreciation) (Carver et al., 2010; Lyubomirsky et al., 2005; Schneider, 2001; Seligman, 2006). *Self-efficacy* can be developed through engaging in mastery experiences, participating in vicarious learning/modelling, and encouraging moments of self-reflection (Luthans et al., 2012; Newman et al., 2018; Stajkovic et al., 2018; Zimmerman, 2000). *Resilience* can be nurtured through building social support networks, developing problem-solving skills, and finding meaning and purpose in difficult experiences (Compas et al., 2001; Masten & Obradović, 2006; Park et al., 2008). These findings are consistent with the literature that states that PsyCap is a developable state-like psychological resource (Luthans & Youssef, 2004). Thus, even though the results from the current study were non-conclusive, developing these psychological capacities remains a worthwhile investment, particularly within the student-university context.

Implications for Theory

The current study's findings align with two prominent theoretical frameworks: The JD-R model and the COR theory. These frameworks offer complementary perspectives on the role of PsyCap in fostering academic engagement within the student-university context.

The JD-R model. The current study's findings are in harmony with the literature on the Job Demands-Resources (JD-R) model; a widely recognized framework for understanding well-being and stress in the workplace (Demerouti et al., 2001; Halbesleben & Demerouti, 2005; Schaufeli & Bakker, 2004; Xanthopoulou et al., 2007). In the academic context, the JD-R model emphasises that student engagement is directly influenced by the delicate balance between academic demands and available resources (Bakker & Demerouti, 2017). This study's findings resonate with this model by highlighting PsyCap as a critical personal resource that empowers students to effectively navigate academic challenges and demands. The positive association between PsyCap and academic engagement (i.e., vigour, dedication, and absorption) further emphasises the role of personal resources in enhancing students' ability to cope with challenges. Specifically, the study supports the 'motivation process' within the JD-R model, demonstrating how access to personal resources like PsyCap can fuel engagement by helping individuals meet their needs and achieve their goals (Bakker & Leiter, 2010; Luthans et al., 2016; Shaufeli et al., 2019).

The COR theory. The COR theory further supports the relationship between personal resources and engagement by emphasising individuals' drive to acquire, retain, and protect valuable resources to prevent resource loss (Akhtar & Lee, 2010; Hobfoll, 2002). According to the COR theory, individuals strive to obtain and maintain resources that are instrumental for achieving their goals and well-being. This study's findings suggest that PsyCap, as a

valuable psychological resource, is associated with students' ability to manage academic demands and sustain engagement over time. While the study did not definitively establish a cumulative aspect over time due to non-significant results, the findings nonetheless support the COR theory's emphasis on 'resource gain cycles,' where the accumulation and maintenance of resources like PsyCap contribute to enhanced student well-being and stronger academic engagement (Hobfoll, 2002).

Thus, this study aligns with both the JD-R model and COR theory by demonstrating how PsyCap, as a personal resource, is associated with higher levels of academic engagement. This heightened engagement increases the likelihood that students will invest more effort into their studies and excel in their academic endeavours, suggesting that interventions aimed at fostering PsyCap hold significant promise for improving academic performance and overall success.

Implications for Practice

Findings from the current study provide an opportunity for researchers and universities to explore strategies that address both student engagement and PsyCap within a university setting. This would involve a thorough consideration of practical methods for fostering PsyCap development using various delivery modes, aimed at enhancing academic engagement within the university environment.

As discussed in the literature review, the benefits of academic engagement may include higher levels of curiosity and interest, enhanced motivation, improved academic performance, and a boost in life satisfaction (Ayala & Manzano, 2018; Kuh et al., 2008; Luthans et al., 2016; You, 2016). Accordingly, high levels of academic engagement have

been shown to ameliorate common academic stressors amongst students (e.g., academic workload, financial pressures, familial expectations etc.), which are often primary causes of high drop-out rates and attrition in universities, particularly within the South African context (Beiter et al., 2015; Karaman et al., 2019; Misra & Castillo, 2004; Yang & Farn, 2005).

Recognising prevalent academic stressors encountered by students in their university environment can inform the design of interventions aimed at alleviating these stressors and promoting student well-being. Universities can utilize established scales like the Utrecht Work Engagement Scale for Students (UWES-S) to measure the level of engagement (i.e., vigour, dedication, and absorption) that students experience in their academic activities (Shaufeli et al., 2002). Therefore, the data collected through these kinds of instruments can serve as a foundation for implementing targeted interventions. These interventions, functioning as academic support mechanisms, have the potential to foster academic engagement, and ultimately enhance academic outcomes such as improved student performance and productivity.

Numerous studies have shown that PsyCap is a useful personal resource that may foster academic engagement (Luthans et al., 2016; Gan et al., 2007 as cited in Providas, 2016; Schaufeli et al., 2002 as cited in Providas, 2016; Zhang et al., 2007 as cited in Providas, 2016). Thus, it may be useful for universities to invest in ways to assist students in creating and building robust ‘resource caravans’ (Hobfoll, 2002, p. 312). As explored in the literature review, the components of PsyCap (namely self-efficacy, hope, resilience, and optimism) are characterised as state-like, indicating their capacity for change and growth. Consequently, by implementing suitable interventions, universities can facilitate the cultivation and

enhancement of PsyCap among students, thereby fostering higher levels of engagement (Luthans et al., 2016).

Previous studies confirm that PsyCap can be developed, and that change is achieved through short training interventions similar to this study's proposed intervention (Conley et al., 2013; Demerouti et al., 2011; Luthans et al., 2007; 2010; 2012; 2016). Thus, one possible way of developing PsyCap in students involves implementing web-based training programs accessible through university online portals. These programs can incorporate multiple interactive elements, including mentorship components, presentations, videos, activities, and self-reflection exercises designed to coach, reinforce, and nurture the key components of PsyCap. Through interactions with mentors, students can receive tailored advice, gain insight from real-world experiences, and build meaningful connections that foster their engagement and growth. Additionally, incorporating multimedia elements can offer students opportunities for experiential learning, enabling them to gain the skills necessary to flourish in their academic endeavours.

Importantly, by offering online training interventions, universities can cater to the preferences of 21st-century students, who often favour online platforms for knowledge acquisition. Additionally, the accessibility and flexibility of web-based training make it convenient for students to participate at their own pace and on their own schedule, maximizing its effectiveness as a developmental tool. However, it would still be crucial to consider the significant digital disparity present in South Africa (Karaman et al., 2019). Face-to-face interventions may still need to be offered to prevent less privileged students from being excluded from the process.

Limitations of Current Study and Directions for Future Research

It is essential to engage in a discussion concerning the limitations of the present study and outline potential avenues for future research. This practice contextualizes the results and contributes to establishing the validity and credibility of the findings.

Firstly, the efficacy of the intervention might have been compromised due to factors beyond the researcher's control, particularly the environment in which the students engaged with the intervention. While participants were advised to undertake the intervention in a distraction-free setting conducive to concentration, the researcher had no control over this aspect. Consequently, some participants may have found themselves in noisy or highly distracting environments, hampering their ability to engage effectively. Furthermore, although students were encouraged to use devices with adequate visual and audio capabilities, the researcher had no means to enforce this recommendation. As a result, variations in the quality of devices could have hindered students' ability to fully perceive, comprehend, and engage with the intervention requirements.

In a similar light, the efficacy of the intervention might have been compromised due to the Hawthorne effect, which implies a "change in behaviour as a motivational response to the interest, care, or attention received through observation and assessment" (Sedgwick & Greenwood, 2015, p. 1). Thus, as a consequence of being conscious of being observed or examined, participants may have altered their behaviour, potentially impacting the intervention results. Specifically, since the participants knew that the researcher had their student numbers recorded along with their questionnaire submissions, participants may have been more inclined to adhere to the intervention or provide socially desirable responses

knowing they were part of a research study, potentially affecting the outcomes. Thus, a more rigorous design that is able to control for these issues may be useful going forward.

A potential limitation of the current study lies in the identified sample size. Specifically, the study's sample size (N = 319) may be deemed insufficient for generalizing the findings to the broader population of South African university students. While the sample exhibited diversity in terms of race, faculty registration, and home language, which holds significance for South African research, limitations persist regarding the generalizability of the findings. Specifically, with 87.1% of the sample consisting of students from the Humanities faculty, the applicability of the results is confined to that particular demographic. Additionally, the substantial overrepresentation of females in the sample (81.2%) compared to males (16.6%) mirrors the gender distribution commonly observed in Humanities classes, potentially limiting the generalizability to female-dominated groups. This, however, excludes male-dominated student cohorts such as those in engineering or science disciplines. Thus, enhancing the representativeness of the sample concerning gender, faculty registration, and academic year could broaden the applicability of the study's findings to a more diverse range of student populations.

Another noteworthy limitation pertains to the sampling strategy employed in the current study, namely non-probability convenience sampling, which may exacerbate volunteer bias effects. This arises from the likelihood that only students predisposed to participation, particularly those more willing, chose to engage in the research process (Rosnow & Rosenthal, 2005). Although the sample was gathered in a haphazard and convenient manner, this approach inherently restricts the generalizability of the study's findings. Additionally, the reliance on convenience sampling raises concerns about the representativeness of the sample,

as it may not accurately reflect the broader population of university students. Therefore, caution should be exercised when extrapolating the results to other student cohorts or academic contexts.

Moreover, the study's reliance on a sample from a singular institution: The University of the Witwatersrand, constrains the applicability of its findings to a broader context. To enhance the generalizability of future research, it is advisable to employ random sampling techniques and recruit participants from multiple universities across South Africa. By adopting this approach, subsequent studies can yield more robust and representative results that are applicable to a larger and more diverse student population (Burns & Burns, 2008).

Additionally, the current study was classified as longitudinal in nature, meaning that data was collected over a certain period of time (Schaie, 1983). While longitudinal studies offer valuable insights into causal relationships, they are not without their difficulties. Longitudinal studies require substantial time and resources, as they involve collecting data from the same participants over an extended period of time. This can lead to issues such as participant attrition, where individuals may drop out of the study, potentially biasing the results (Schaie, 1983). Additionally, the length of the study period may introduce external factors that could confound the results, making it challenging to isolate the effects of the variables under investigation (Schaie, 1983). In the current study, the time period between the interventions spanned one week. This raises concerns about the adequacy of reflection time to discern robust conclusions regarding the efficacy of the proposed intervention. Additionally, while some aspects of PsyCap, such as self-efficacy and hope, can be enhanced through short-term interventions, the cultivation of resilience and optimism may require longer-term efforts

(Avey et al., 2011; Luthans et al., 2007). Thus, it is advisable for future research to explore an extension of this investigation time.

The reliance on self-report measures in this study presents another limitation. By employing self-report measures, the study opens itself to the possibility of common methods bias, which could have impacted the obtained results. This bias arises when the same method is used to measure both the predictor and outcome variables, potentially inflating the association between them (Friedman, 2014; Kamakura, 2011). In this case, the variables were assessed using multiple-item scales within a single questionnaire, a setup that may inadvertently introduce false effects attributable to the measurement instruments rather than the constructs themselves.

Furthermore, studies conducted in South Africa employing the PCQ-24 as a measurement tool have yielded inconsistent findings regarding the structure of PsyCap within the South African context (Brouze, 2013; du Plessis & Barkhuizen, 2012; Pillay, 2012). These findings suggest that South African individuals may interpret PsyCap differently compared to participants in the cited American studies. Consequently, future research is encouraged to undertake comprehensive psychometric analyses of the PCQ-24 measurement model within the South African context, particularly within the student-university context. This would provide valuable insights into the cultural nuances and contextual factors influencing the conceptualization and measurement of PsyCap among South African students.

Another limitation of the current study is the fact that first-year Psychology students were awarded an additional 1% towards their final semester mark as a reward for participation in the current study. Although this aligns with departmental policy, such an incentive may be

perceived as a form of coercion or inducement, potentially affecting the sincerity and accuracy of participants' responses. For instance, participants might rush through the questionnaire to secure the additional 1%, leading to incomplete or insincere responses. Additionally, the researcher had no way of tracking which students promptly logged on and logged off the online platform solely to receive the 1% credit. Consequently, the data collected from these questionnaires may be less reliable, representative, and meaningful, thereby negatively impacting the study's outcomes. To mitigate these effects, one approach is to refrain from offering additional marks to Psychology students altogether or to inform students about the extra marks only after they have completed and submitted the questionnaires to the researcher.

Touching on directions for future research, the data collection process could benefit from a mixed-methods approach. Supplementing quantitative data with short interviews, focus groups, and open-ended questions could provide deeper insights into participants' experiences and clarify their quantitative responses. Additionally, it would be valuable to compare the effectiveness of the current web-based (online) intervention with traditional face-to-face classroom or training interventions. This comparative analysis could shed light on which type of intervention yields superior outcomes and under what circumstances. Furthermore, considering the prevalent digital divide in South Africa, it is imperative for future researchers to contemplate employing face-to-face interventions. This approach would ensure inclusivity, enabling participation across the entire spectrum of the student population, thus mitigating the risk of exclusion.

Conclusion

By highlighting the importance of personal resources such as PsyCap in shaping students' engagement with their academic pursuits, this research offers valuable insights for educators, policymakers, and practitioners aiming to promote student success in tertiary education settings. Such findings highlight the need for universities to create supportive and well-resourced academic environments, free from excessive demands. Therefore, universities should strongly consider implementing interventions that develop PsyCap as a personal psychological resource as a means of fostering academic engagement amongst their students.

Chapter 6: Conclusion

The purpose of the current study was to examine whether a micro psychological capital (PsyCap) intervention had an effect upon the levels of academic engagement (i.e., vigour, dedication, and absorption) experienced by first-year university students. This was investigated within a South African university context.

A number of studies have explored the association between PsyCap and academic engagement in both workplace and student-university contexts. Specifically, studies have supported the positive role that PsyCap interventions play in fostering individual engagement within these contexts. However, while these topics have been thoroughly researched, few studies have considered the relationship between PsyCap and academic engagement amongst first-year university student populations. Therefore, the current study aimed to address this gap in the literature.

The primary contribution of this study enriches the existing literature concerning PsyCap and academic engagement by confirming a positive association between these variables. Specifically, the study revealed that students with higher levels of PsyCap tend to show more energy and enthusiasm (vigour), stronger commitment (dedication), and deeper absorption in their learning (absorption). These findings align with the theoretical assumptions of the Job Demands-Resources (JD-R) model and Conservation of Resources (COR) theory, further strengthening their theoretical underpinnings.

The current study, however, did not uncover evidence supporting the anticipated impact of the proposed PsyCap intervention on the students' levels of vigour, dedication, and absorption over time. These results were unexpected considering past research trends but could be attributed to the intrinsic challenges (e.g., variations in access to resources and

wealth levels) associated with developing an online intervention in the South African context rather than the intervention itself. This specific outcome does not, however, invalidate prior experimental studies that have demonstrated the effectiveness of PsyCap interventions in enhancing academic engagement amongst university students.

Future research should strongly consider repeating the proposed PsyCap intervention using a more robust methodology that addresses the aforementioned limitations of the study's design (e.g., controlling environmental variables, embracing a mixed-methods approach, using larger and more representative samples etc.). This field of inquiry is valuable because enhancing students' academic engagement carries profound implications. Not only does it hold the potential to bolster students' performance and productivity, but it is also able to significantly reduce dropout and attrition rates within universities. Therefore, investing in this line of research has the potential to advance academic knowledge and practically support student success and retention in tertiary institutions.

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Appendix A: Ethical Clearance Certificate

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

SCHOOL OF HUMAN AND COMMUNITY DEVELOPMENT ETHICS COMMITTEE
CONSTITUTED UNDER THE UNIVERSITY HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)

CLEARANCE CERTIFICATE:	**PROTOCOL NUMBER: MAORG/22/14**
PROJECT TITLE:	The Impact of a Psychological Capital Micro-Intervention on Academic Engagement within a Student-University Context.
INVESTIGATOR	Passos Monique (1894274)
SCHOOL/DEPARTMENT OF INVESTIGATOR	SHCD/Psychology
DATE CONSIDERED	13 July 2022
DECISION OF THE COMMITTEE	Approved unconditionally
RISK LEVEL	Low Risk
EXPIRY DATE	31 December 2024

ISSUE DATE OF CERTIFICATE 11 August 2022 **CHAIRPERSON** K Milner
(Prof. Karen Milner)

cc: Mr Ian Siemers (Supervisor)

DECLARATION OF INVESTIGATOR

To be completed in duplicate and **ONE COPY** returned to the Chairperson of the School/Department ethics committee.

I fully understand the conditions under which I am are authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee.

Signature **Date** 07 / 09 / 2022

Appendix B: Letter Requesting Access to Student Sample

Psychology
School of Human & Community Development
University of the Witwatersrand
Private Bag 3, WITS, 2050
Tel: (011) 717 4500 Fax: (011) 717 4559

To whom it may concern:

Dear [title/s and name/s to be inserted],

My name is Monique Passos and I am conducting research for the purpose of obtaining a Master's Degree in Organisational Psychology at the University of the Witwatersrand. As part of this degree, I am required to conduct research and subsequently present a research report on the findings obtained. My research concerns itself with the notion of academic engagement and psychological capital (PsyCap) within a university context.

More specifically, I aim to explore whether a micro PsyCap intervention has an effect upon the academic engagement experienced by first-year university students. Within the higher education sector, it seems imperative to acknowledge that individual factors (e.g. levels of academic engagement & personal resources) contribute to the success or failure of students at university. Therefore, my research will examine whether a micro PsyCap intervention will help build these individual factors and thus contribute to academic success or failure within a South African university context. This will provide greater insight into South Africa's unique tertiary environments and evidence that may be utilised in developing and initiating programs and interventions to promote higher levels of academic engagement and success amongst first-year university students.

I am requesting permission to conduct my research in your department among first-year students who have access to the Internet and a suitable electronic device.

Participation in this research will involve students participating in two separate interventions and accessing and completing certain electronic questionnaires made available to them via Google Forms before and after each intervention is complete. Each intervention will run for approximately sixty minutes in length and each questionnaire will take approximately 15-20 minutes to complete. Participation is strictly voluntary in nature and participants have the right to withdraw from this study while filling in the questionnaire or prior to final submission of the questionnaire without any repercussions. Informed consent will be obtained by providing participants with a participant information sheet which will inform them about the study, as well as through completion and submission of a consent form. Slight harm or foreseeable risks might be experienced by any individual who chooses to participate since there is a slight risk posed by creating a situation whereby participants are required to reflect directly on their feelings and experiences during the intervention process. In this regard, should participants wish to pursue further information or feel at all concerned about their participation in the study, then relevant sources of student support are made readily available at the end of this letter. Additionally, Psychology students in their first year of study will receive a 1% addition to their

final mark as a reward for participation. Therefore, those that do receive this 1% addition will be considered advantaged by their participation; this is nonetheless in accordance with departmental policy.

Anonymity cannot be fully assured in this study since the nature of each intervention compromises the identity of each participant, and I will initially require student numbers. These student numbers are required so as to be able to identify those who will receive a 1% addition to their final marks (i.e. first year Psychology students) as a reward for participating in the study; and for the purpose of matching students with the data they provide. However, these student numbers will be removed from the final data set and replaced with unidentifiable participant numbers. This will guarantee confidentiality, which will be further maintained by the fact that only my supervisor and I will have access to the data. Furthermore, responses will only be looked at in relation to all other responses. All collected data will be stored in a secure and safe password-protected electronic location and will be destroyed immediately once the study is complete and feedback has been distributed.

Feedback will be given in the form of a summary of the overall findings posted to the uLwazi site for students to access. In case this site is not active by the time the findings are made available, participants are welcome to contact the researcher and/or supervisor directly for a copy of the research findings. This feedback will also be given to the course-co-ordinator of the department. Finally, all participants will be provided with CCDU and Emthonjeni contact details should they feel that they have been affected by the nature of this study in any way. Additionally, any concerns regarding ethical issues in the study can be referred to the Human Research Ethics Committee (non-medical), whose details are listed at the end of this letter.

Your consent to conduct this study would be greatly appreciated. In this respect, a formal letter granting consent for access would be invaluable. Should you have any queries or concerns, please do not be hesitant to contact me or my supervisor. If you would like to discuss any points regarding this research and/or see a copy of my questionnaire, feel free to contact me and we can arrange a meeting at a suitable time.

Warm regards,

Monique Passos

Email: moniquecoimbrap@gmail.com

Supervisor: Ian Siemers

Email: ian.siemers@wits.ac.za

Tel: (011) 717 9999

Contact details:

Counselling and Careers Development Unit: (011) 717 9140; info.ccdu@wits.ac.za

Emthonjeni Centre: (011) 717 4513 (Paballo Lepota)

The Human Research Ethics Committee (non-medical):

(011) 717 1408 (Shaun Schoeman); hrecnon-medical@wits.ac.za

Appendix C: Participant Information Sheet

Psychology
School of Human & Community Development
University of the Witwatersrand
Private Bag 3, WITS, 2050
Tel: (011) 717 4500 Fax: (011) 717 4559

Hello,

My name is Monique Passos and I am conducting research for the purpose of obtaining a Master's Degree in Organisational Psychology at the University of the Witwatersrand. As part of this degree, I am required to conduct research and subsequently present a research report on the findings obtained. My research is about academic engagement and psychological capital (PsyCap) within a university context.

If you are a registered first-year Psychology student and have access to the Internet and a suitable electronic device, I would like to kindly invite you to take part in this research.

Participation in this research will involve you participating in two separate interventions and accessing and completing three sets of electronic questionnaires made available to you via Google Forms before and/or after each intervention is complete. Each intervention will run for approximately sixty minutes in length and each set of questionnaires will take approximately 15-20 minutes to complete.

Participation is strictly voluntary in nature and you have the right to withdraw from this study while filling in the questionnaire or prior to final submission of the questionnaire without any repercussions. Informed consent will be obtained by providing you with this participant information sheet which will inform you about the study, as well as through completion and submission of the attached consent form.

As the study will require you to reflect directly on your feelings and experiences during the intervention process, there is a slight risk that participating in the study may make you feel concerned or anxious about these. If this occurs and you wish to discuss this further and/or if you feel at all concerned about any aspect of participating in the study, you can contact the University of the Witwatersrand Counselling and Career Development Unit (CCDU) or the University of the Witwatersrand Emthonjeni Centre for assistance (contact details are given below).

If you are currently registered for Psychology I (PSYC1009A), then you will be eligible to receive a 1% addition to your final mark as a benefit of participating in the study.

Anonymity cannot be fully assured in this study as participating in the intervention will require contact with other students; I will also initially require your student number so that I can award you the additional 1% (if you are a Psychology I student) and for the purpose of matching the data you provide in the different questionnaires. Your student number will be removed from

the final data set and will be replaced with an unidentifiable participant number. This will guarantee confidentiality, which will be further maintained by the fact that only my supervisor and I will have access to your data. Furthermore, your responses will only be looked at in relation to all other responses. All collected data will be stored in a secure and safe password-protected electronic location and will be destroyed immediately once the study is complete and feedback has been distributed.

Feedback will be given in the form of a summary of the overall findings that will be posted on uLwazi. In case the uLwazi site is not active by the time the findings are made available, you are welcome to contact me and/or my supervisor directly for a copy of the research findings. This feedback will also be given to your course-co-ordinator.

Your consent and participation in this study would be greatly appreciated. Should you have any queries or concerns, please do not hesitate to contact me or my supervisor – our details are listed below. Any concerns regarding ethical issues in the study can also be referred to the Human Research Ethics Committee (non-medical), whose details are also listed below.

Warm regards,

Monique Passos

Email: moniquecoimbrap@gmail.com

Supervisor: Ian Siemers

Email: ian.siemers@wits.ac.za

Tel: (011) 717 9999

Contact details:

Counselling and Careers Development Unit: (011) 717 9140; info.ccdu@wits.ac.za

Emthonjeni Centre: (011) 717 4513 (Paballo Lepota)

The Human Research Ethics Committee (non-medical):

(011) 717 1408 (Shaun Schoeman); hrecnon-medical@wits.ac.za

Appendix D: Demographic Questionnaire

Please answer the questions below by choosing the correct option or filling in the requested information. Please note that the following demographic questions are for statistical purposes only and are in no way meant to cause offence.

1. **What is your student number?**

_____

For the purposes of ensuring that you receive your course credit for participating in this study and matching your data. Please note that student numbers will be removed from the final data set and replaced with unidentifiable participant numbers, so as to ensure your confidentiality.

2. **What is your gender?**

- ☐ Male
- ☐ Female
- ☐ Non-binary
- ☐ Other (*please specify*)

_____

3. **What is your age?**

_____ years old

4. **Which race/ethnicity best describes you?**

- ☐ Black
- ☐ White
- ☐ Coloured
- ☐ Indian
- ☐ Asian
- ☐ Other (*please specify*)

_____

5. What is your home language?

- Afrikaans
- English
- IsiNdebele
- IsiXhosa
- IsiZulu
- Sepedi
- Sesotho
- Setswana
- SiSwati
- Tshivenda
- Xitsonga
- Other (*please specify*)

_____

6. With which faculty are you registered?

- Humanities
- Health Science
- Engineering and the Built Environment
- Science
- Commerce, Law, and Management

7. Are you a full-time or part-time student?

- Part-time
- Full-time

8. Does your current work environment allow you to concentrate on the activities you are completing?

- Yes
- No

9. Do you have few distractions around you?

- Yes
- No

10. Is your current work environment noisy and distracting?

- Yes
- No

11. What device are you using to complete this activity?

- Laptop
- Smartphone
- Desktop
- Tablet
- Other (*please specify*)

_____

12. Is the sound quality on your device sufficient for this activity?

- Yes
- No

13. Is your device sufficient to complete all the activities required?

- Yes
- No

Appendix E: Environmental Questionnaire

Please answer the questions below by choosing the correct option or filling in the requested information. The purpose of this questionnaire is to register your attendance and participation in this tutorial and gain some insight into your current work environment.

1. What is your student number?

_____

For the purposes of ensuring that you receive your course credit for participating in this study and matching your data. Please note that student numbers will be removed from the final data set and replaced with unidentifiable participant numbers, so as to ensure your confidentiality.

Below are a series of statements that describe your current work environment. Use the following scales to indicate your level of agreement or disagreement with the first five statements, where *1 = Strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.*

1. My current work environment allows me to concentrate on the activities I am completing.
2. I have few distractions around me.
3. My current work environment is noisy and distracting.
4. The sound quality on my device is sufficient for this activity.
5. The device I am using for this activity is sufficient to complete all the activities required.

2. Which device are you using to complete this activity?

- ☐ Laptop
- ☐ Smartphone
- ☐ Desktop
- ☐ Tablet
- ☐ Other (*please specify*)

_____

Appendix F: Consent Form

I have read and understand the information provided in the participant information sheet and have had the opportunity to ask any questions and/or express any concerns about the study.

I understand that my participation is voluntary and that I am free to withdraw at any time up to the point when I submit each set of questionnaires.

By signing this consent form, I hereby consent to the conditions of the study as outlined in the participant information sheet.

Participant's Signature: _____ Date: _____

Appendix G: Utrecht Work Engagement Scale-Student (UWES-S)

Please indicate the extent to which you agree or disagree with the following statements, where *1 = Strongly disagree, 2 = moderately disagree, 3 = slightly disagree, 4 = neutral, 5 = slightly agree, 6 = moderately agree, 7 = strongly agree.*

1. When I am studying, I feel mentally strong.
2. I find my studies to be full of meaning and purpose.
3. Time flies when I am studying.
4. I can continue studying for a very long time.
5. My studies inspire me.
6. When I am studying, I forget everything else around me.
7. When I study, I feel like I am bursting with energy.
8. I am enthusiastic about my studies.
9. When studying, I feel strong and vigorous.
10. I am proud of my studies.
11. I feel happy when I am studying intensively.
12. When I get up in the morning, I feel like going to class.
13. I find my studies challenging.
14. I can get carried away by my studies.

Appendix H: Psychological Capital Questionnaire (PCQ-24)

Below are a series of statements that describe how you may think about yourself right now. Use the following scales to indicate your level of agreement or disagreement with each statement, where *1 = Strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = somewhat agree, 5 = agree, 6 = strongly agree.*

1. I feel confident analysing a long-term problem to find a solution.
2. I feel confident representing my university work in a meeting with my lecturer.
3. I feel confident contributing to discussions during a university lecture.

Appendix I: Permission to Use PCQ-24 Scale

mind garden

www.mindgarden.com

To Whom It May Concern,

The above-named person has made a license purchase from Mind Garden, Inc. and has permission to administer the following copyrighted instrument up to that quantity purchased:

Psychological Capital Questionnaire

The three sample items only from this instrument as specified below may be included in your thesis or dissertation. Any other use must receive prior written permission from Mind Garden. The entire instrument form may not be included or reproduced at any time in any other published material. Please understand that disclosing more than we have authorized will compromise the integrity and value of the test.

Citation of the instrument must include the applicable copyright statement listed below.
Sample Items:

Self-Rater Form :

I feel confident analyzing a long-term problem to find a solution.

If I should find myself in a jam at work, I could think of many ways to get out of it.

When I have a setback at work, I have trouble recovering from it, moving on.

Other Rater Form:

This person feels confident analyzing a long-term problem to find a solution.

If this person should find him/herself in a jam at work, he/she could think of many ways to get out of it.

When this person has a setback at work, he/she has trouble recovering from it, moving on.

Sincerely,

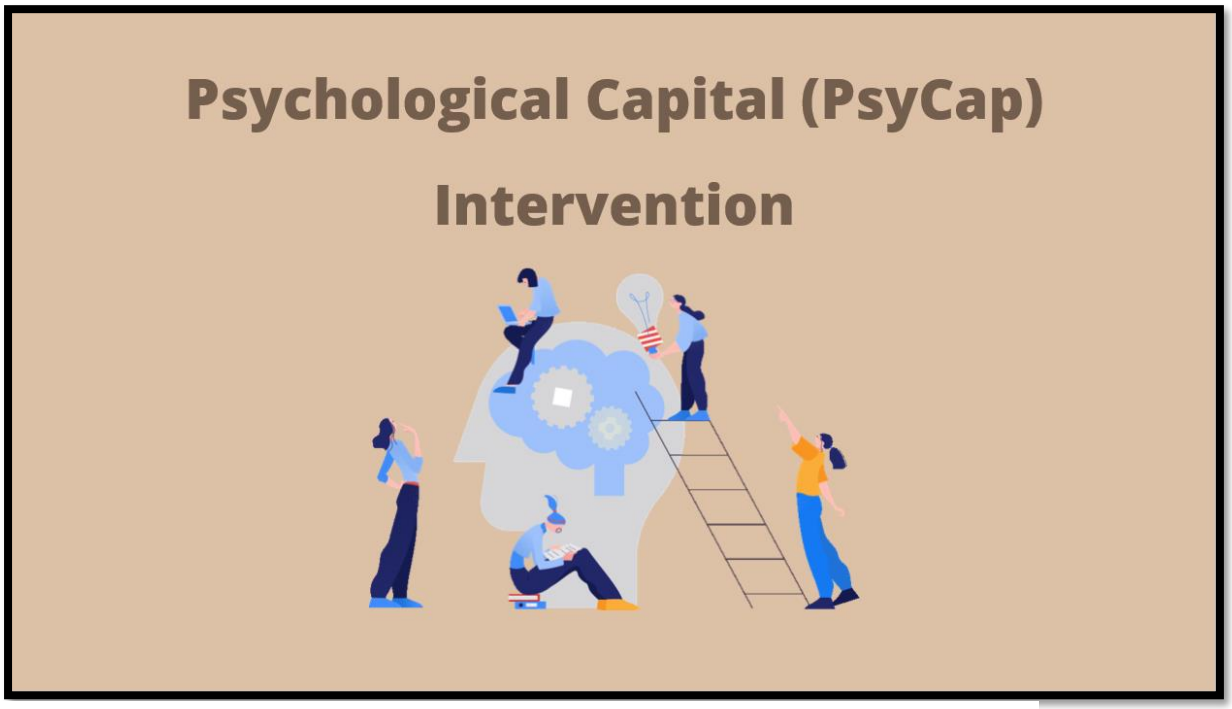
Robert Most
Mind Garden, Inc.
www.mindgarden.com

Appendix J: Turnitin Report

ORIGINALITY REPORT

33%	30%	19%	%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

Appendix K: Psychological Capital Intervention Presentation



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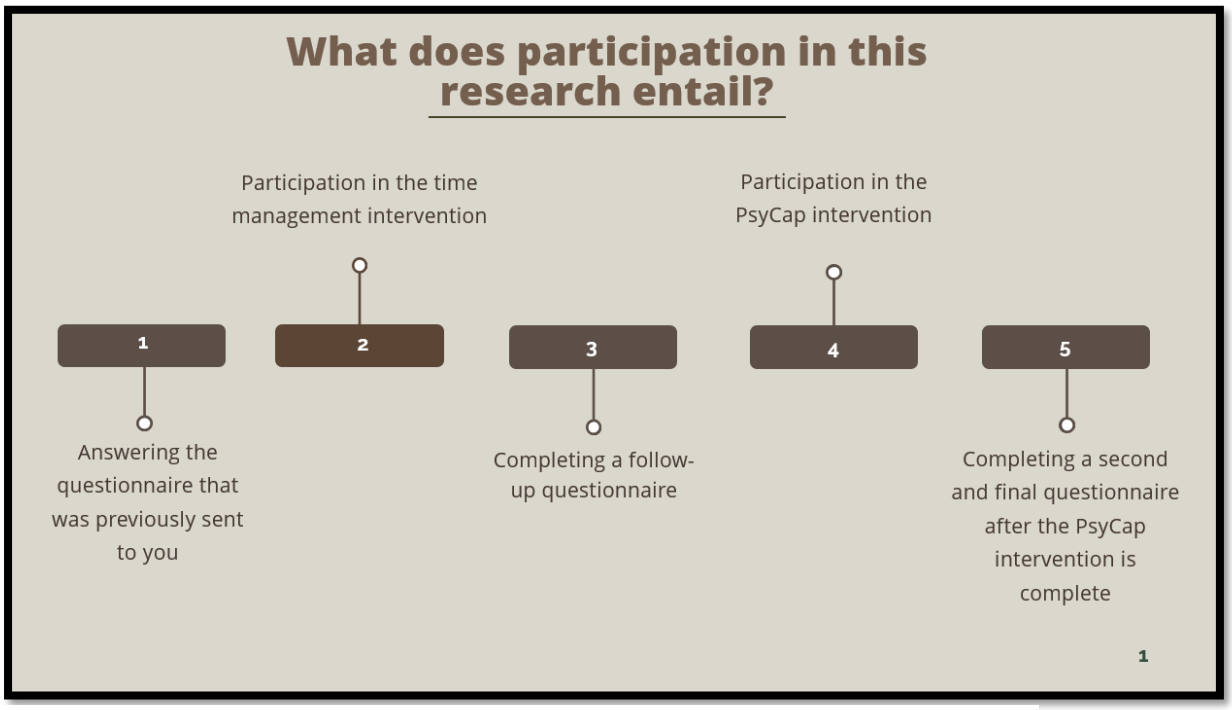


Slide 1

Environmental Questionnaire

Please answer the following environmental questionnaire so that I can gain some insight into your current work environment. It is also necessary so that I can record your tutorial participation. I will share the link with you in the chat shortly. It should take you about a minute to complete.

Please also feel free to download the corresponding worksheet for this intervention from the Teams group.

2

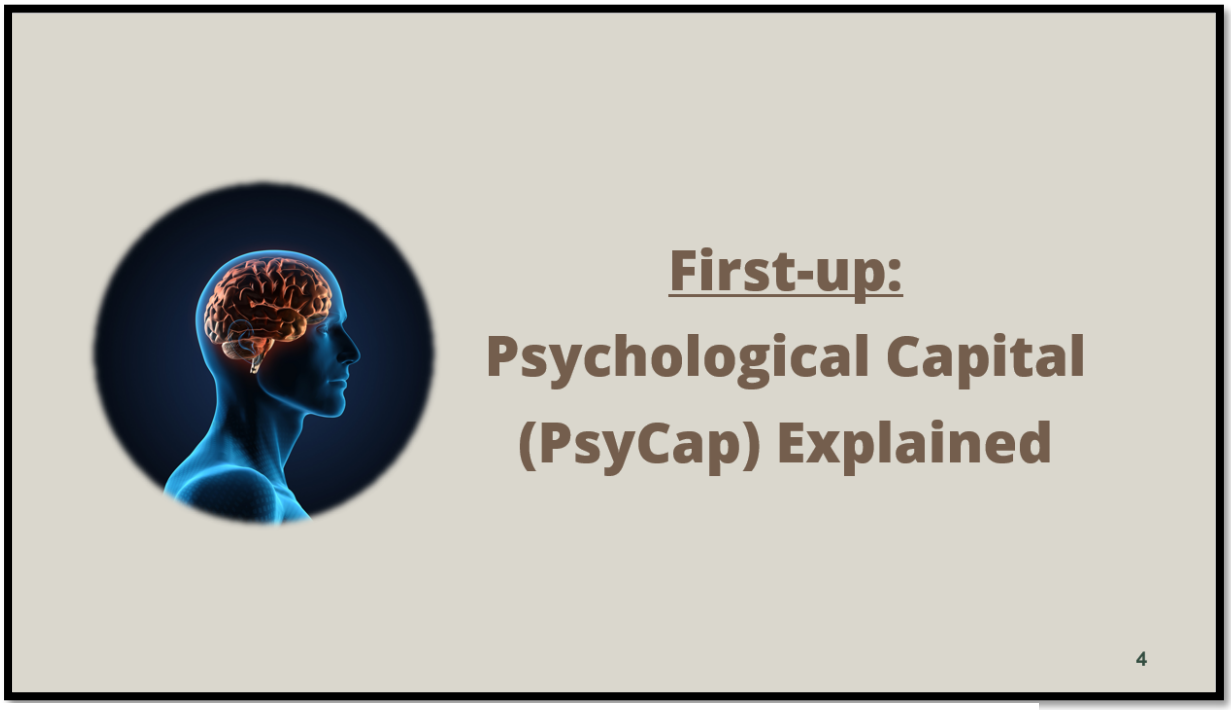
Slide 2

What is the agenda for today?

- What is PsyCap? An introduction, history and explanation
- The 8-step intervention explained
- Summary of the intervention
- Conclusion & feedback

3

Slide 3



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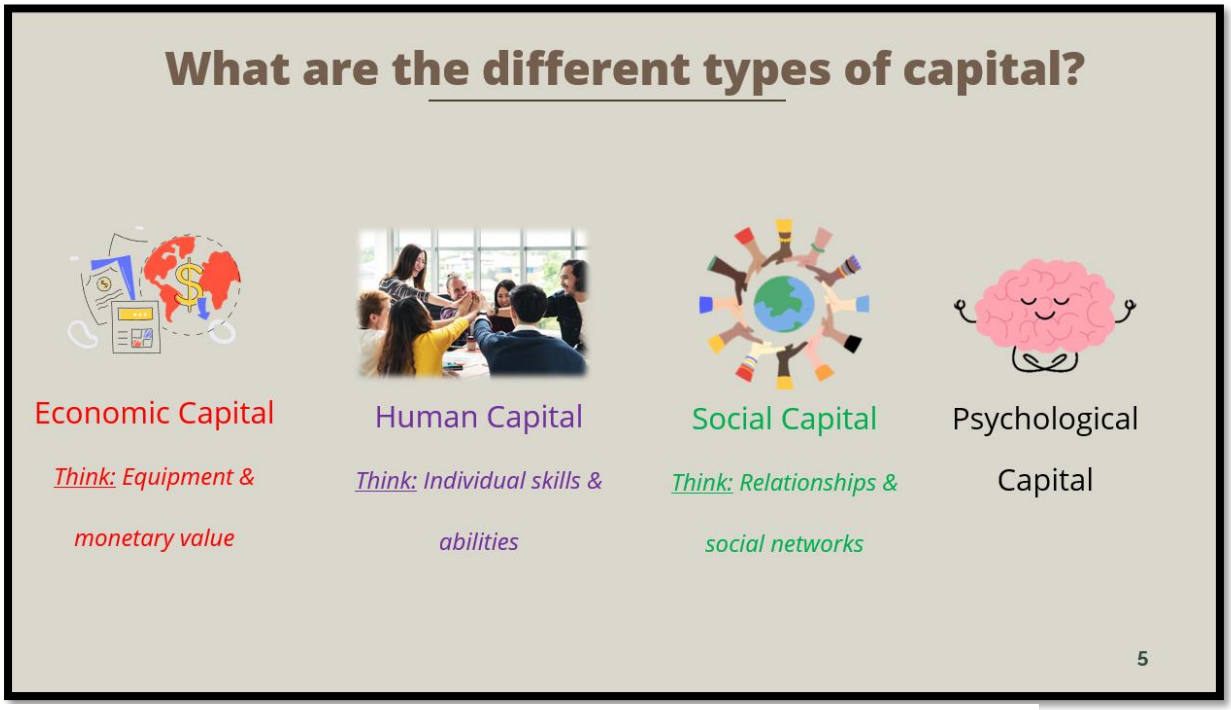


Slide 5

What is the history behind Psychological Capital?

- The concept of PsyCap was originally designed for organizations. Pioneer: Fred Luthans suggested that organizations need to focus on psychological rather than educational development in order to grow and succeed.
- Luthans saw PsyCap as a source of competitive advantage because it is very distinctive, unique, interconnected and non-transferable to competitors.
- Much research has shown that high levels of PsyCap have been found to positively influence wellbeing and satisfaction in one's personal and work roles.

6

Slide 6

What is Psychological Capital?

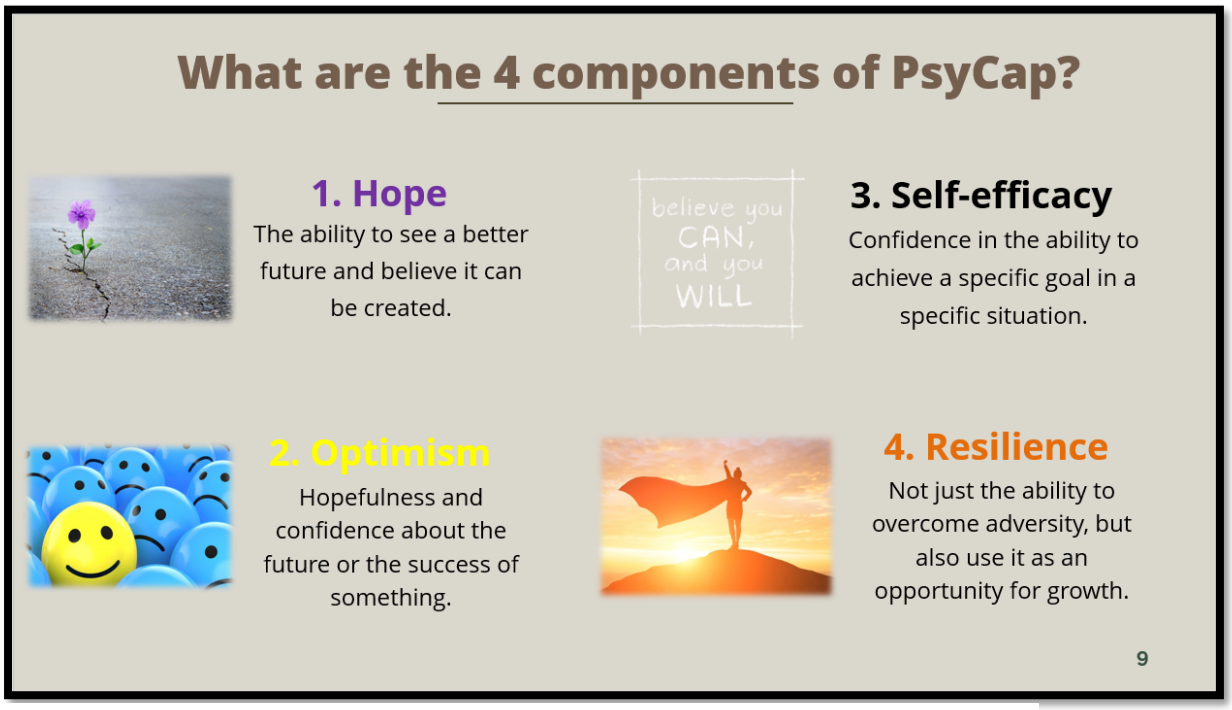
- Also known as 'PsyCap.' It is defined as *"an individual's positive psychological state of development"* which is characterized by having high levels of HERO: The four elements of hope, (self-)efficacy, resilience, and optimism.
- Derived from Positive Psychology, which is known as the *"scientific study of human flourishing, and an applied approach to optimal functioning."*

- PsyCap enables healthy individuals to become more productive and actualize their full potential.

7

Slide 7

Slide 8



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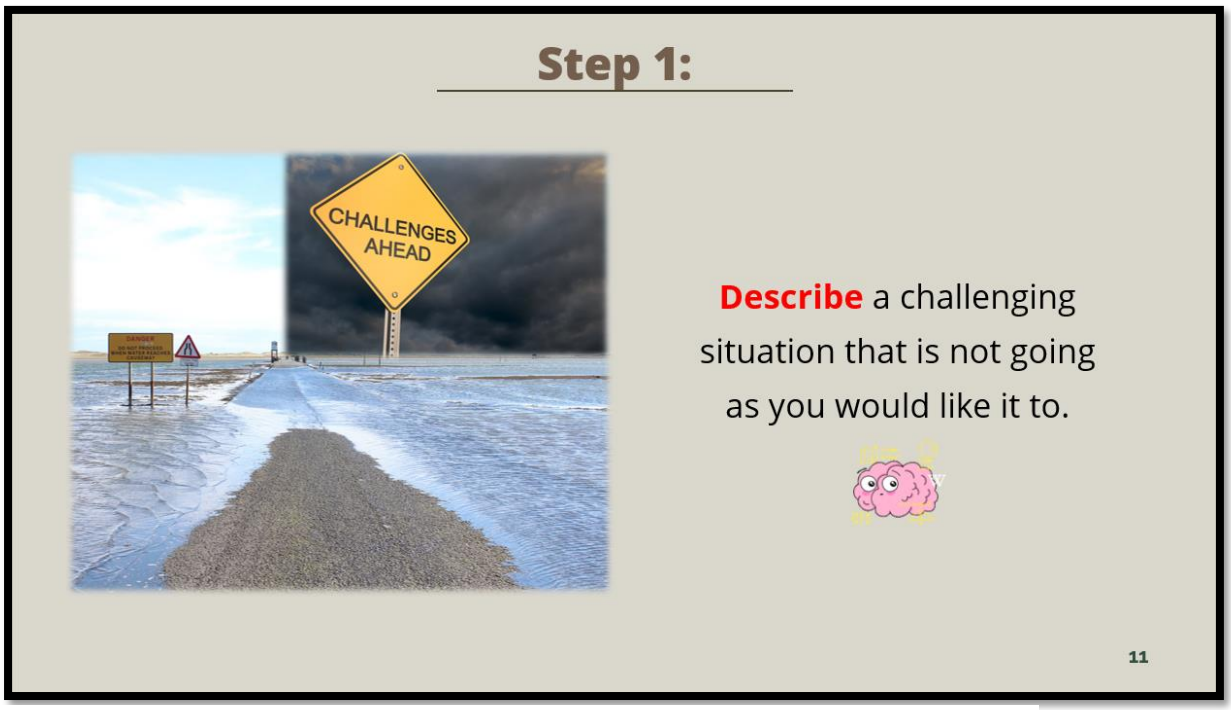


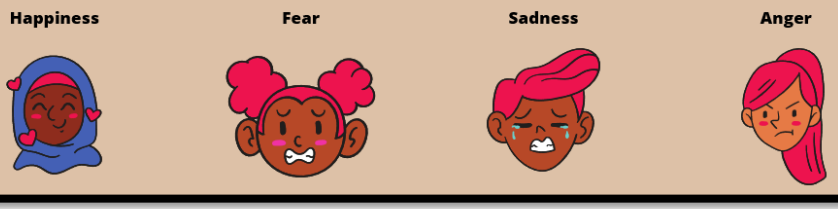
Slide 11

Step 2:

Reflect on the mindset you had when the challenging situation first happened.

Take a minute to understand the nature of your mindset when the situation first occurred, as you initially assessed the risk.

How did you respond? Were you energized and ready to rise to the challenge? Or were you feeling overwhelmed, defeated or something else?



12

Slide 12

Step 3:

Re-frame the situation in terms of its actual impact. What was the situation *actually* like?

Questions to ask:

1. What is the real risk?
2. Is this risk something in or out of your control?
3. What are your other options?
4. Is it possible that your initial mindset colored (or worsened) your first assessment?
5. Are there any different ways to look at the situation that will allow you more options or control over your success?

13

Slide 13

Step 4:

Identify helpful skills and resources.

Note: These can include knowledge, work ethic, skills, colleague networks, ideas from others, finances, creativity, past experiences, etc.

List the skills and resources you have used to respond to the challenge.

Think: Are there any other resources available that you have not considered?

14

Slide 14

Step 4 Continued:

Examples of resources:

Personal Resources:	Social Resources:	Skills:
○ Knowledge ○ Time ○ Energy ○ Mood ○ Attitude ○ Being task-oriented ○ Dedicated workspace ○ Mediation	○ Friends' and family support ○ Classmates ○ Support ○ Lecturers ○ Tutors ○ CCDU ○ Campus Health ○ SADAG ○ Wits Crisis Line	○ Self-discipline ○ Punctuality ○ Adaptability ○ Work ethic ○ Time management ○ Dexterity ○ Setting a daily schedule ○ Taking time for yourself

15

Slide 15

Step 5:

1. **Set a goal** that is directly related to overcoming your challenge.

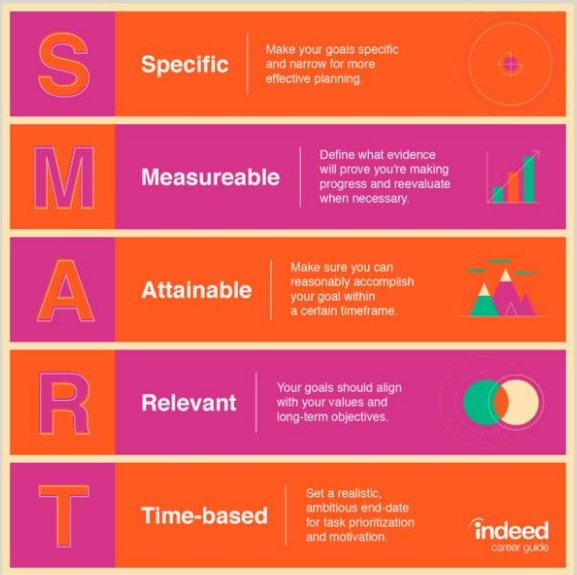
2. Write down your goal using SMART (Specific, Measurable, Attainable, Relevant, and Timely) criteria. Remember to pick a goal that you want to achieve rather than avoid.

3. Break your goal into manageable small steps and list them in sequential order.

16

Slide 16

Step 5 Continued:



17

Slide 17

Step 6:

Identify multiple paths for you to accomplish your goal.

Write down all the paths you can think of that could realistically lead you to reaching your goal.

For each path make a list of the skills and resources you will need.

18

Slide 18

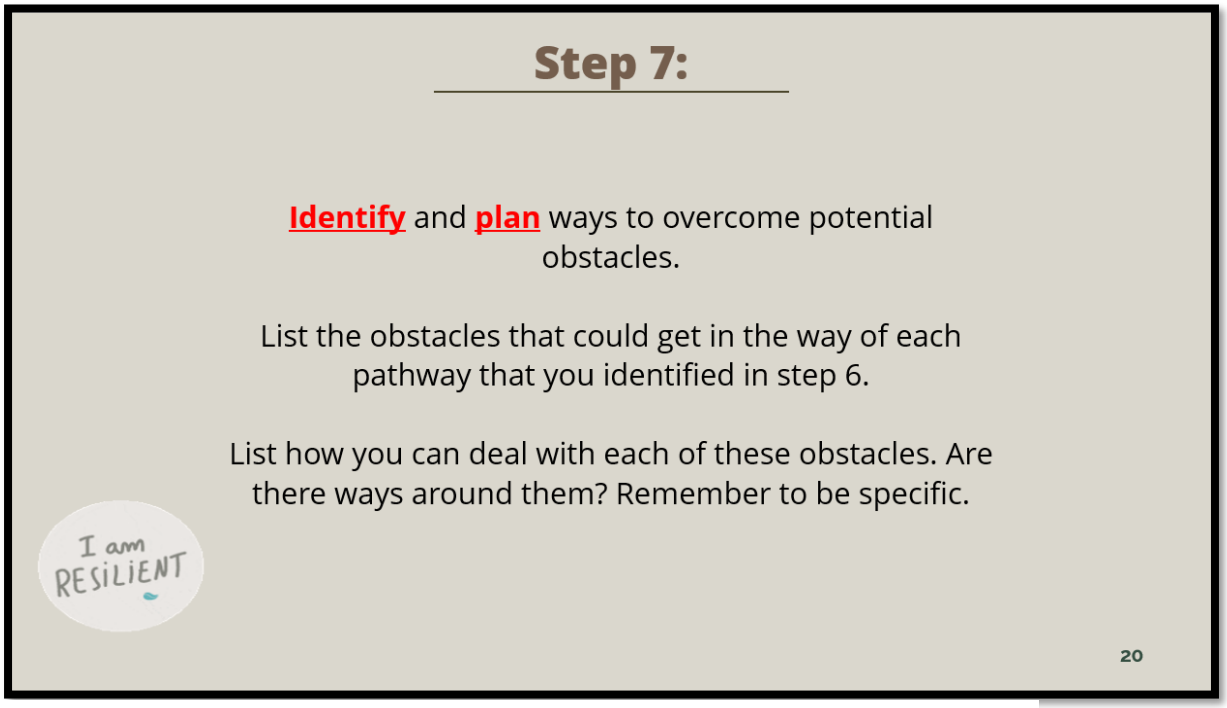
Here are some possible pathways

Step 6 Continued:

Possible Pathways:	Resources/Skills to Accomplish Goal:
Dedicated workspace	An empty or quiet room free from distractions
Discipline & motivation	Create a routine or make a 'to-do' list
Stay in the loop with classmates	Good communication or technological skills to keep connected with classmates
Plan a schedule	Create a schedule which keeps you engaged

19

Slide 19



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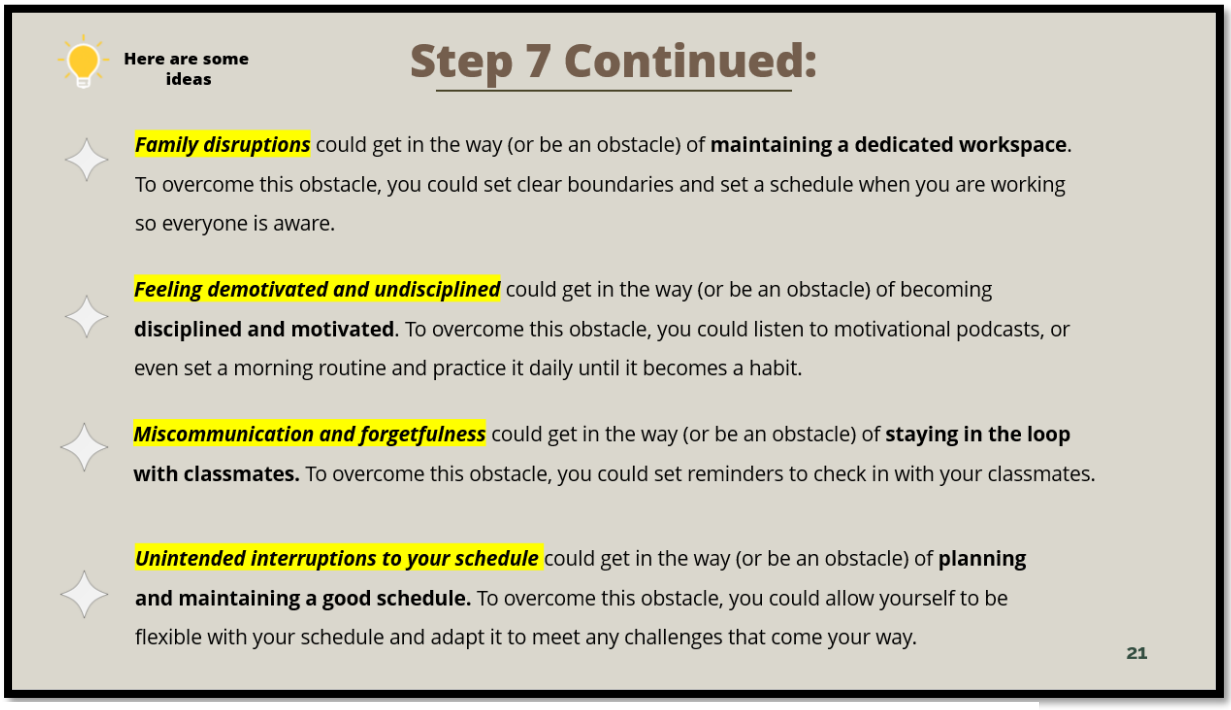

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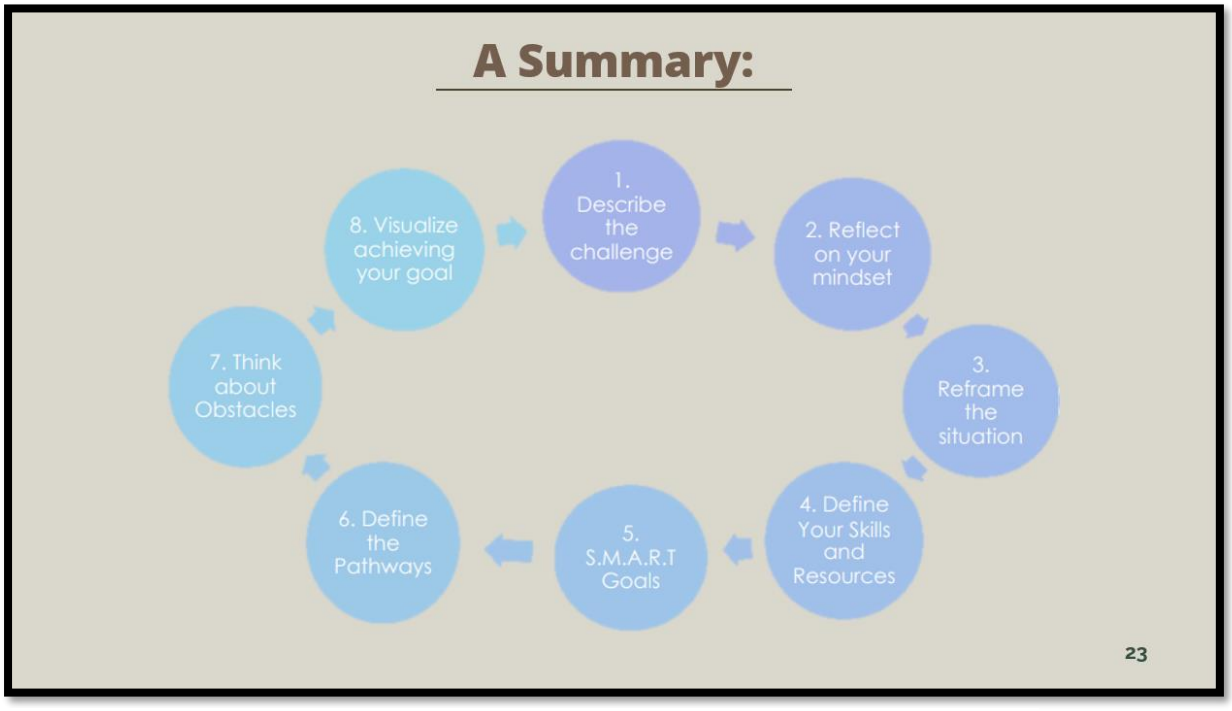

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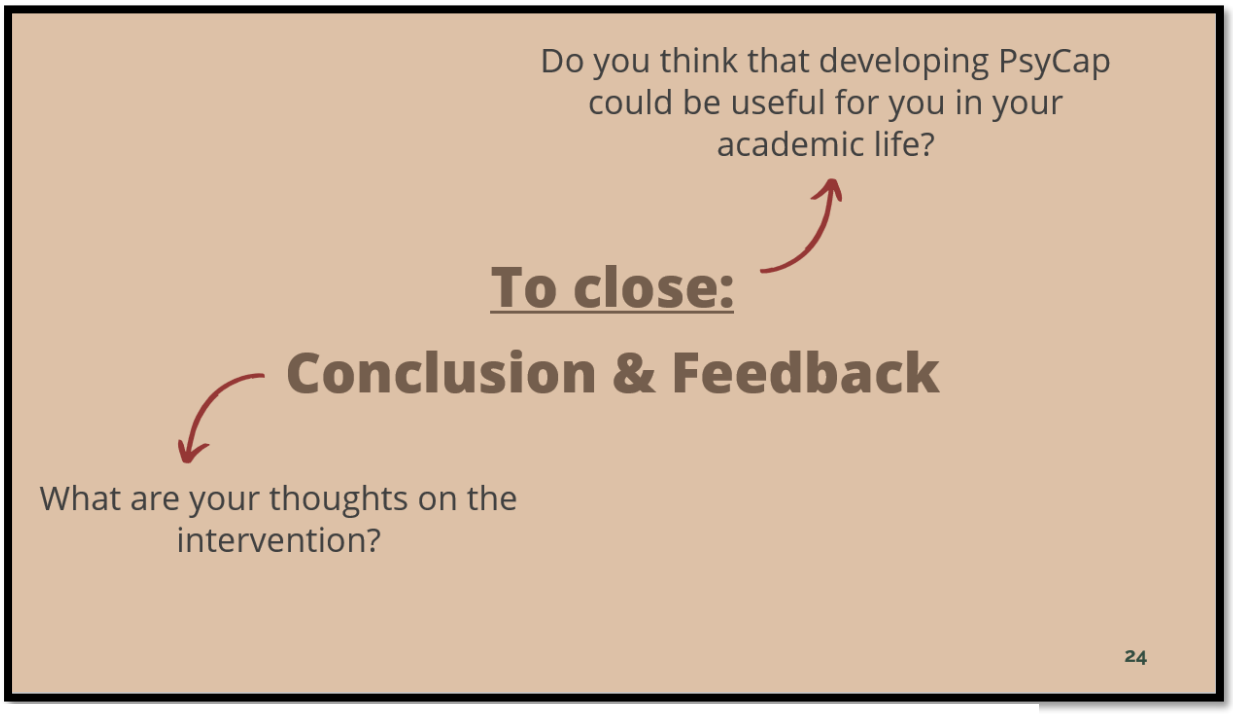

Do you think that developing PsyCap could be useful for you in your academic life?
To close:
Conclusion & Feedback
What are your thoughts on the intervention?
24

Slide 24

Appendix L: Psychological Capital Intervention Worksheet

PsyCap Intervention Worksheet

Psychological Capital (PsyCap) is the pervasive combination of hope, optimism, efficacy, and resilience. It facilities us in achieving a competitive edge whilst also managing workplace stress. PsyCap has been linked in the research with better job performance and satisfaction, a greater ability to conquer obstacles and improved wellbeing (Avey, Reichard, Luthans, & Mhatre, 2011; Luthans, Youssef-Morgan, & Avolio, 2015). PsyCap may be considered to be the positive mental strength and flexibility of individuals. Research has demonstrated that it can be developed through building these four mental capacities:

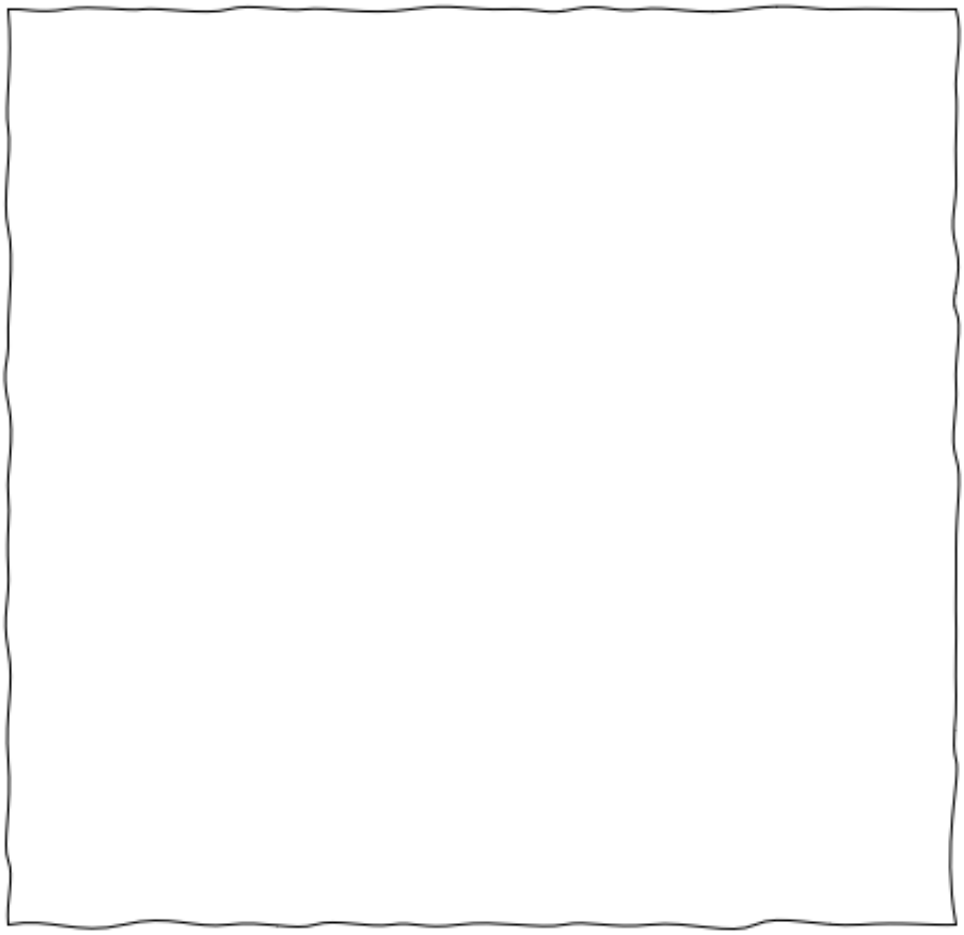
- **Resilience**: Is the ability to manage and bounce back to achieve success when adversity occurs.
- **Optimism**: Is the positive expectation of an individual's ability to meet challenges and succeed now and in the future.
- **Hope**: Is having the drive to persist toward goal and, when required, change the direction to reach the goal.
- **Self-efficacy**: The belief that you can successfully take on and put in the effort to succeed at challenging tasks.

These capacities each individually contribute to individual's positive mental strength, however when these capacities are combined, together they become more pervasive than the sum of its parts. This strategy will help you build each PsyCap capacity by having you work through a real-life adversity. You will identify new ways to look at your issue and challenge basic assumptions you might have about your ability to overcome it. Then, you will take an inventory of the resources you have to help you successfully resolve the problem and use your critical thinking skills to see if you have overlooked anything. Finally, you will set a S.M.A.R.T. goal, devise multiple ways to reach it, and anticipate ways to overcome any obstacles to your success.

The steps will be as follows:

STEP 1: Challenging Situation

Describe a challenging situation with regards to university that is not going as well as you would like.



STEP 2: Reflect on your mindset.

- Take a minute to understand the nature of your mindset when the situation first occurred, and you initially assessed the risk.
- How did you respond? Were you energized and ready to rise to the challenge? Or, were you overwhelmed? Defeated? Something else?

4

STEP 3: Frame the situation again in terms of its actual impact.

- What is the real risk? Is this risk something in or out of your control? What are your options?
- Are there any different ways to look at the situation that will allow you more options or control over your success?

STEP 4: Identify helpful skills and resources.

[Note: these can include your knowledge, work ethic, colleague networks, ideas from others, finances, creativity, past experience, and the like.}

- List the skills and resources you have used to respond to the challenge.
- Are there other resources available you haven't considered?

STEP 5: Set a goal that is directly related to overcoming your challenge.

- Write down your goal using S.M.A.R.T. criteria – Specific, Measurable, Attainable, Relevant, and Timely. [Note: pick a goal you want to achieve rather than avoid.].
- Break your goal into manageable small steps and list them in sequential order.

S - Specific

- Specific goals are well defined and clear on what needs to be accomplished.
- What outcomes do you need to see in order to consider the goal accomplished?

M - Measurable

- Measurable Goals enable you to evaluate whether or not the goal was achieved or not.
- How will you decide whether the goal is completed or not?

A - Attainable

- Attainable goals are realistic about what is possible given the availability of resources, knowledge and time.
- How likely is it that you can accomplish this goal?

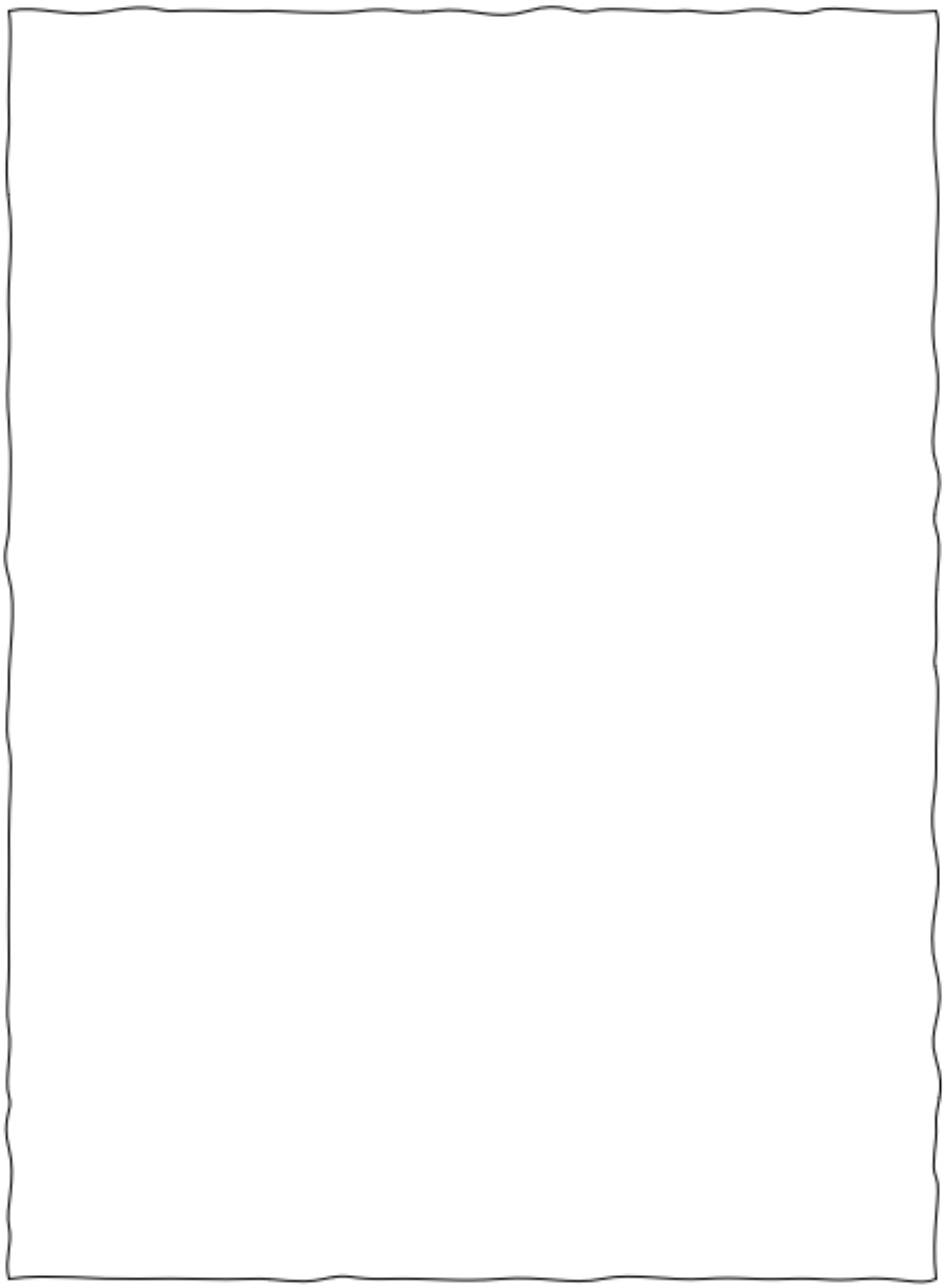
R - Relevant

- Relevant goals are important to you and will make a material impact on achieving your larger objectives.
- Does it make a difference to your overall objectives if this goal is met?

T – Time-based

- Time-based goals lock goals into a specific timeframe and specify when they will be completed by
- When do you need the goal to be completed by?

7



STEP 6: Identify multiple ways to goal accomplishment.

- Write down all the paths you can think of that could realistically lead you to reaching your goal.
- For each path make a list of the skills and resources you will need.

Possible Pathway	Resources/skills to accomplish goal
Dedicated Workspace	An empty or quiet room, free from distractions
Be disciplined and keep motivated	Possibly already a disciplined person, create a routine or make a "to do" list.
Stay in the loop with classmates	Good communication skills or technological skills to keep connected with classmates
Plan a schedule	Create a schedule which you plan to keep. When do you plan to have tasks completed

STEP 7: Identify and plan ways to overcome potential obstacles.

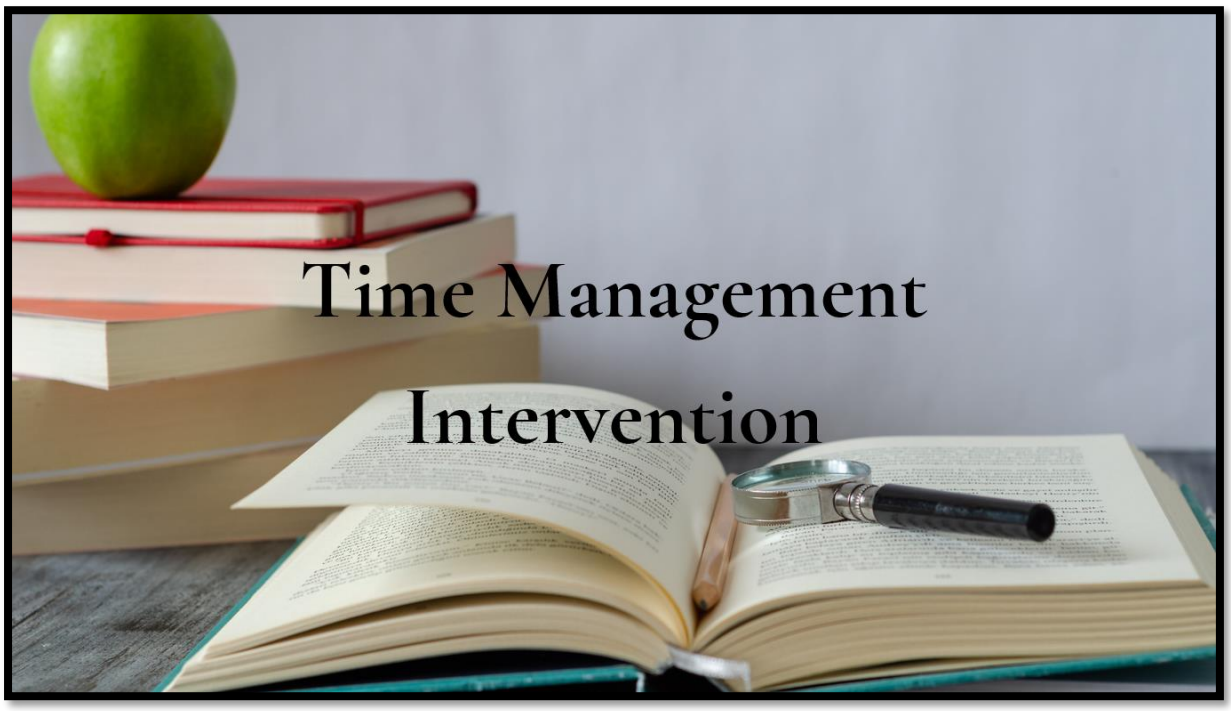
- List the obstacles that could get in the way of each path you identified in Step 6.
- List how you can deal with each of these obstacles. Are there ways around them? Be specific.

Possible Pathways	Possible obstacle to the pathway	Way to overcome obstacle
Dedicated Workspace	Family disruptions	Set clear boundaries and set a schedule for when you are working so everyone is aware.
Be disciplined and keep motivated	Feeling demotivated and therefore not being disciplined	Get ready for your university work every morning as you would if it was in-person, so you have a routine.
Stay in the loop with classmates	Forget because there is too much to do. Or maybe there is a WhatsApp messages overload that you cannot keep up with	Set reminders or time every day to go through your WhatsApp messages to check for important information.
Plan a schedule	Unintended interruptions to your schedule	Allow yourself to be flexible with your schedule. If something does not occur how you expect accept this and move on to the next task.

STEP 8: Take time to visualize your success.

- Set aside 10 minutes every day to think through the steps of this worksheet and visualize your success. See each step with as much detail as possible.
- Imagine using your resources to navigate the different paths toward your goal with you confidently getting around any obstacles in your way.
- Then, visualize yourself reaching your goal and imagine celebrating your win!

Appendix M: Time Management Intervention Presentation



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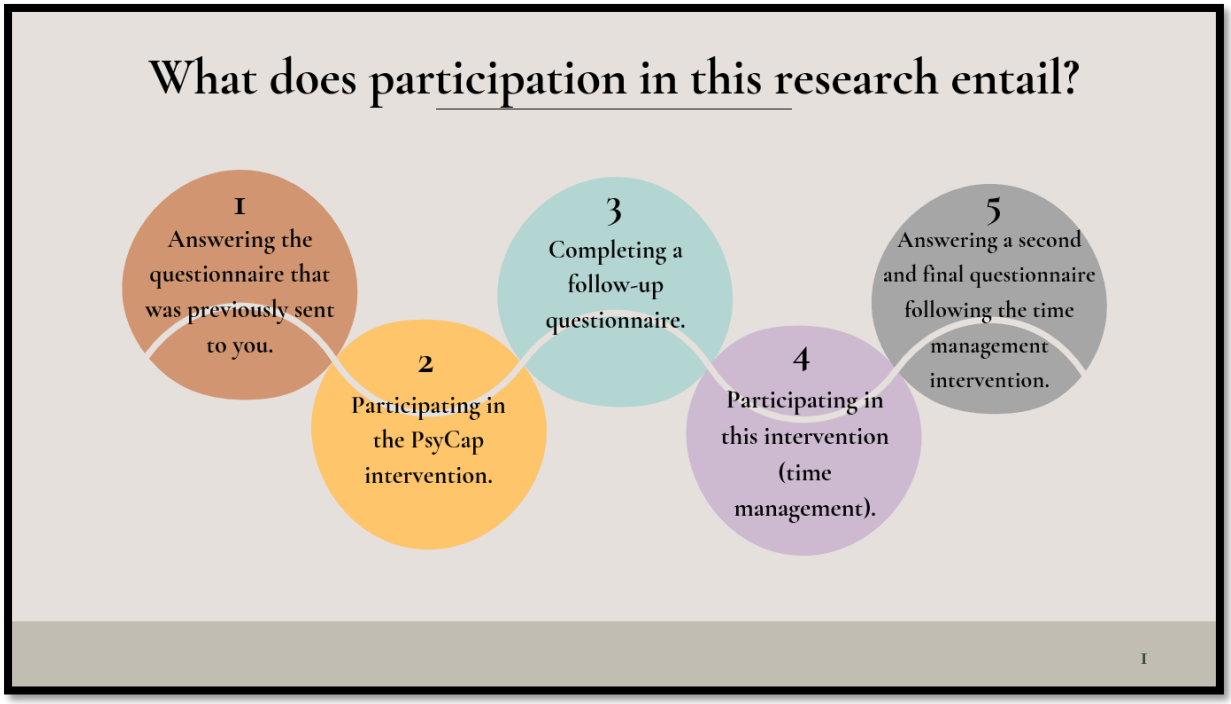


Slide 1

The Environmental Questionnaire

Please answer the following environmental questionnaire so that I can gain some insight into your current work environment. This will also allow me to track your tutorial participation.

I will share the link with you in the chat shortly. It should take you about a minute to complete.

2

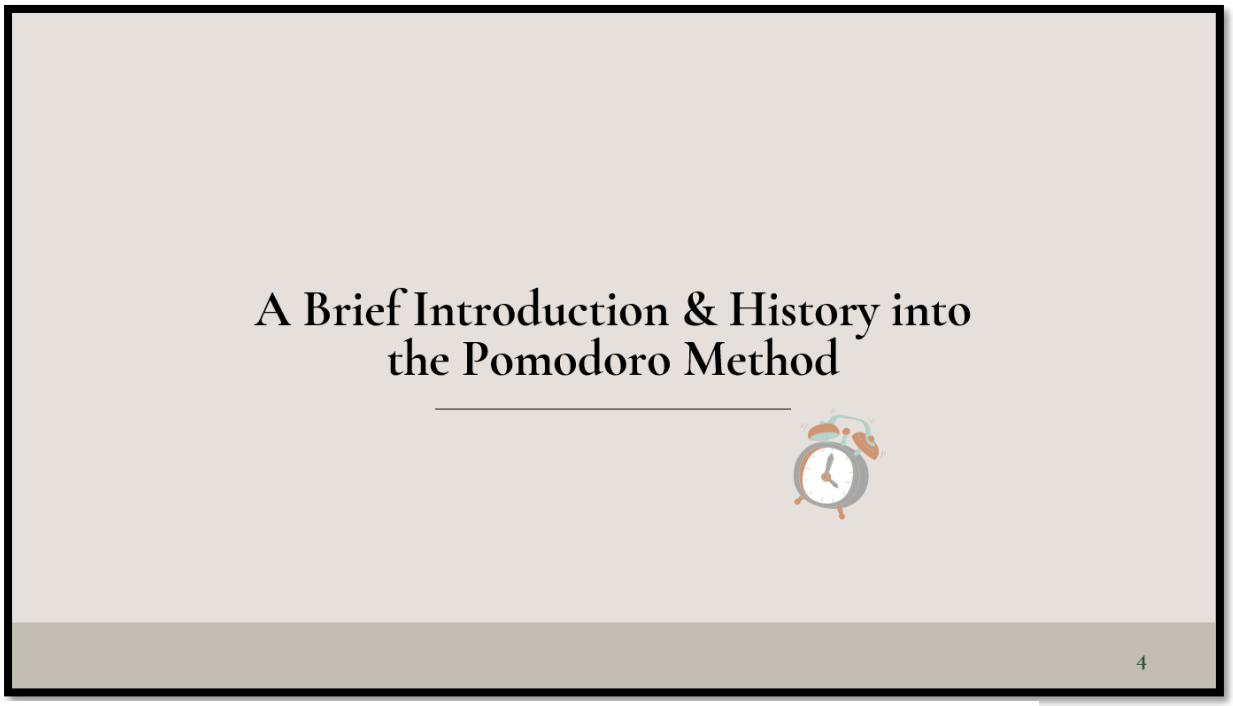
Slide 2

What is the agenda for today?

- Brief introduction & history into the Pomodoro Method
- How the Pomodoro Method works
- Applying & enacting the Pomodoro Method
- Conclusion & feedback

3

Slide 3



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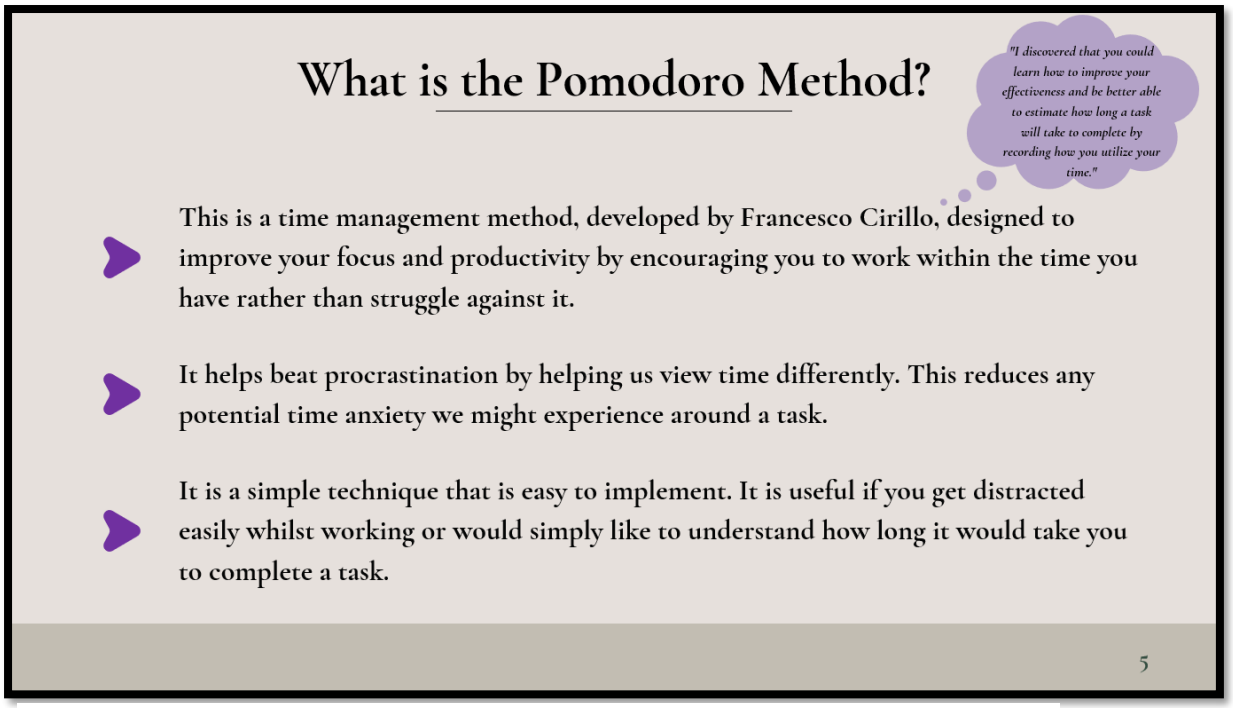

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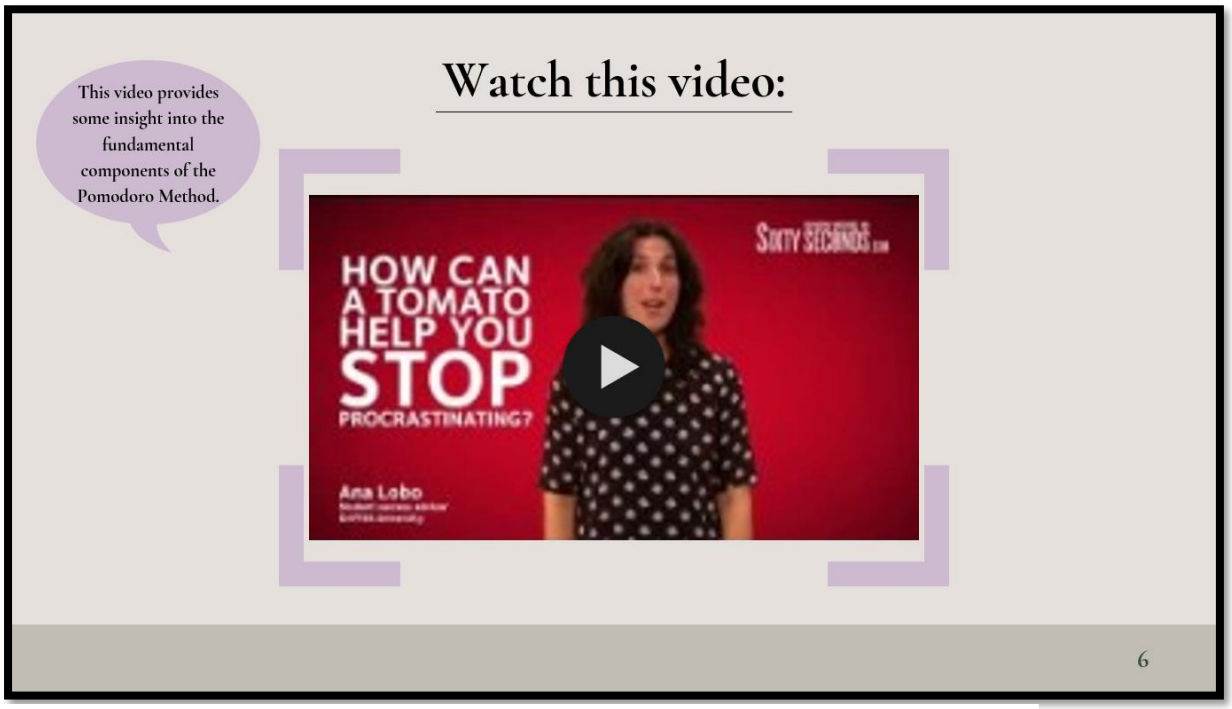

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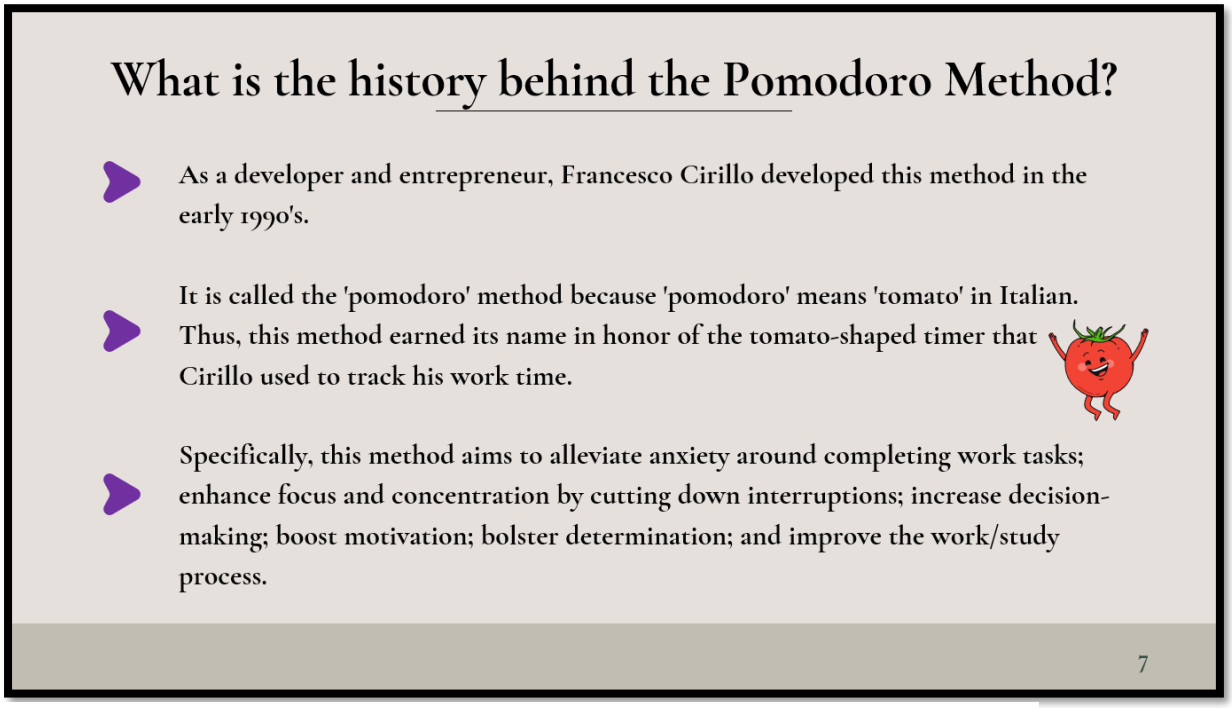

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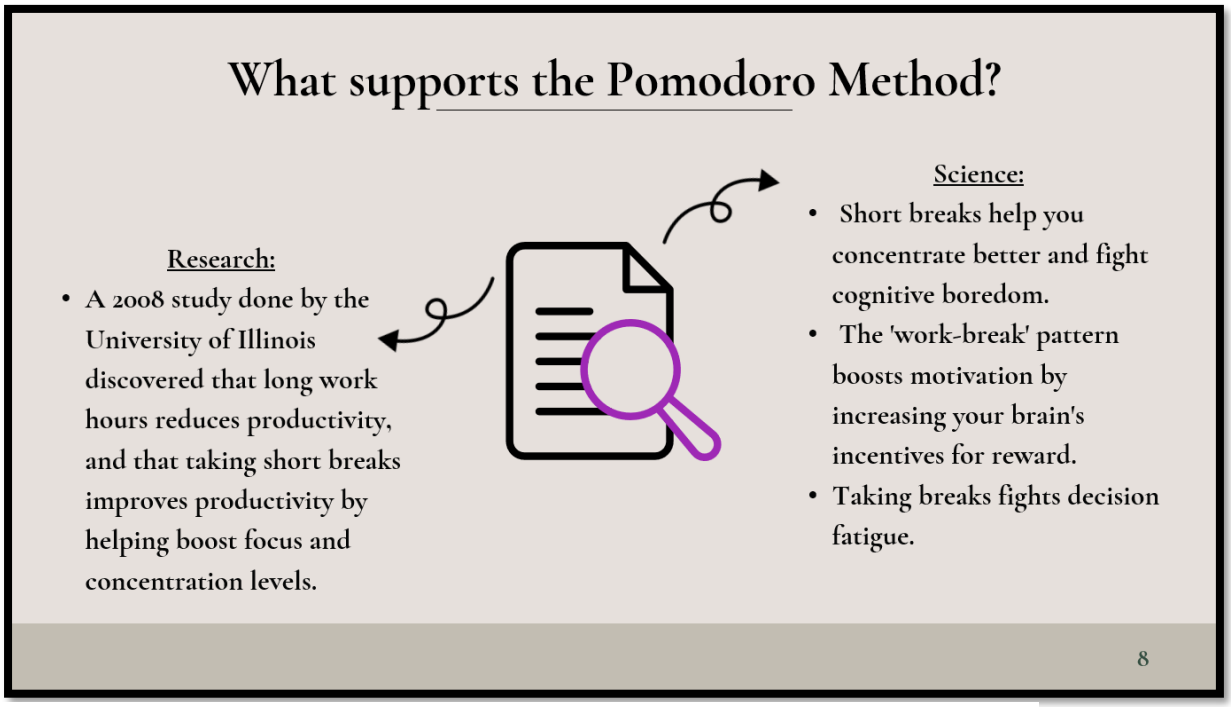

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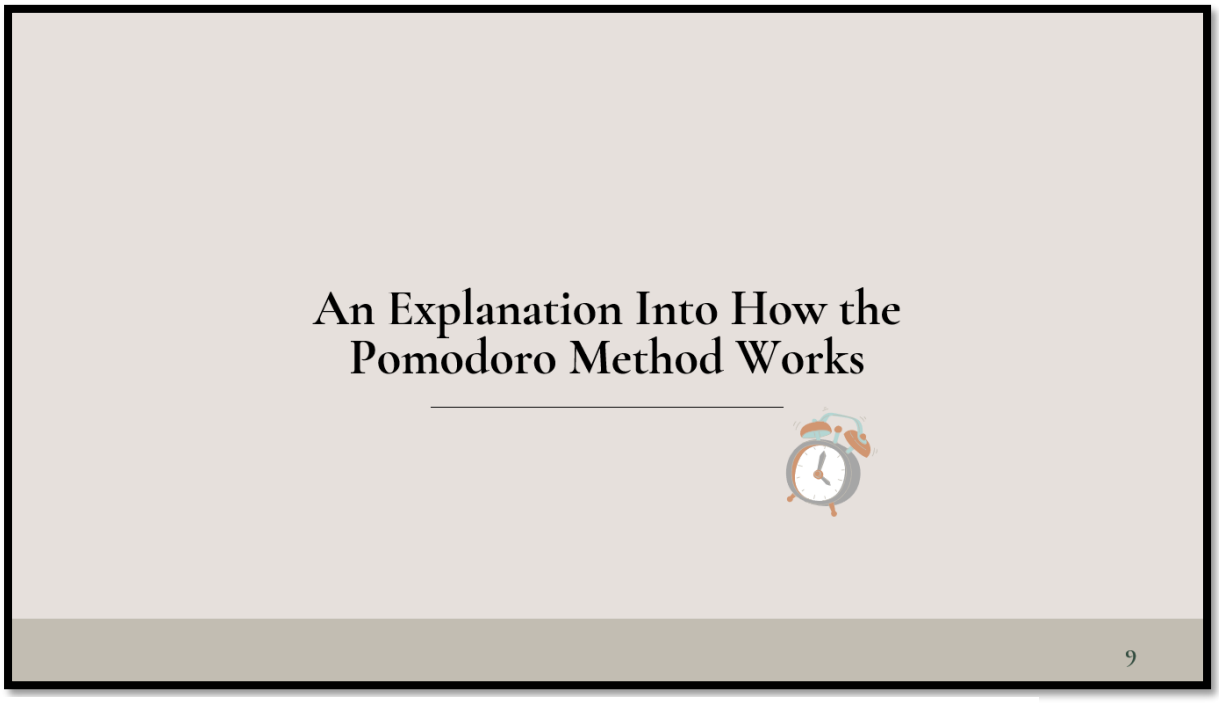


Slide 9

How does the Pomodoro Method work?

- This method utilizes a timer to break down work into smaller intervals, separated by short breaks.
- A traditional Pomodoro is 25 minutes, where 25 minutes is dedicated to working without distractions, followed by a 5-minute break to relax and revitalize yourself. These breaks break up the Pomodoro sessions.
- After 4 Pomodoro sessions, a longer 20–30-minute break follows.

10

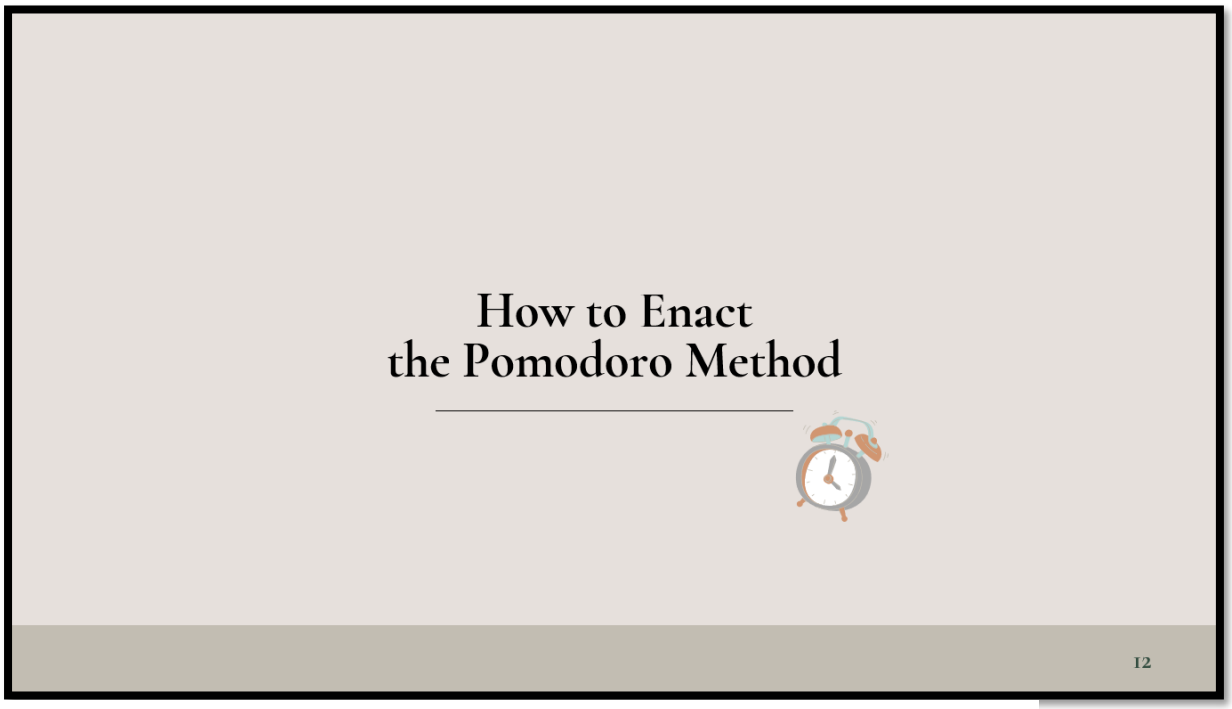
Slide 10

The rules associated with the Pomodoro Method:

- If you have interrupted a Pomodoro session by whatever means, then you need to start it again.
- The Pomodoro sessions cannot be broken down into smaller times.
- If an activity lasts longer than 5 Pomodoro sessions, then it should be broken down into smaller tasks.
- If you have a few tasks which when combined will take up a single Pomodoro session, then combine them.
- Do not use the Pomodoro Method for leisure tasks.

11

Slide 11



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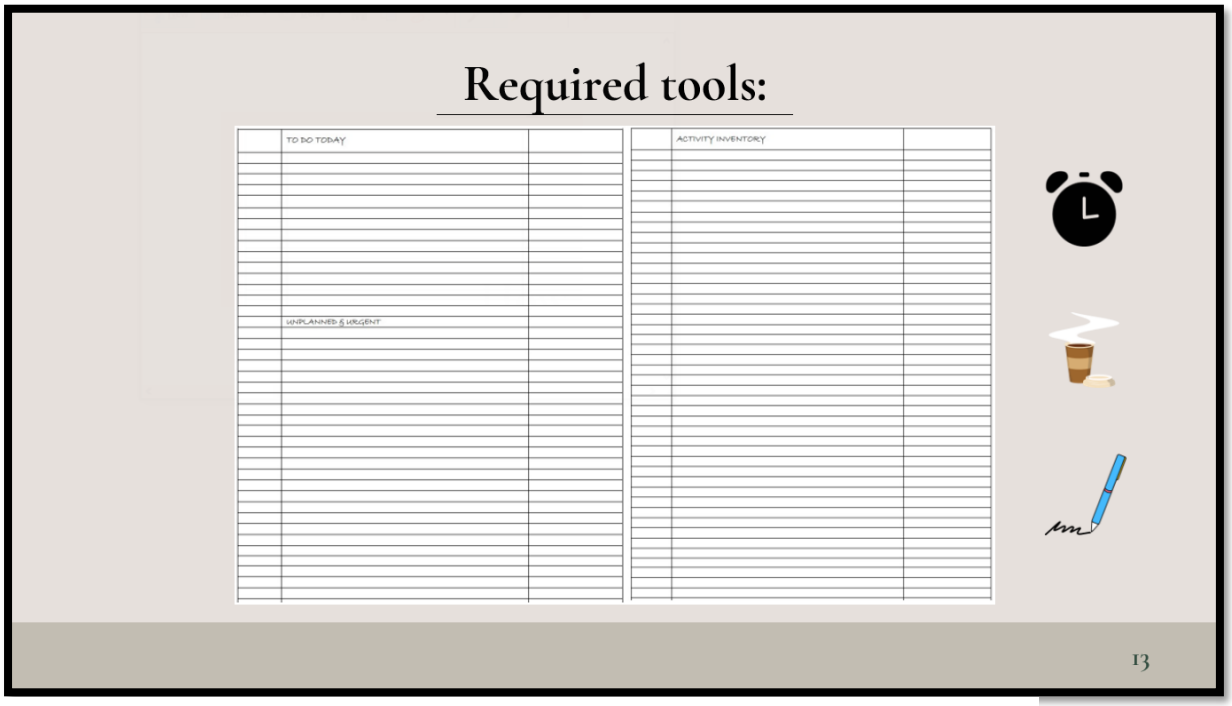


Slide 13

Step 1 - Setting up the to-do list:

- Write down all that you need to accomplish in your to-do list.
- Start your first Pomodoro session, focusing on the first item on your to-do list.
- Keep completing Pomodoro after Pomodoro until the first activity is complete.
- Mark each complete Pomodoro on your to-do list with 'x' and then cross it out.

	TO DO TODAY	Rome, 12 July 2006 Mark Ross
	~~Write article on How to Learn Music (max 10 pps)~~	XXXXX
	Finetune *How to Learn Music* by reading it out loud	
	Condense *How to Learn Music* down to 3 pps	

14

Slide 14

Step 2 - Setting up the activity inventory:

- Once you have set up your to-do list, you can utilize the activity inventory to work on quantitative estimates of how long activities are going to take you.
- The aim of the activity inventory is to attempt to accurately estimate how much time you will need to complete every task on your to-do list.

	ACTIVITY INVENTORY	Lucy Banks
	...	
	Answer questions on thermodynamics in Ch 4	2
	Repeat laws of thermodynamics out loud to Mark	3
	Summarize laws of thermodynamics in writing	3
	Call Laura: invite her to the seminar on thermodynamics	
	Call Mark: give me my laptop back soon!	
	Call Andrew: buy tickets to concert?	
	Email Nick: how do you do ex. 2, p. 24?	
	...	

Figure 2.19 Activity Inventory Sheet: Daily estimate.

15

Slide 15

Step 2 continued - Setting up the activity inventory:

- This is what an activity inventory looks like when two tasks are combined:

	ACTIVITY INVENTORY	Lucy Banks
	...	
	Answer questions on thermodynamics in Ch 4	2
	Repeat laws of thermodynamics out loud to Mark	3
	Summarize laws of thermodynamics in writing	3
	Call Laura: invite her to the seminar on thermodynamics	
	Call Mark: give me my laptop back soon! + Call Andrew: buy tickets to concert?	1
	Email Nick: how do you do ex. 2, p. 24?	
	...	

Figure 2.20 Activity Inventory Sheet: Activities estimated at less than one Pomodoro.

16

Slide 16

Step 3 - Combining the to-do list with the activity inventory:

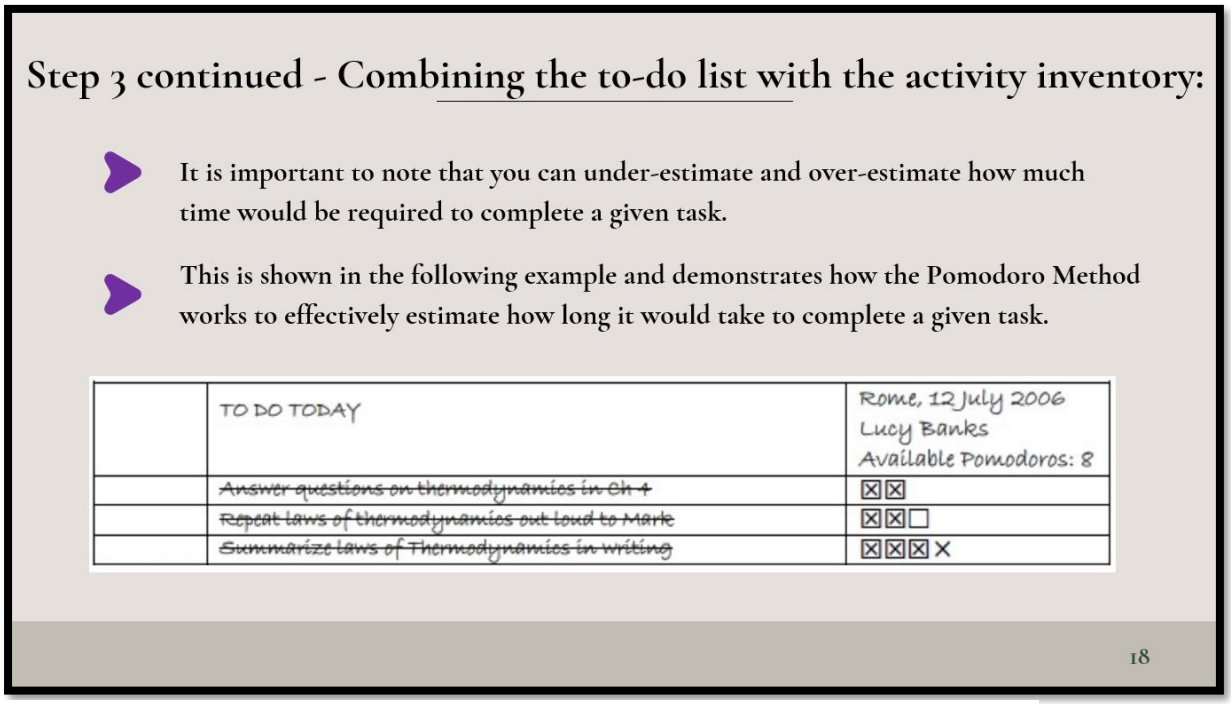
- Once you have set up your to-do list and corresponding activity inventory, you can begin setting up your to-do list in line with the Pomodoro Method.
- In order to do this, you will need to block out the number of Pomodoro sessions that you believe a given task will need.

	TO DO TODAY	Rome, 12 July 2006 Lucy Banks Available Pomodoros: 8
	Answer questions on thermodynamics in Ch 4	☐☐
	Repeat laws of thermodynamics out loud to Mark	☐☐☐
	Summarize laws of thermodynamics in writing	☐☐☐

Figure 2.21 To Do Today Sheet: Estimated Pomodoros.

17

Slide 17



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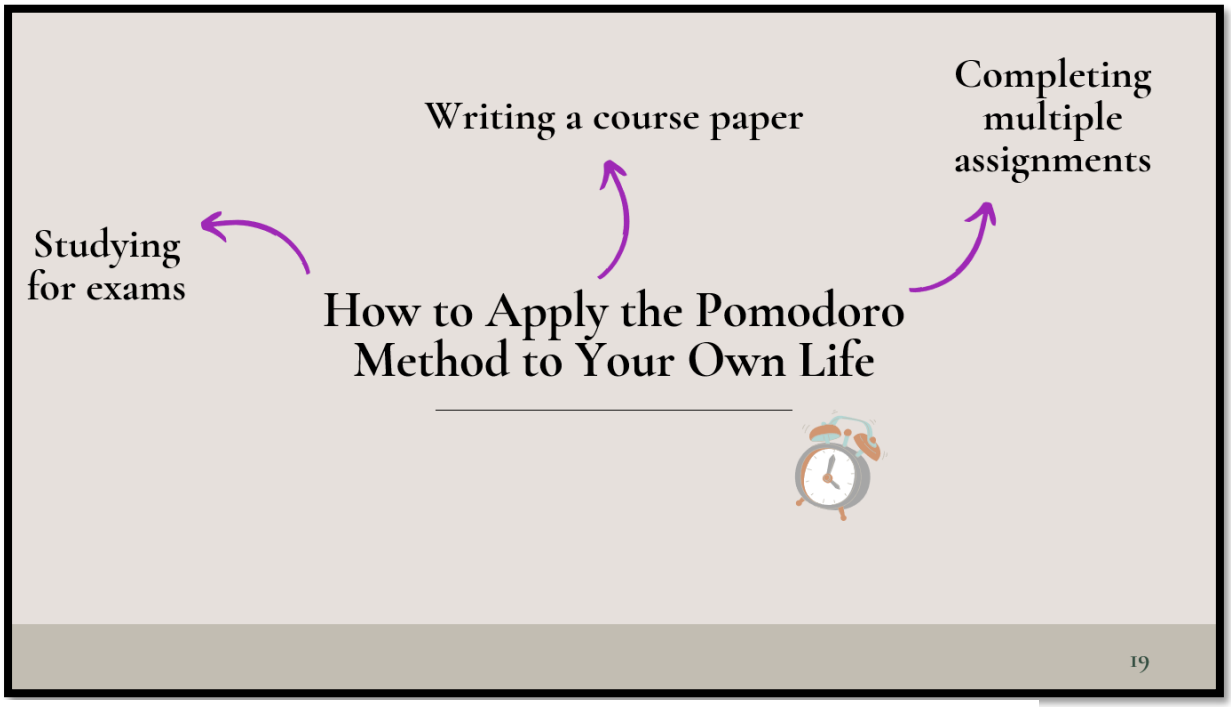

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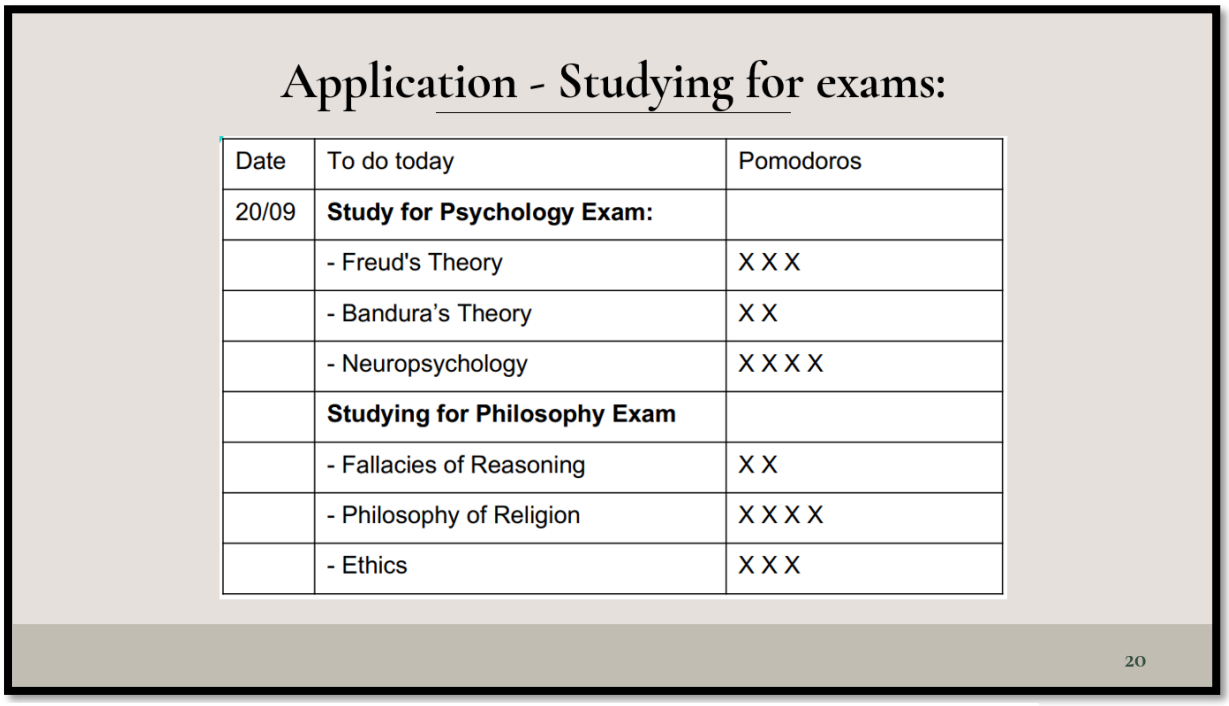

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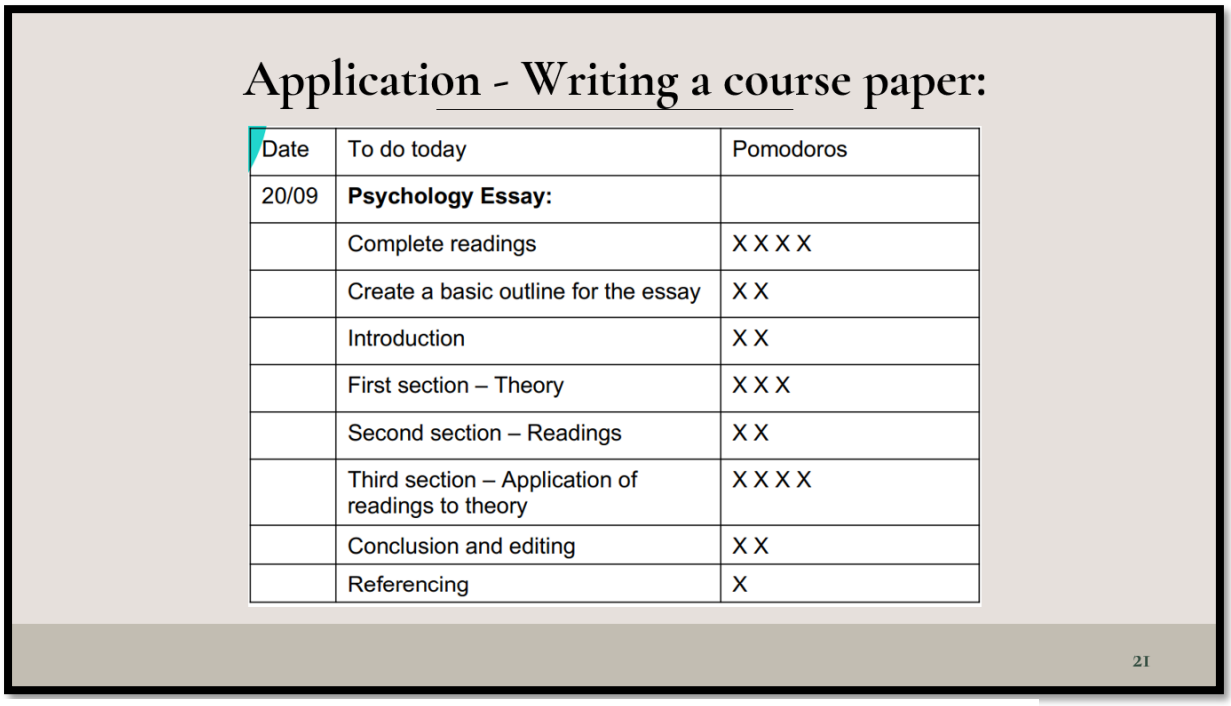

Slide 21

Your Turn:
Take Some Time to Apply the Pomodoro Method To a Task of Your Own

22

Slide 22

Tailoring the Pomodoro Method to your needs:

- The Pomodoro Method is quite rigid. Although this may be helpful to some, others may find this limiting. Thus, it is important to take what you find useful in this technique and apply it in a way that works best for you.
- It is going to take some time to perfect your personal method but experiment to discover what works for you and your needs.
- You can make the Pomodoro Method as simple or complex as you would like. Remember: Change this technique to work for you.

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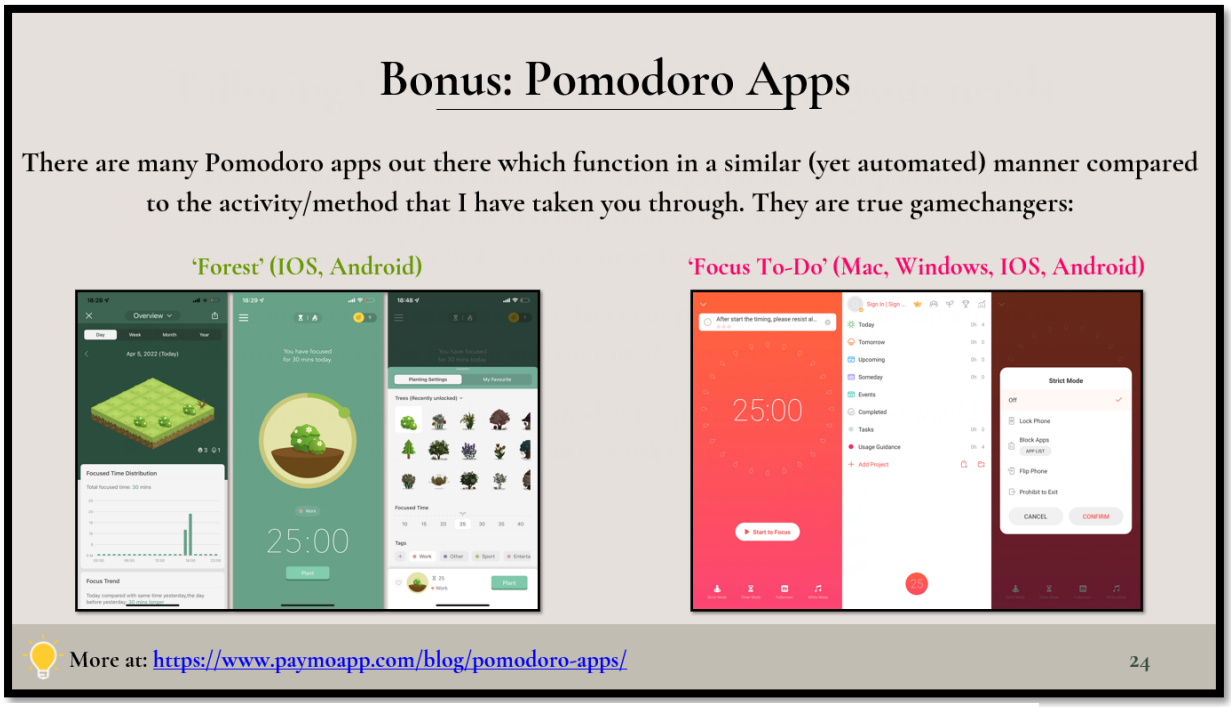
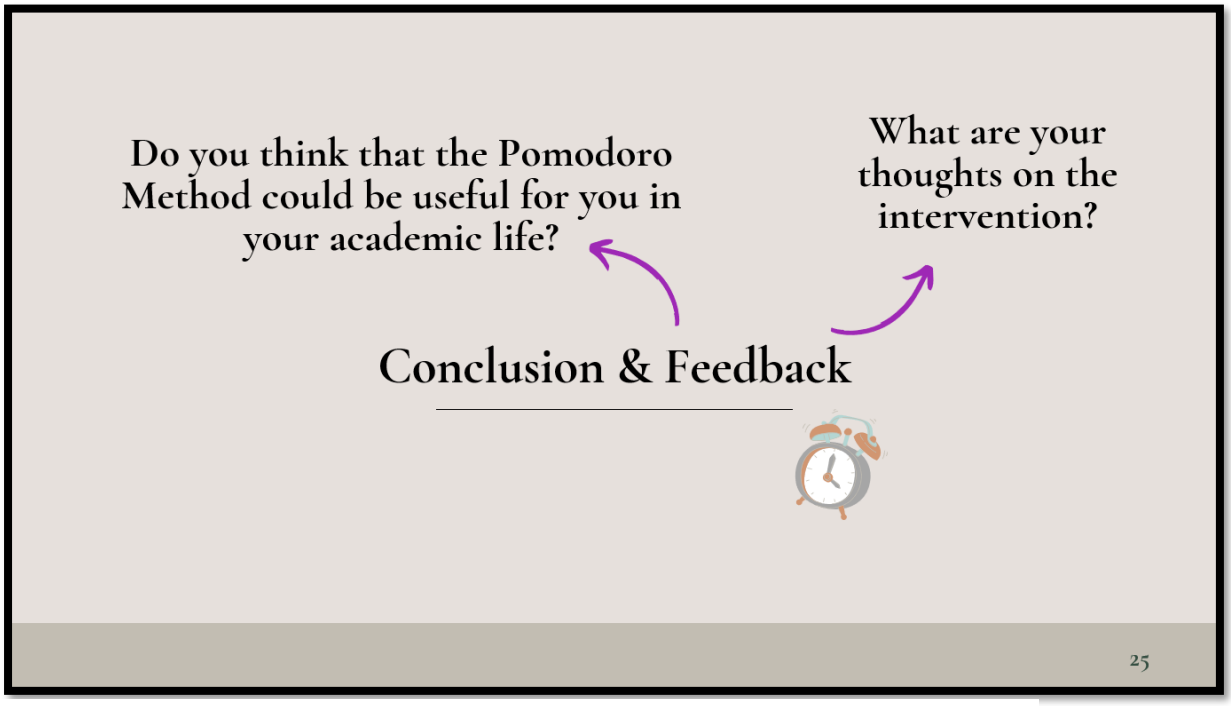


Slide 24



Slide 25

Appendix N: Histograms for Main Variables

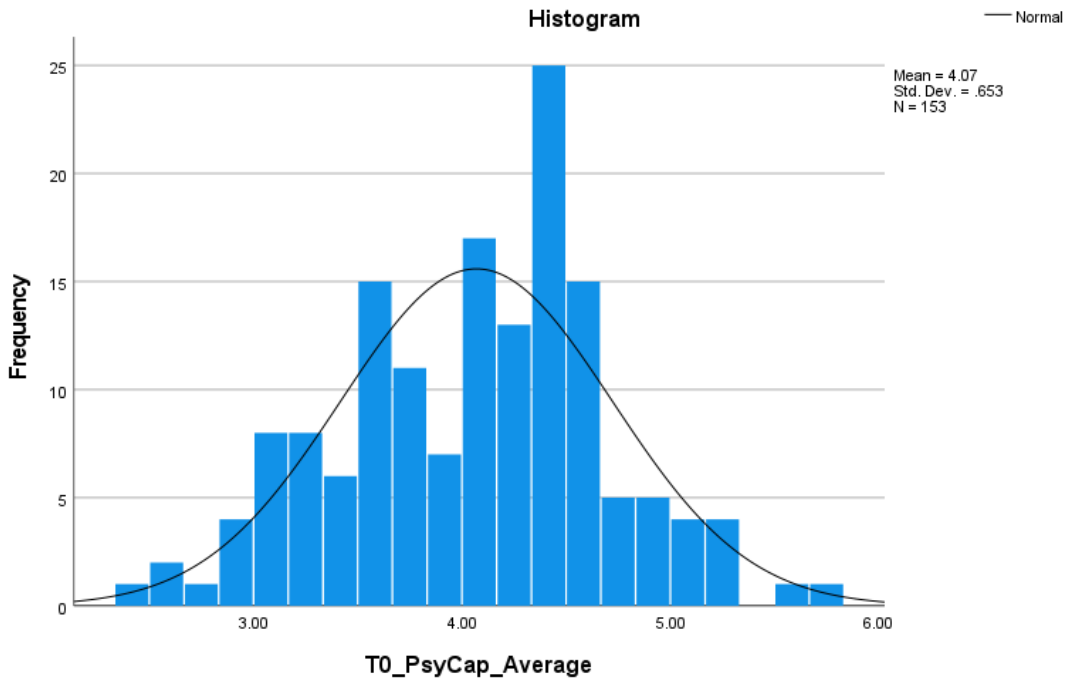


Figure 4:

Histogram for PsyCap for Comparison Group at Time 0

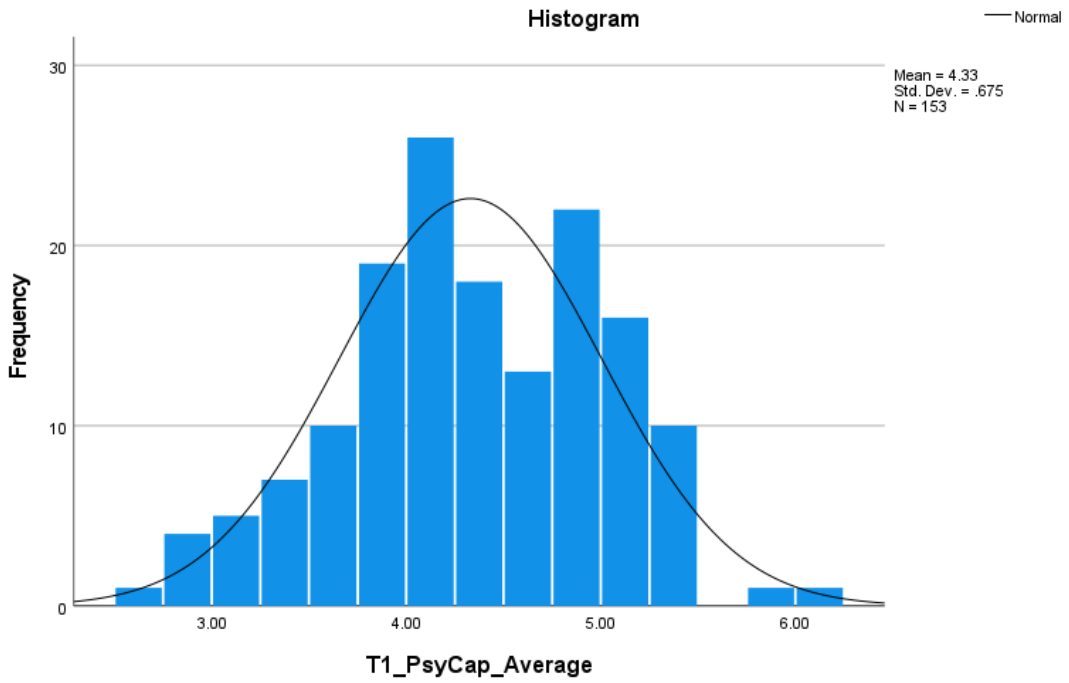


Figure 5:

Histogram for PsyCap for Comparison Group at Time 1

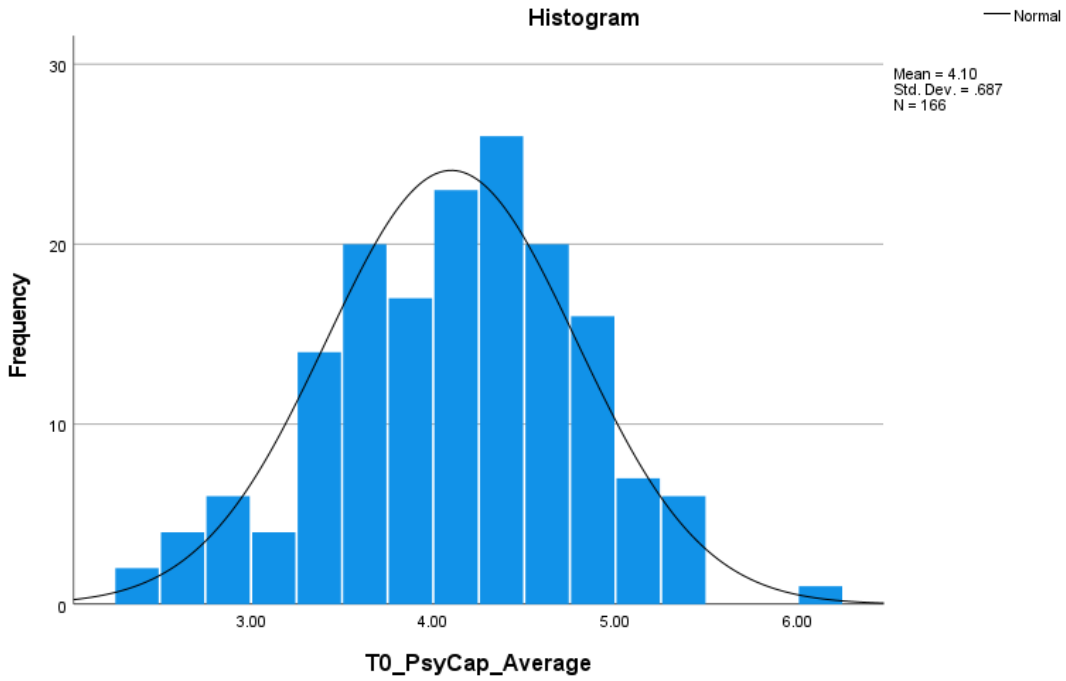


Figure 6:

Histogram for PsyCap for Experimental Group at Time 0

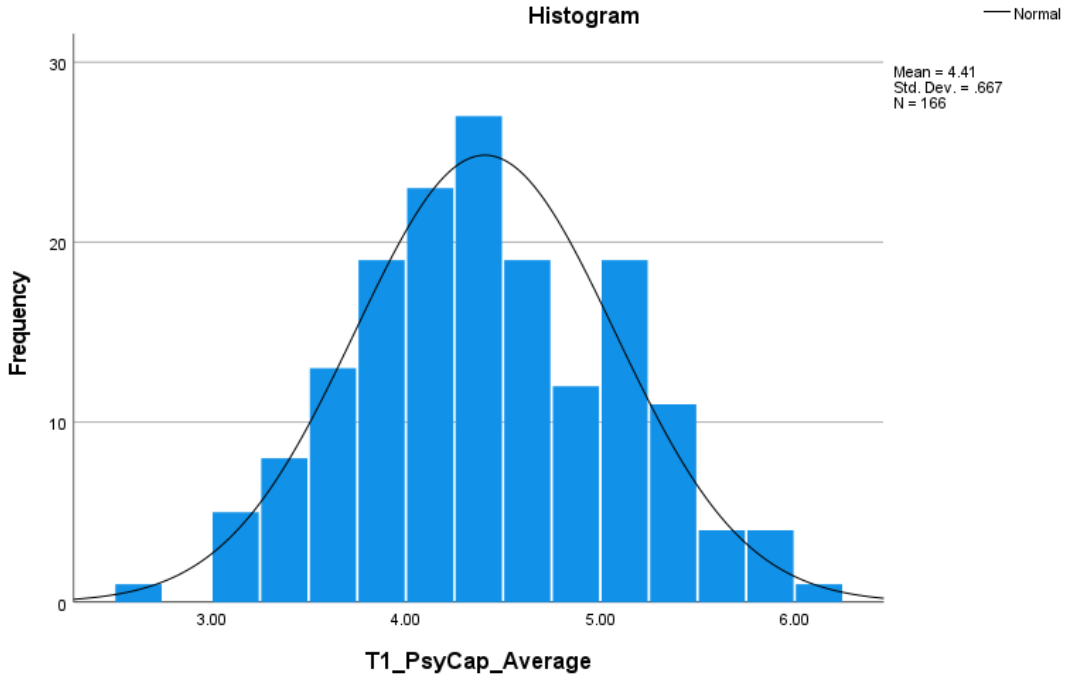


Figure 7:

Histogram for PsyCap for Experimental Group at Time 1

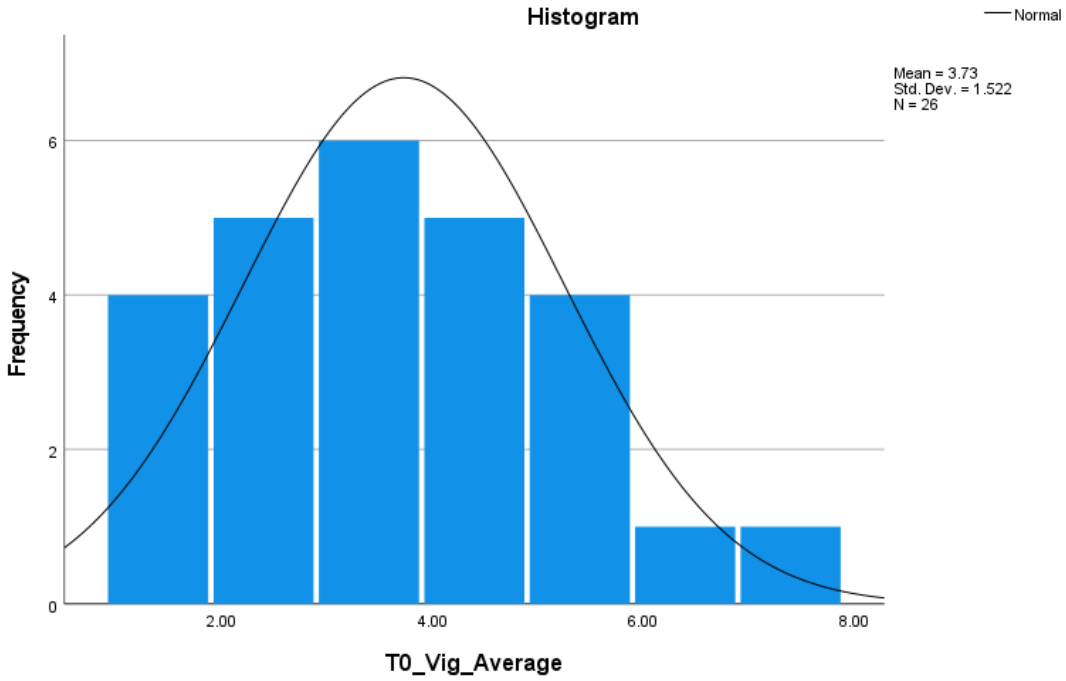


Figure 8:

Histogram for Vigour for Comparison Group at Time 0

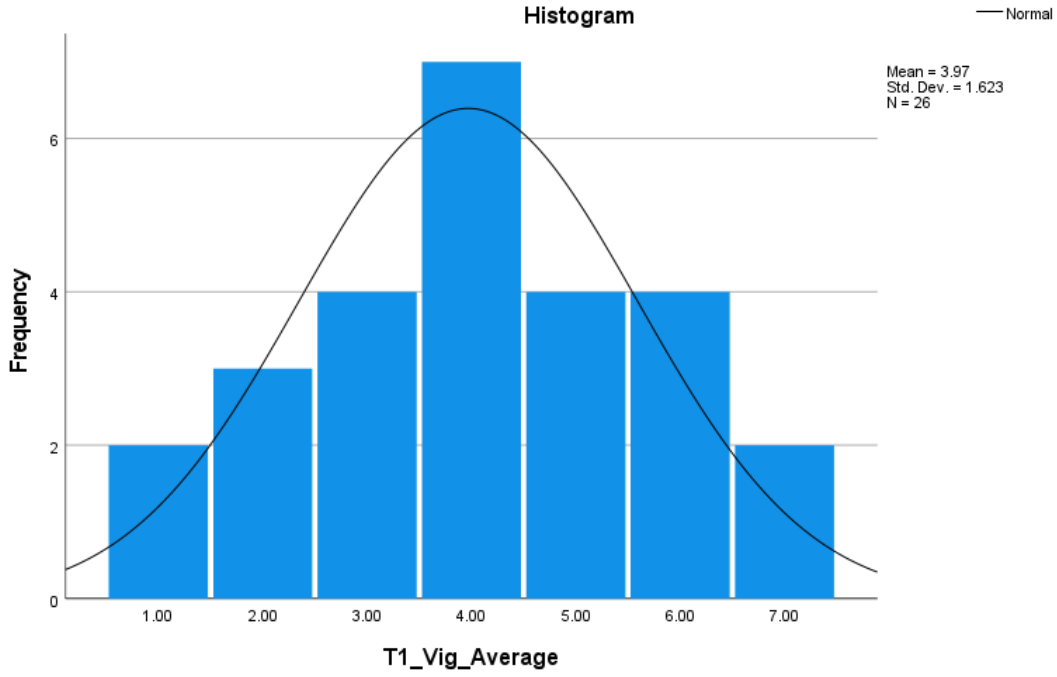


Figure 9:

Histogram for Vigour for Comparison Group at Time 1

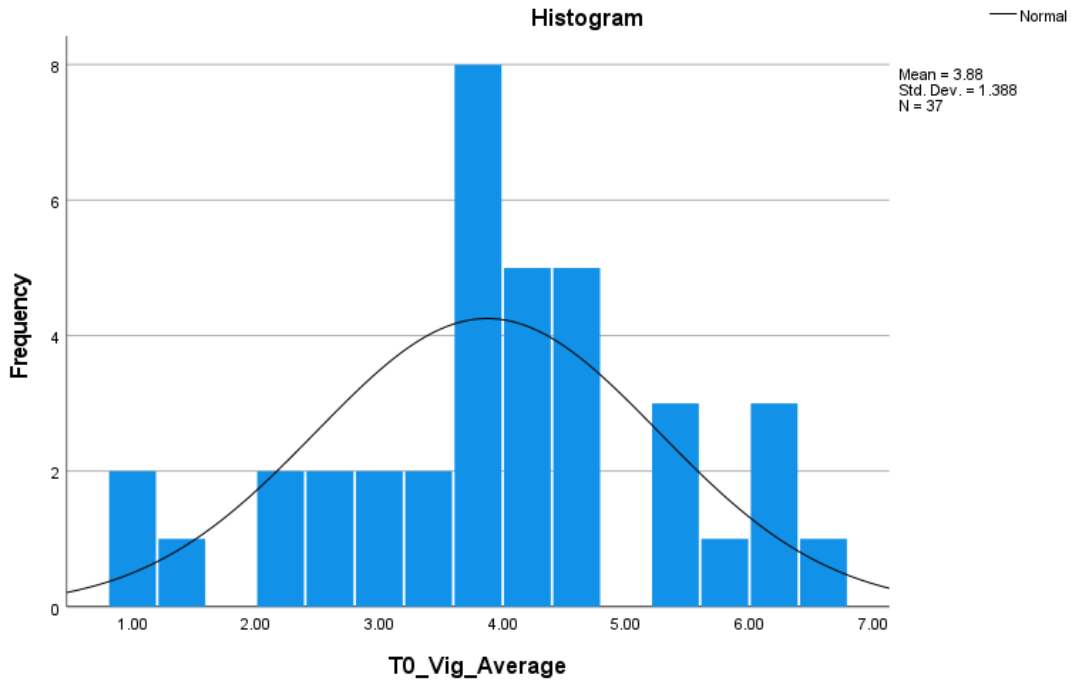


Figure 10:

Histogram for Vigour for Experimental Group at Time 0

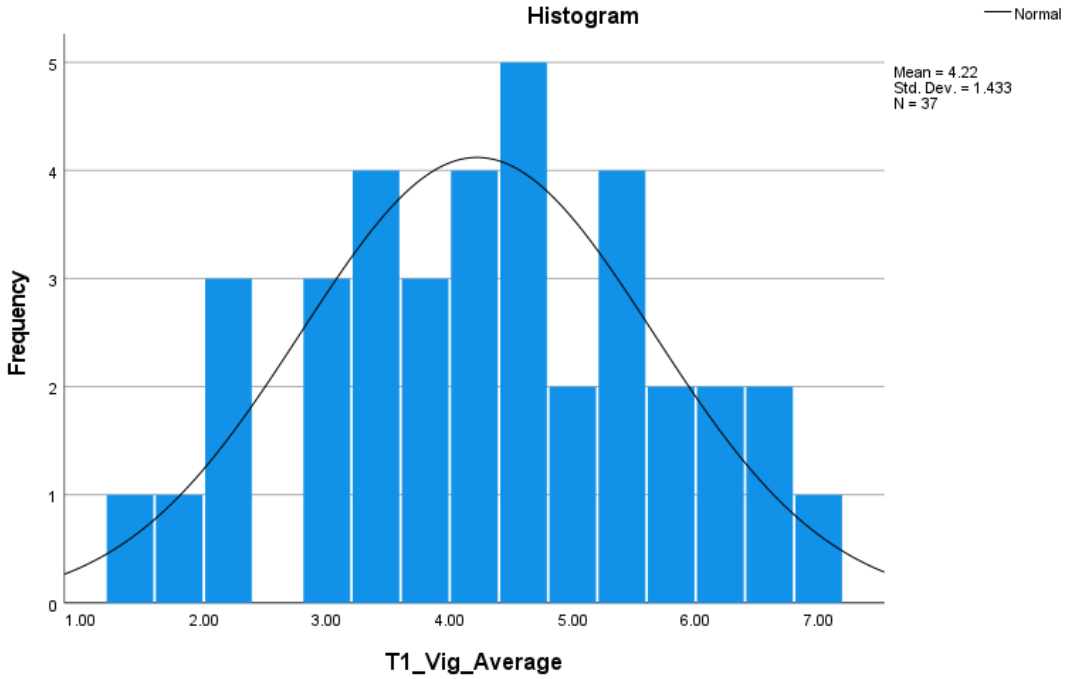


Figure 11:

Histogram for Vigour for Experimental Group at Time 1

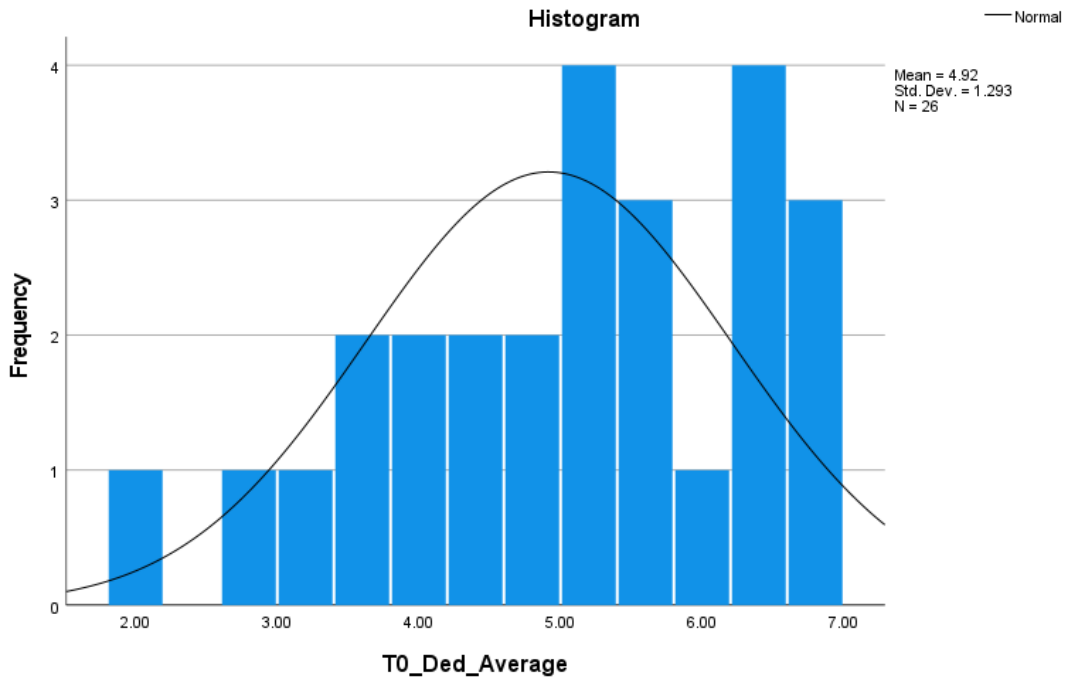


Figure 12:

Histogram for Dedication for Comparison Group at Time 0

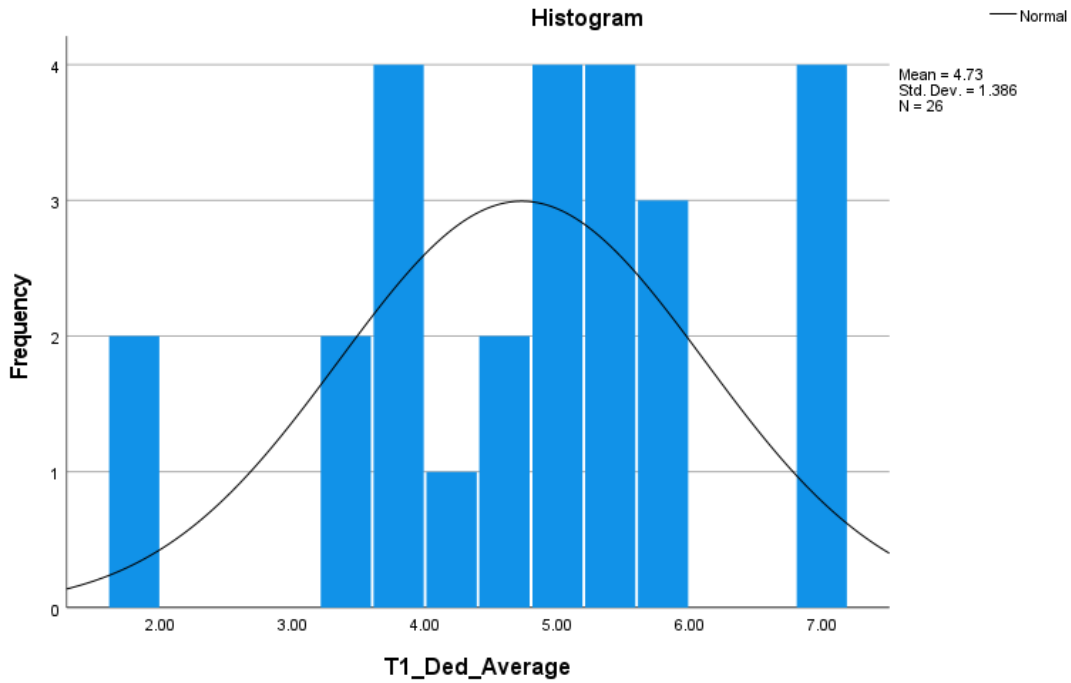


Figure 13:

Histogram for Dedication for Comparison Group at Time 1

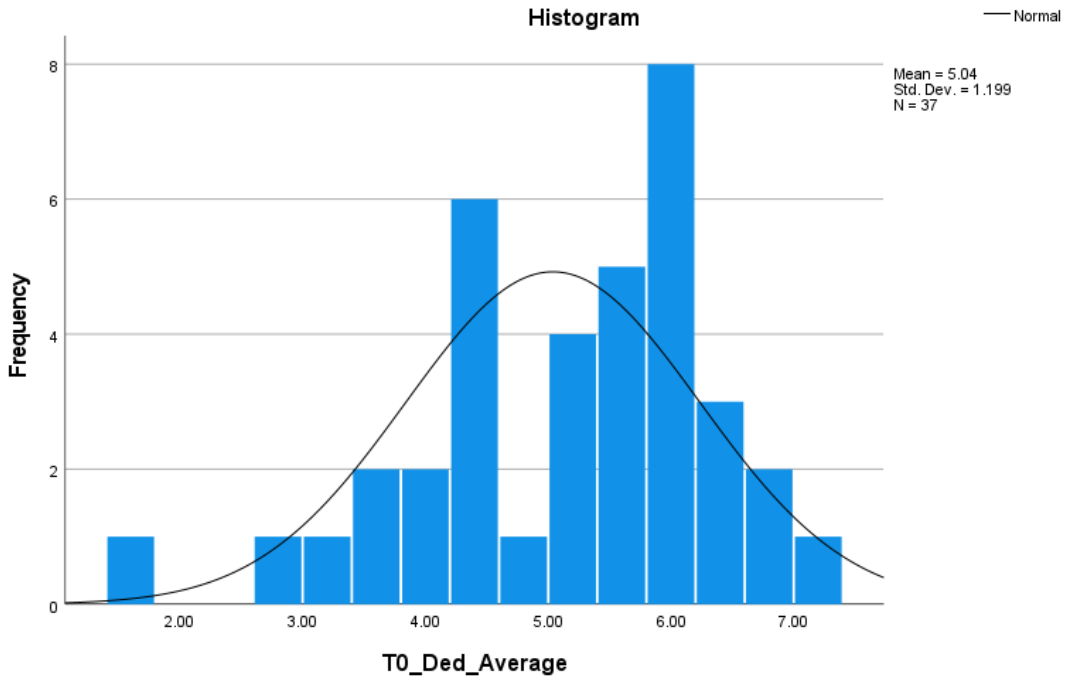


Figure 14:

Histogram for Dedication for Experimental Group at Time 0

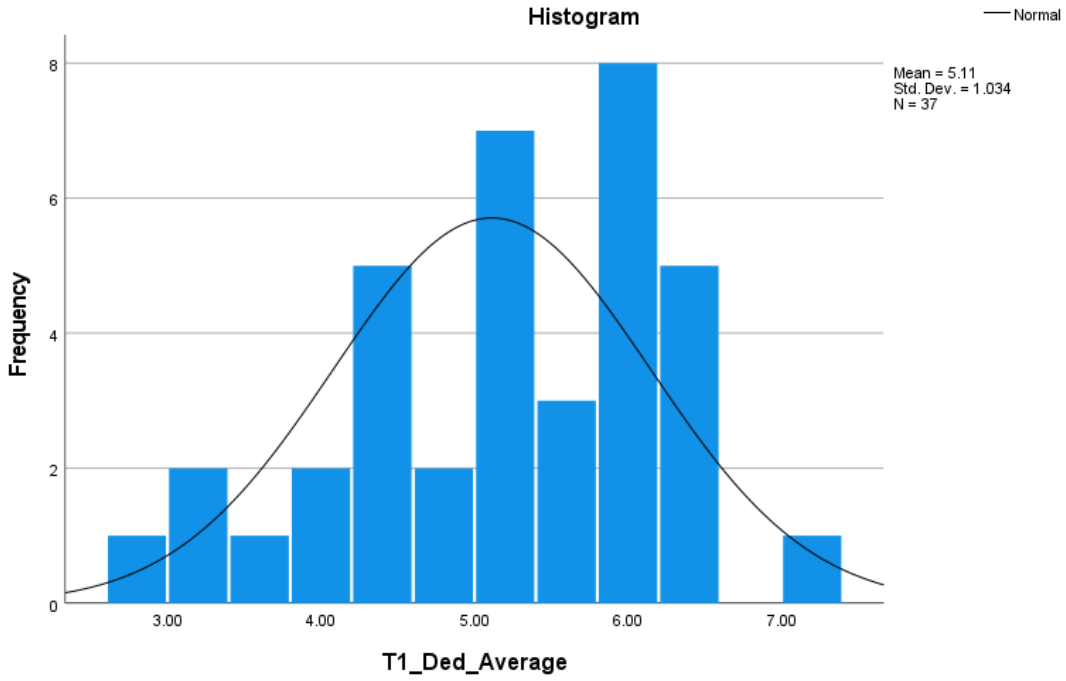


Figure 15:

Histogram for Dedication for Experimental Group at Time 1

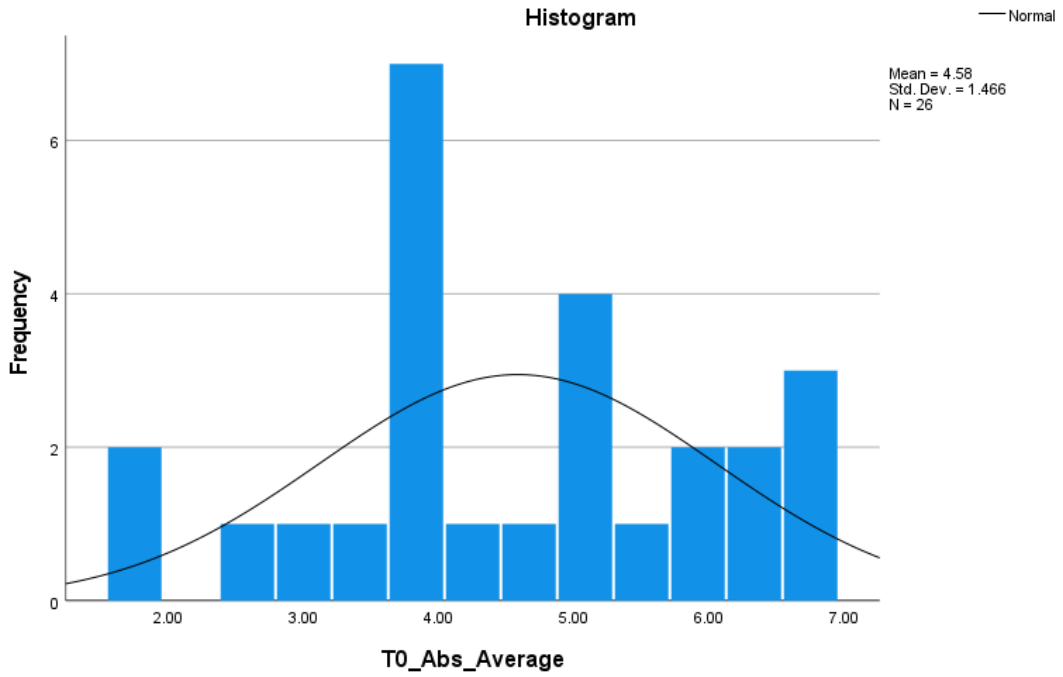


Figure 16:

Histogram for Absorption for Comparison Group at Time 0

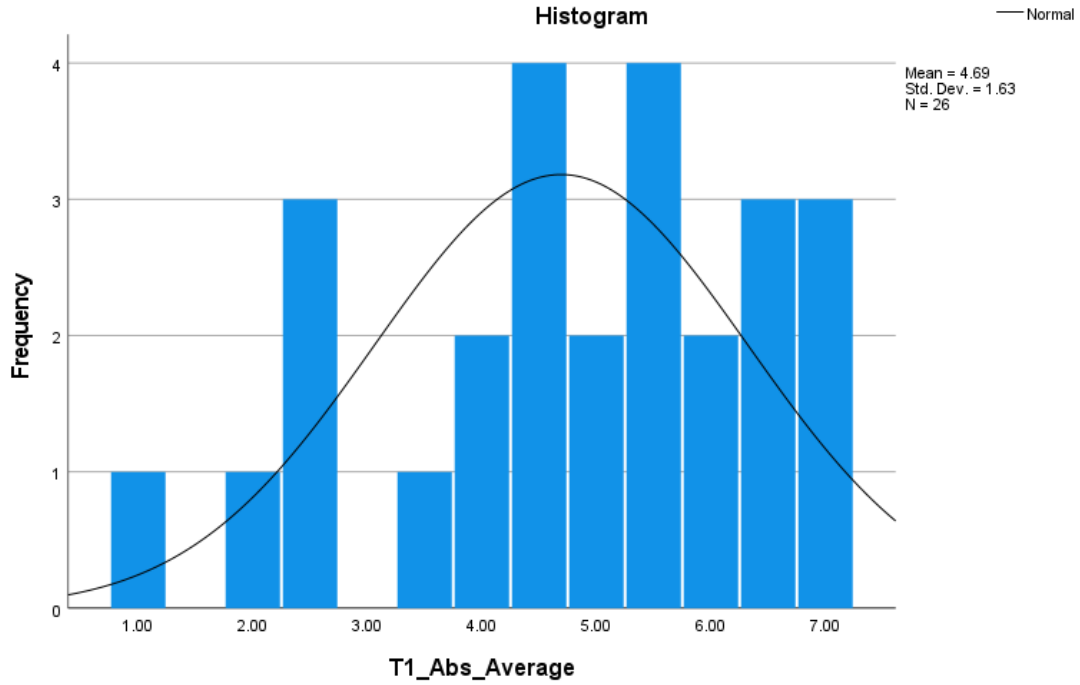


Figure 17:

Histogram for Absorption for Comparison Group at Time 1

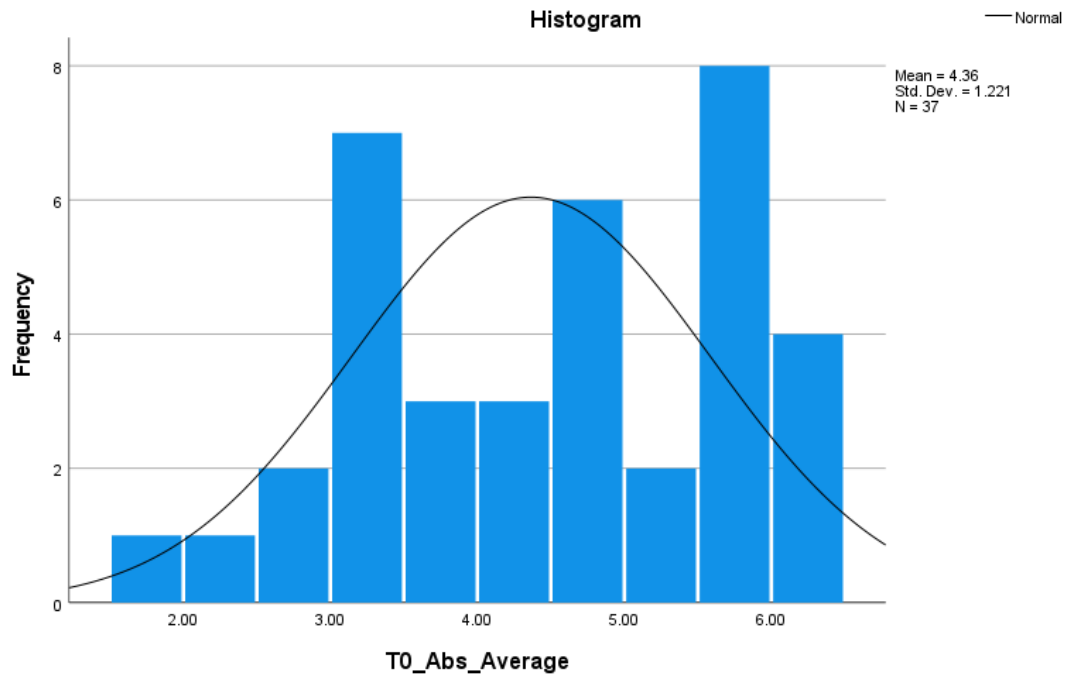


Figure 18:

Histogram for Absorption for Experimental Group at Time 0

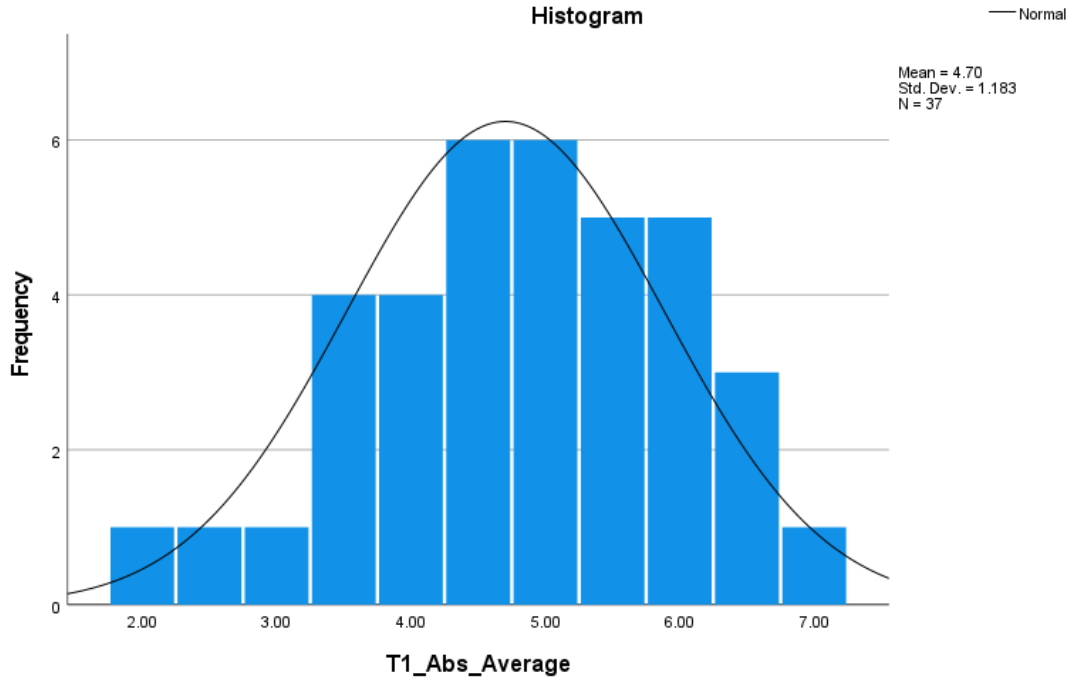


Figure 19:

Histogram for Absorption for Experimental Group at Time 1

Appendix O: Scatterplots for Main Variables

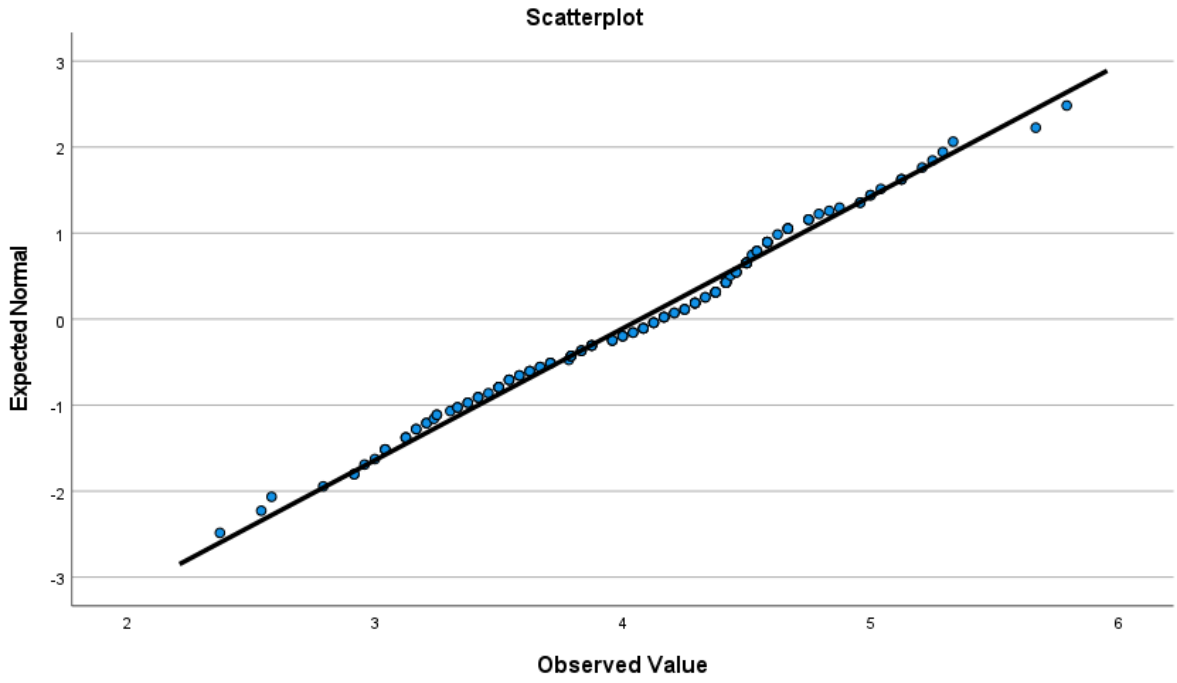


Figure 20:

Scatterplot for PsyCap for Comparison Group at Time 0

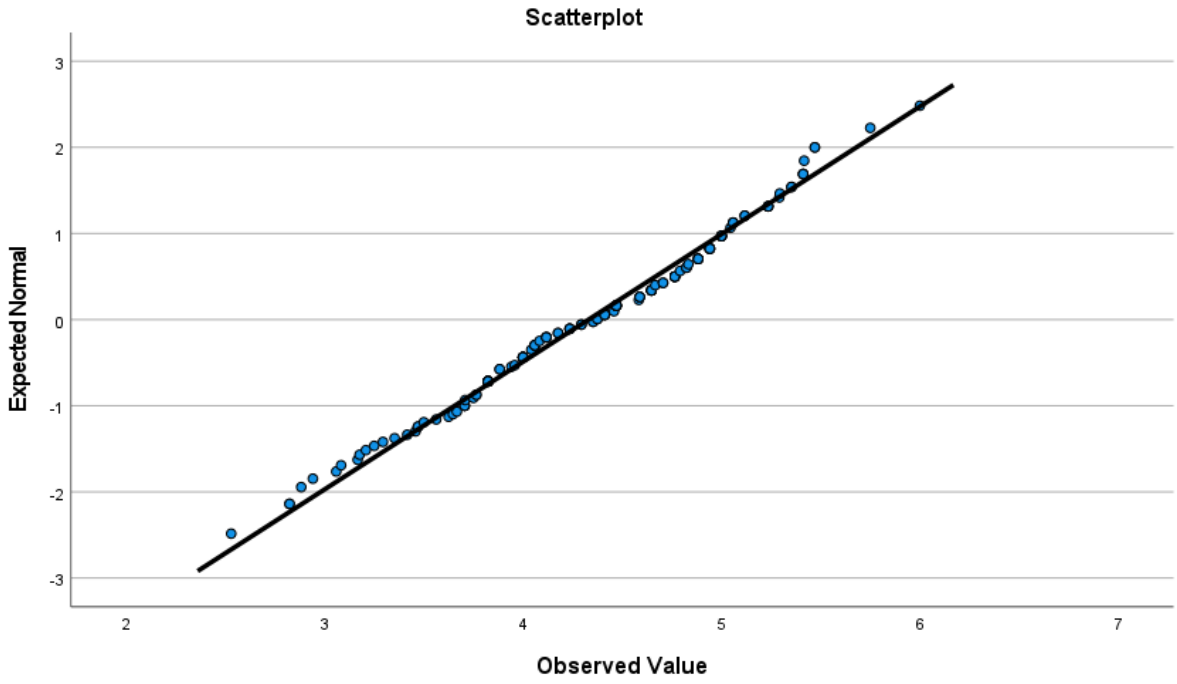


Figure 21:

Scatterplot for PsyCap for Comparison Group at Time 1

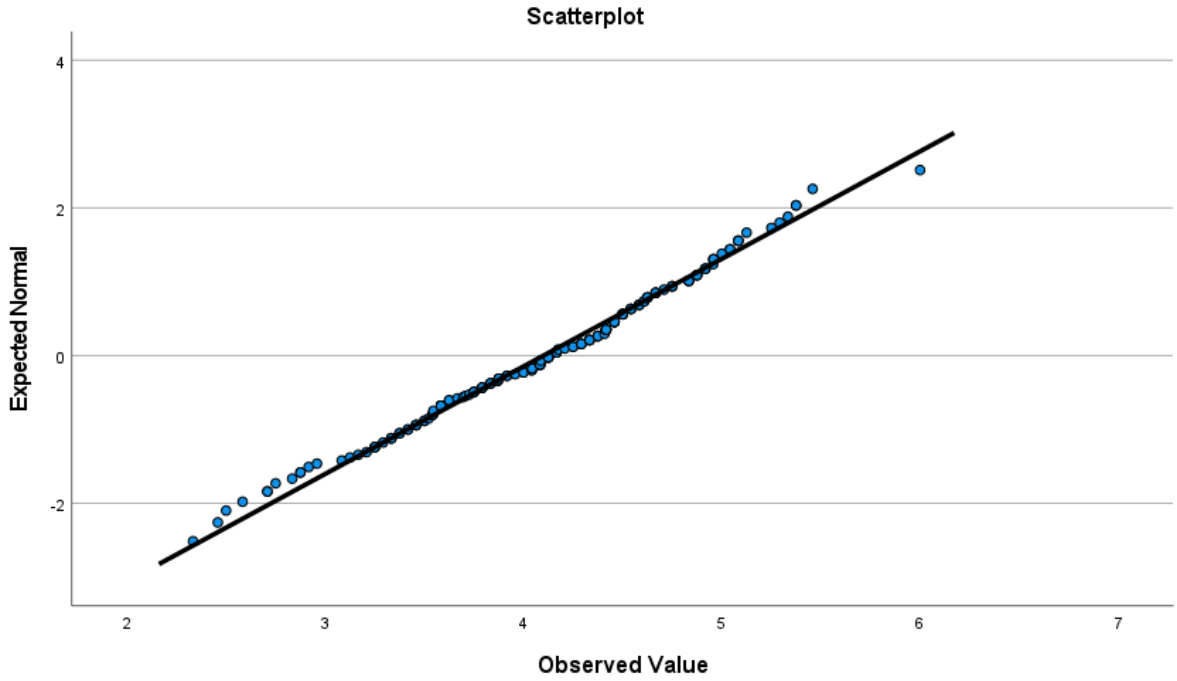


Figure 22:

Scatterplot for PsyCap for Experimental Group at Time 0

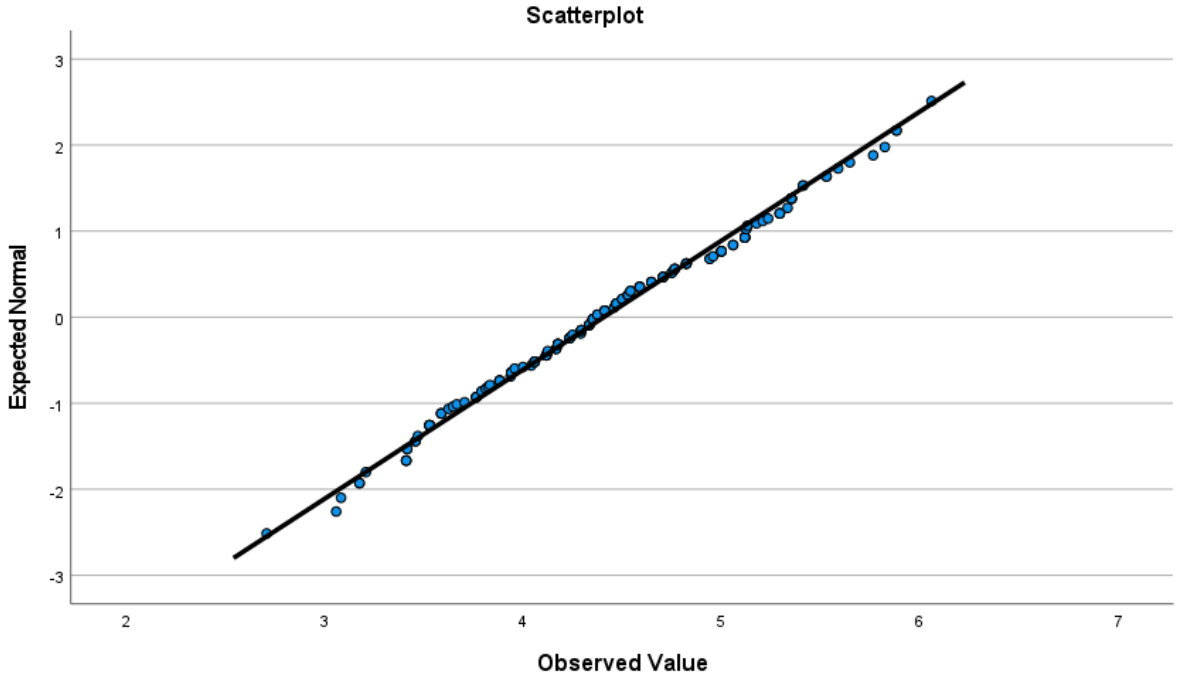


Figure 23:

Scatterplot for PsyCap for Experimental Group at Time 1

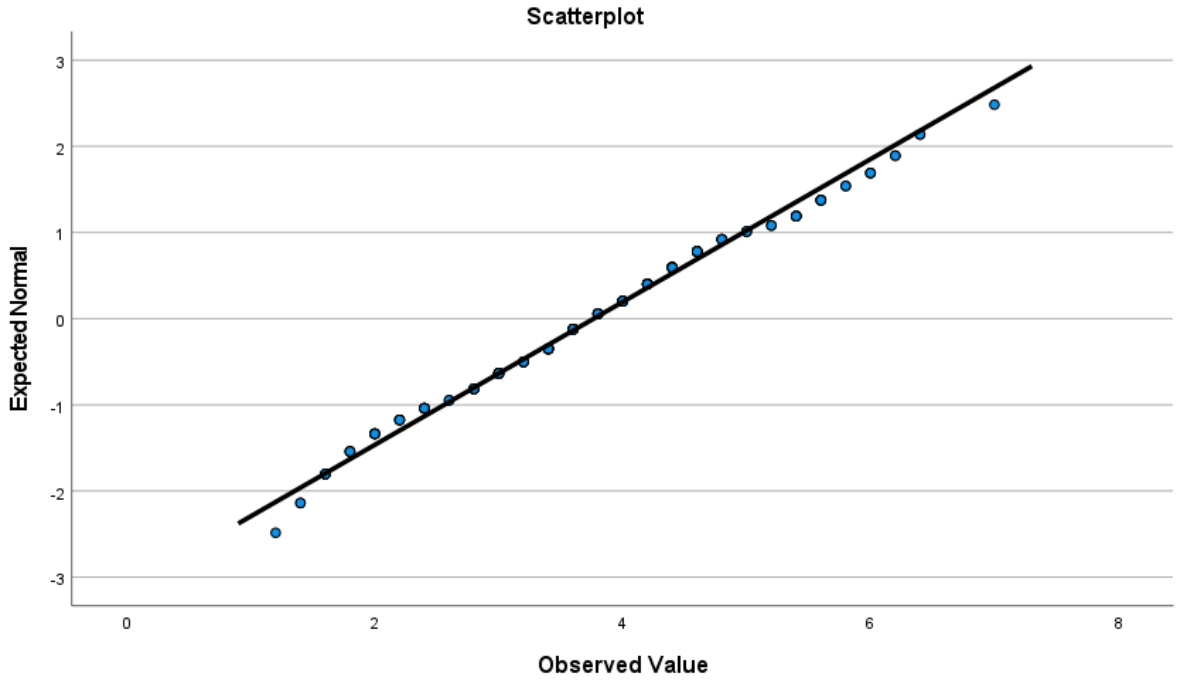


Figure 24:

Scatterplot for Vigour for Comparison Group at Time 0

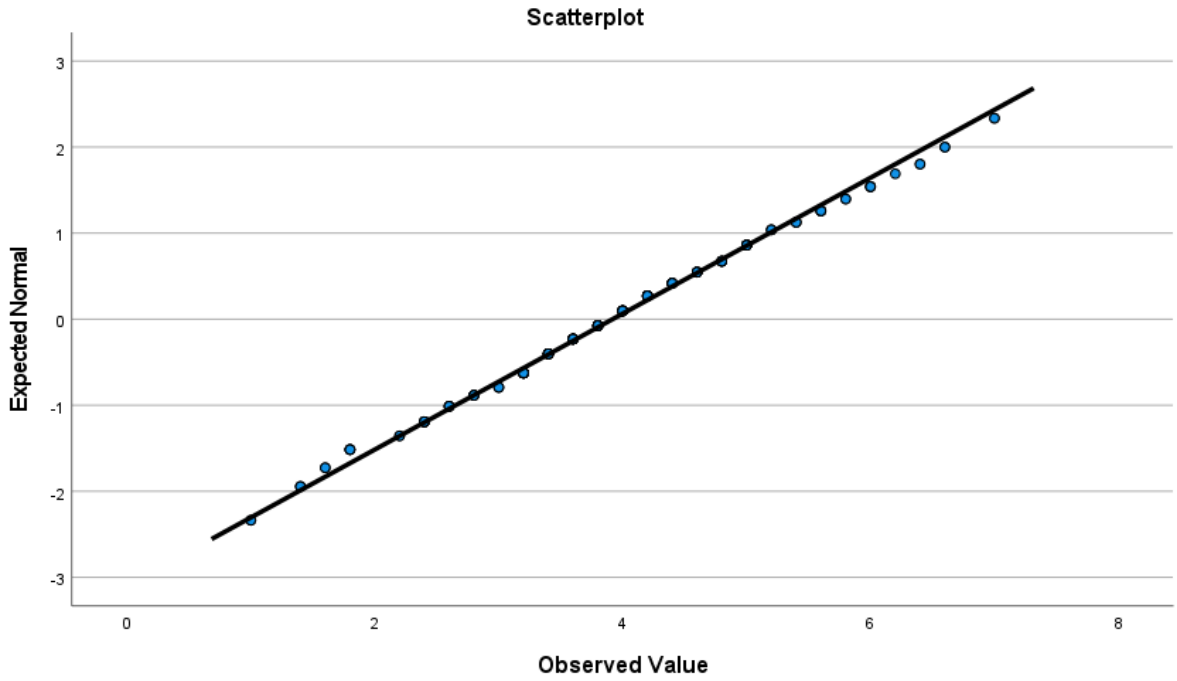


Figure 25:

Scatterplot for Vigour for Comparison Group at Time 1

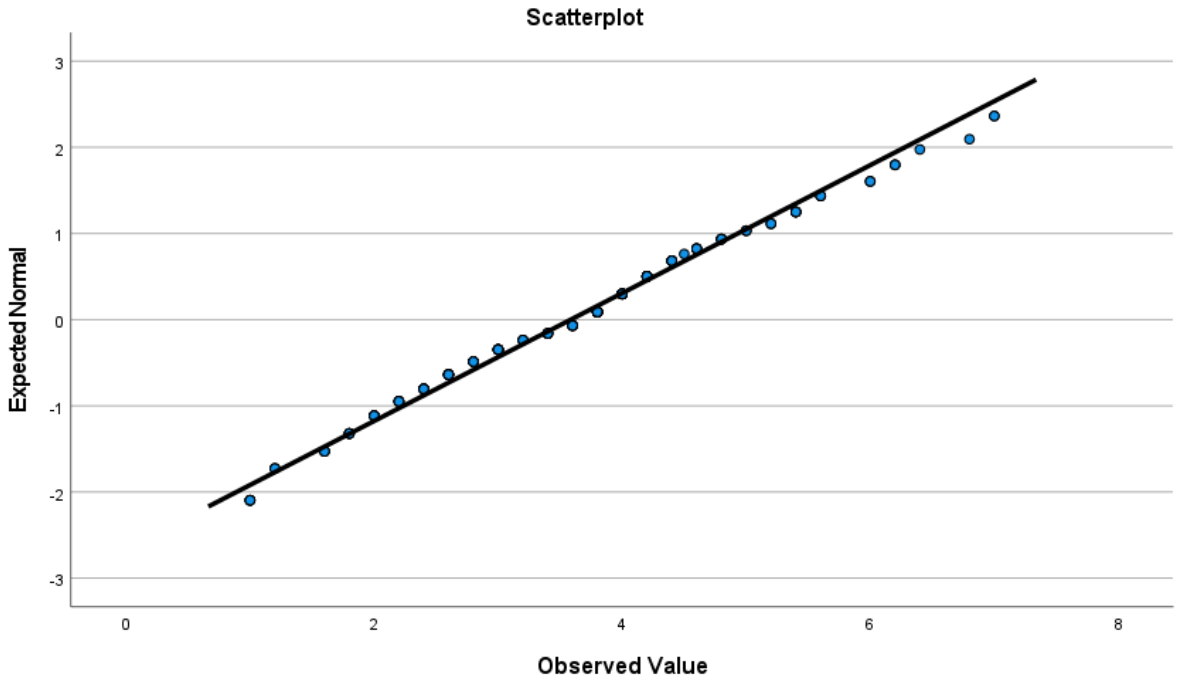


Figure 26:

Scatterplot for Vigour for Experimental Group at Time 0

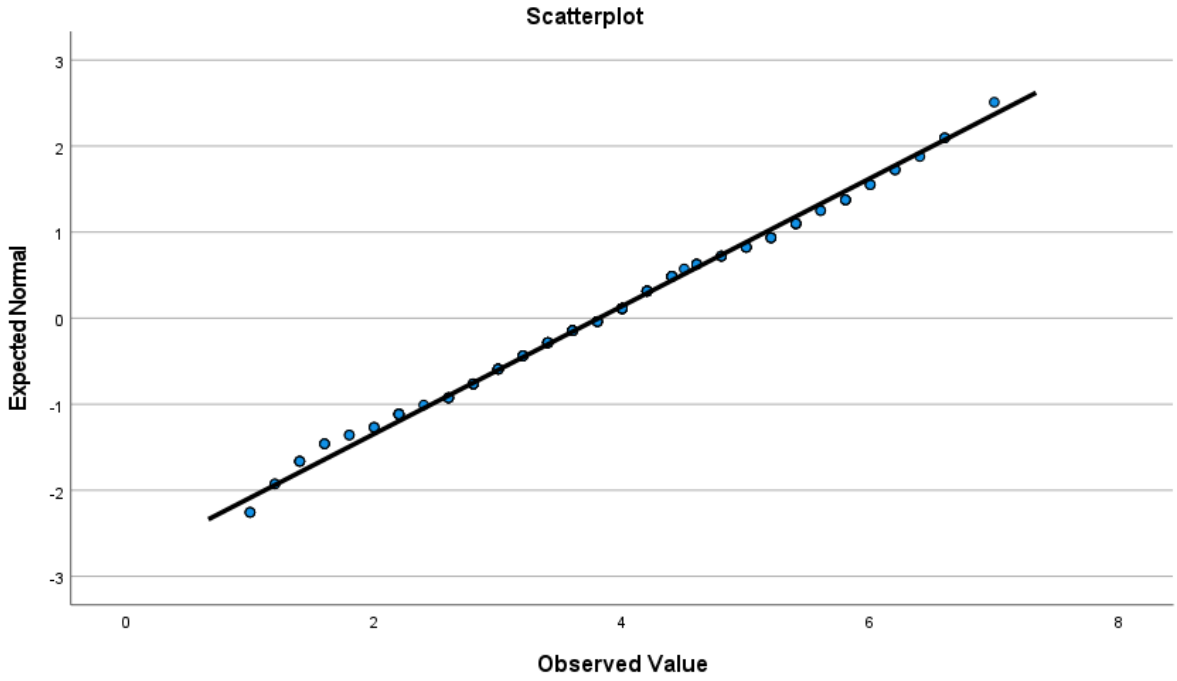


Figure 27:

Scatterplot for Vigour for Experimental Group at Time 1

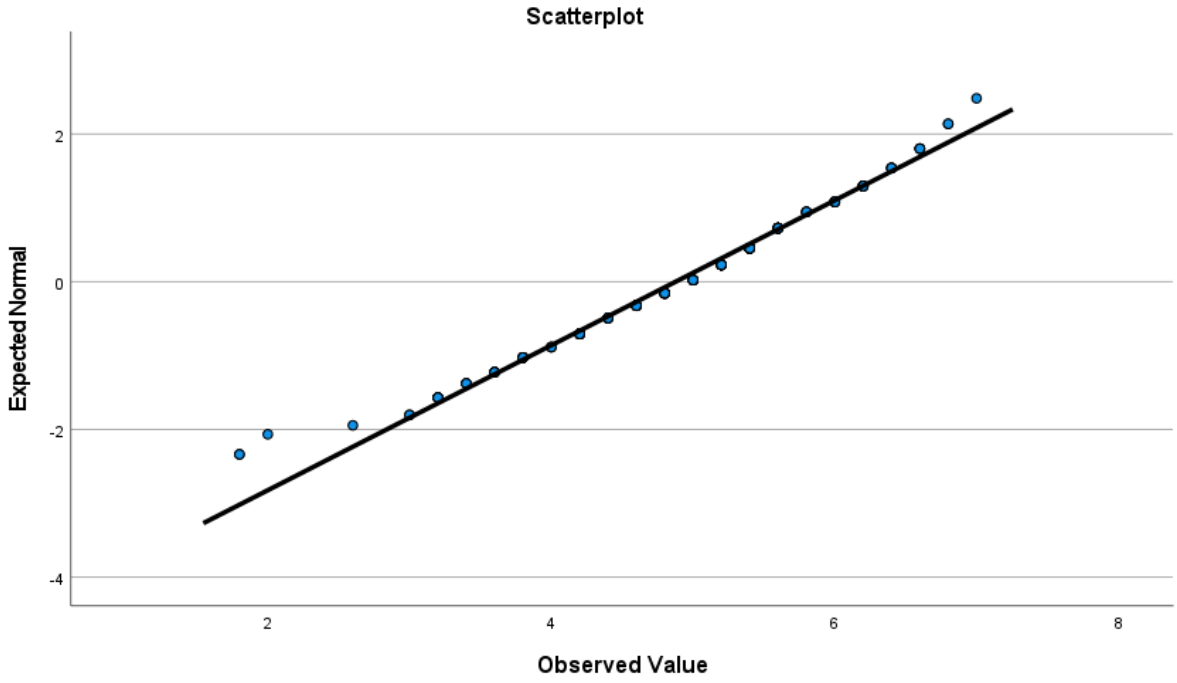


Figure 28:

Scatterplot for Dedication for Comparison Group at Time 0

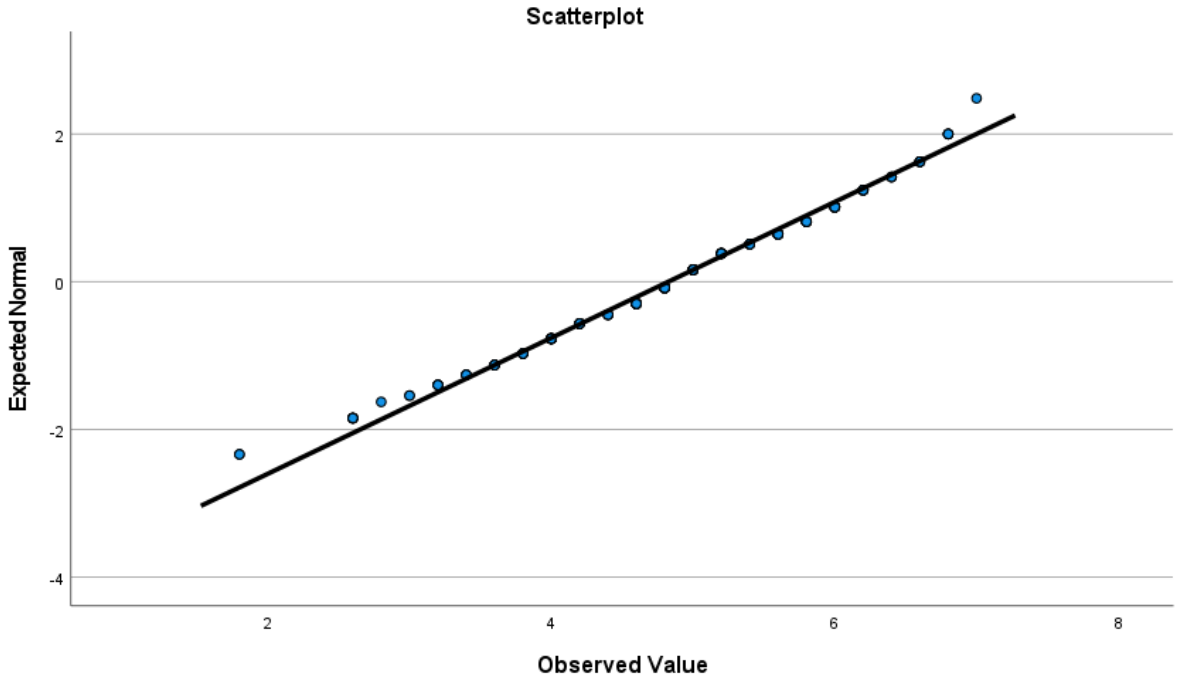


Figure 29:

Scatterplot for Dedication for Comparison Group at Time 1

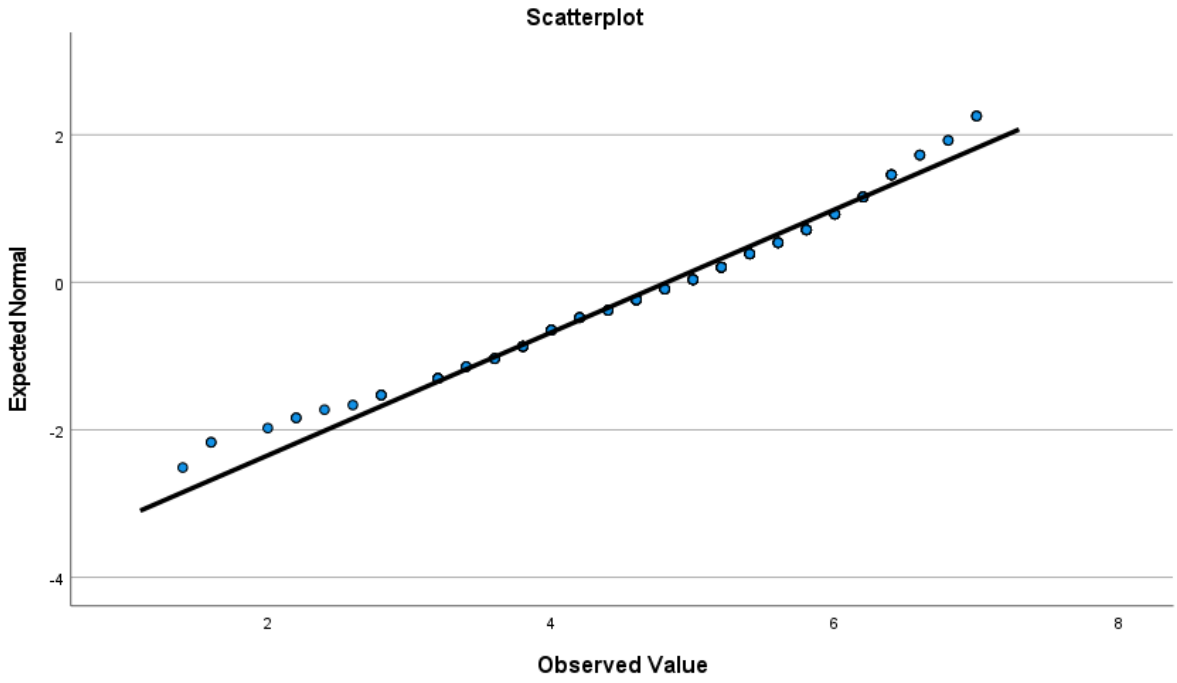


Figure 30:

Scatterplot for Dedication for Experimental Group at Time 0

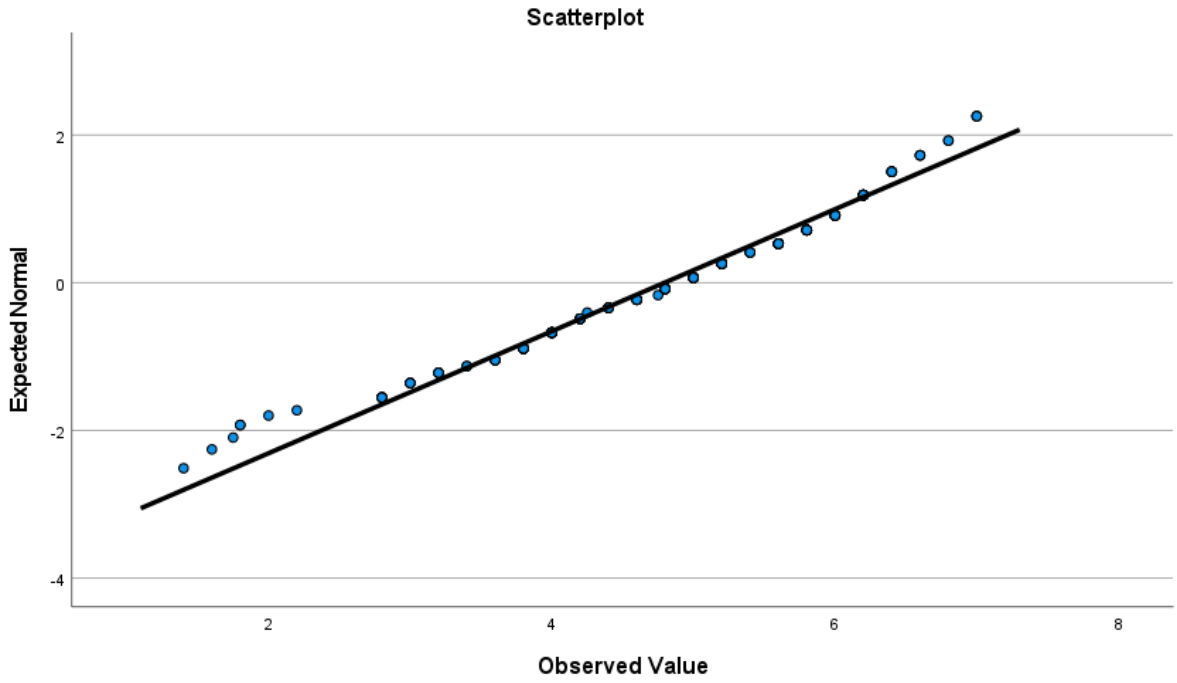


Figure 31:

Scatterplot for Dedication for Experimental Group at Time 1

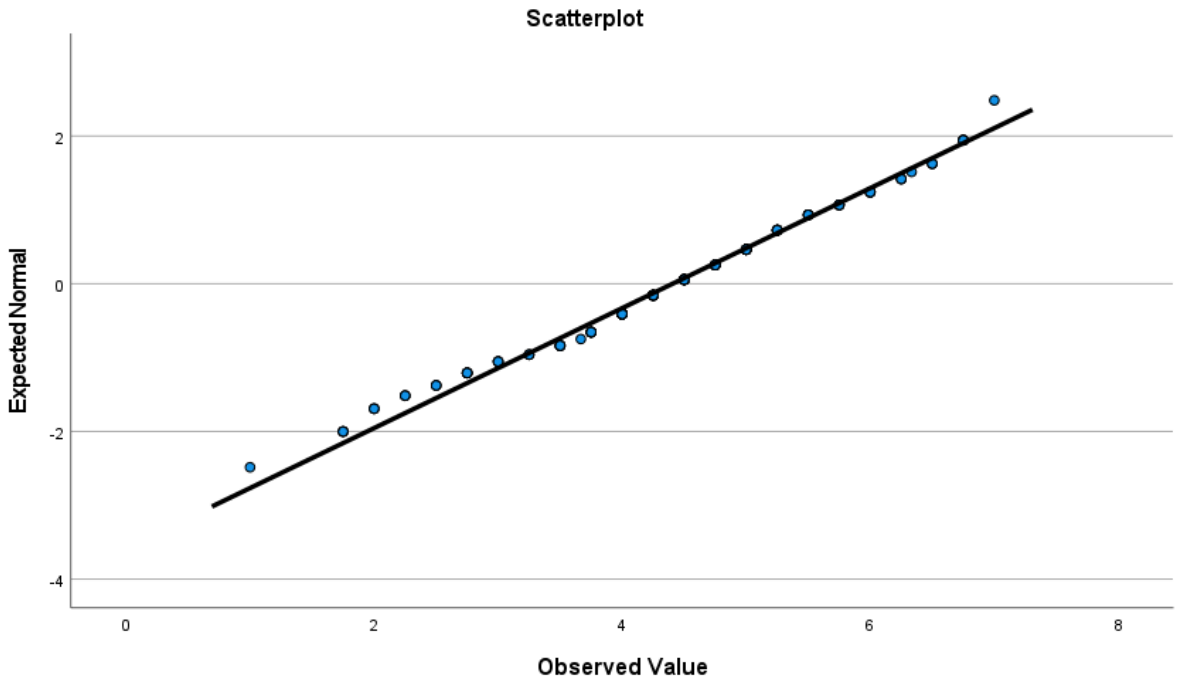


Figure 32:

Scatterplot for Absorption for Comparison Group at Time 0

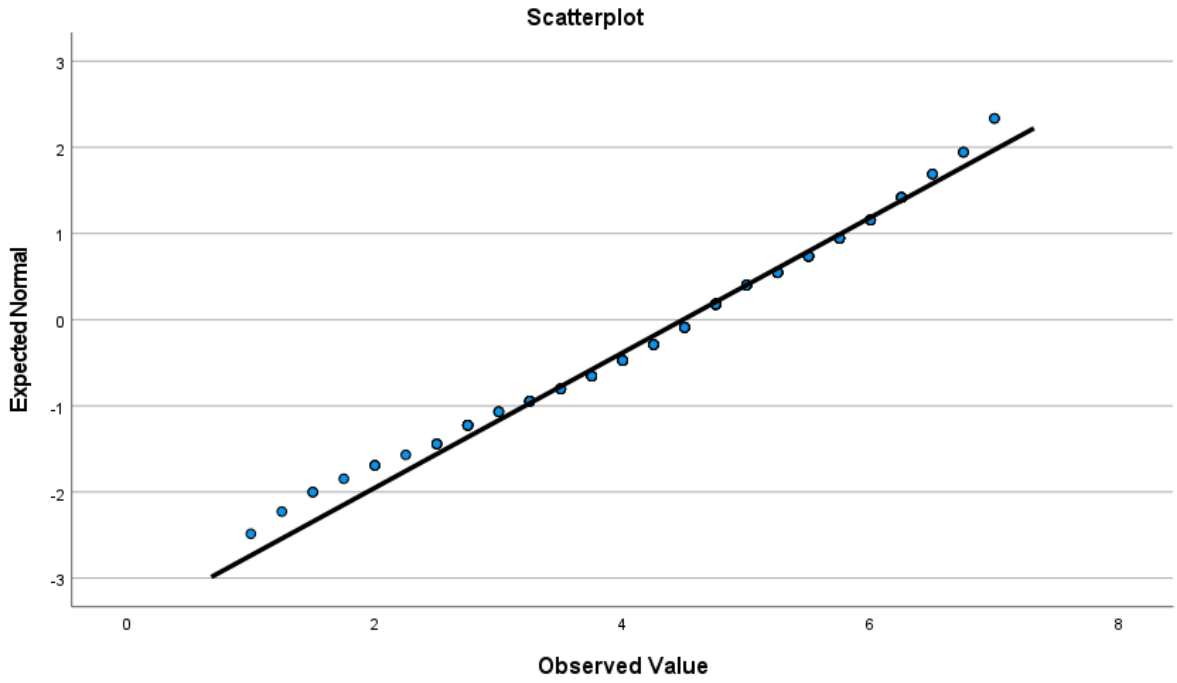


Figure 33:

Scatterplot for Absorption for Comparison Group at Time 1

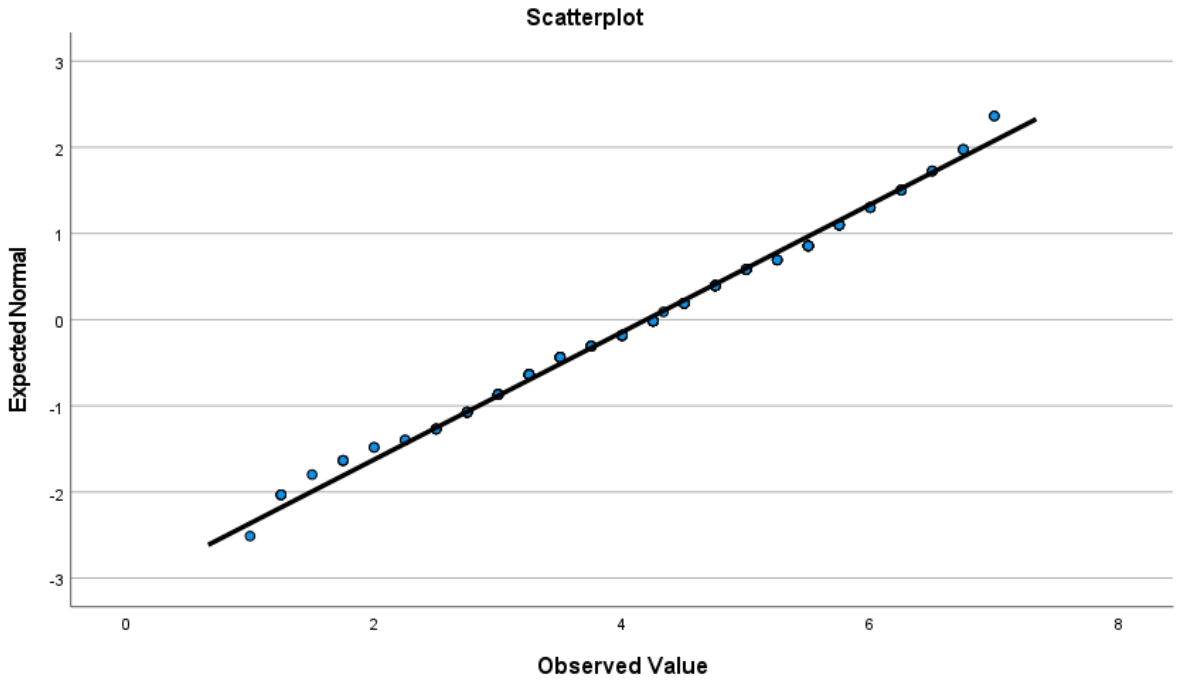


Figure 34:

Scatterplot for Absorption for Experimental Group at Time 0

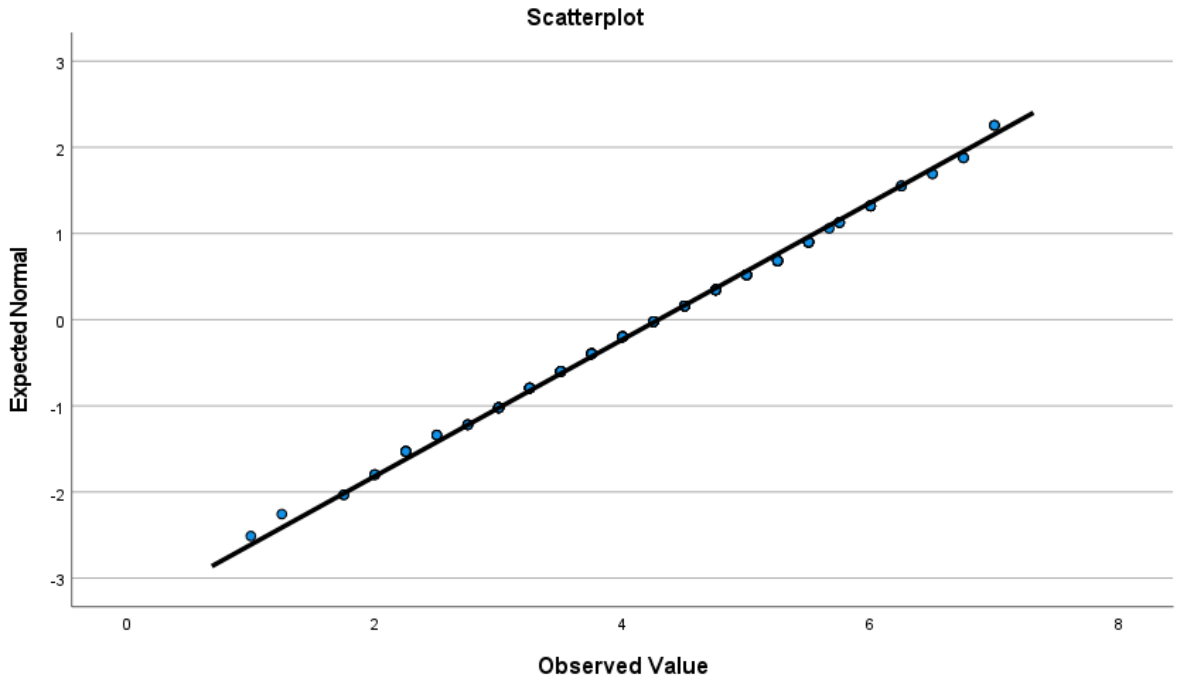


Figure 35:

Scatterplot for Absorption for Experimental Group at Time 1

Appendix P: Profile Plots for Main Variables

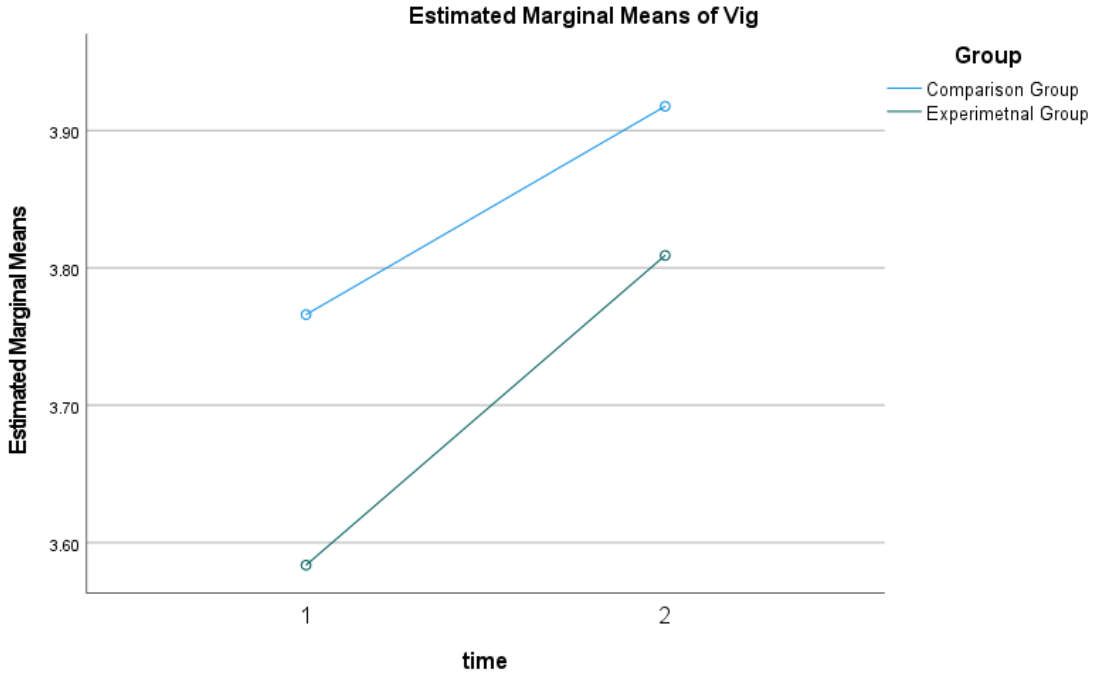


Figure 36:

Profile Plot for Vigour

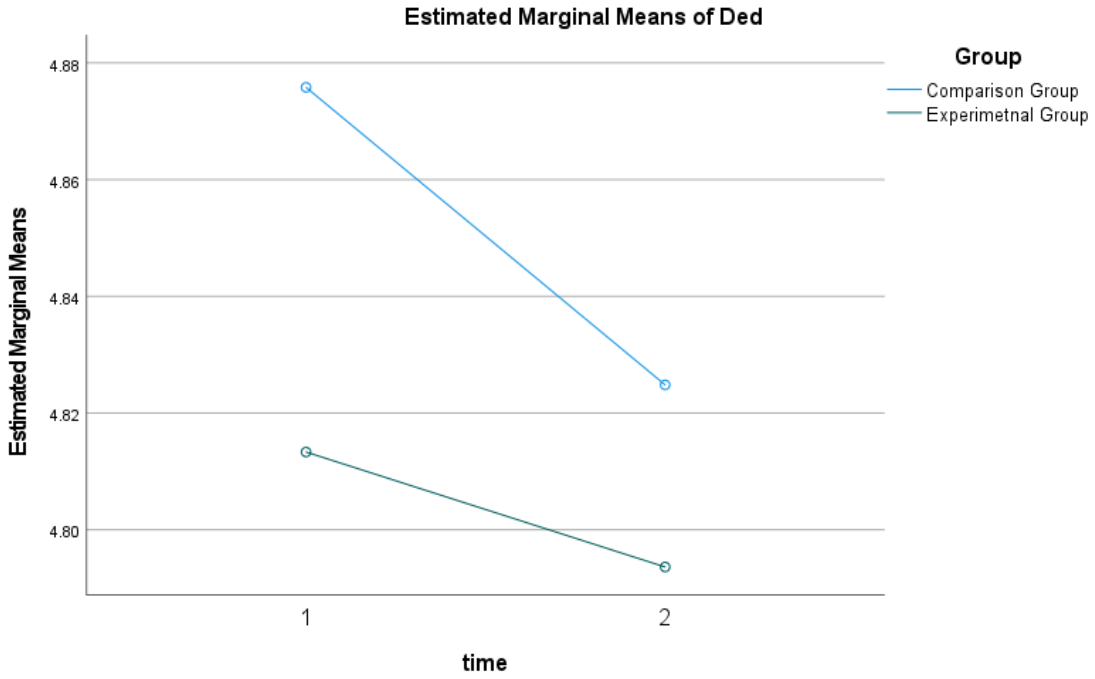


Figure 37:

Profile Plot for Dedication

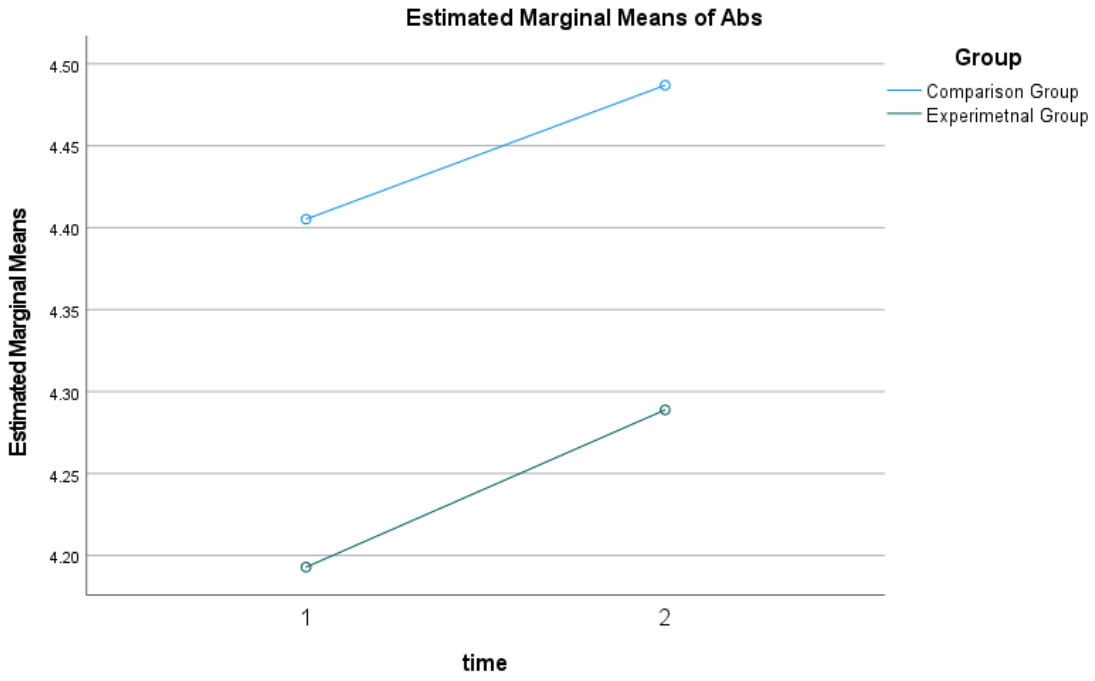


Figure 38:

Profile Plot for Absorption

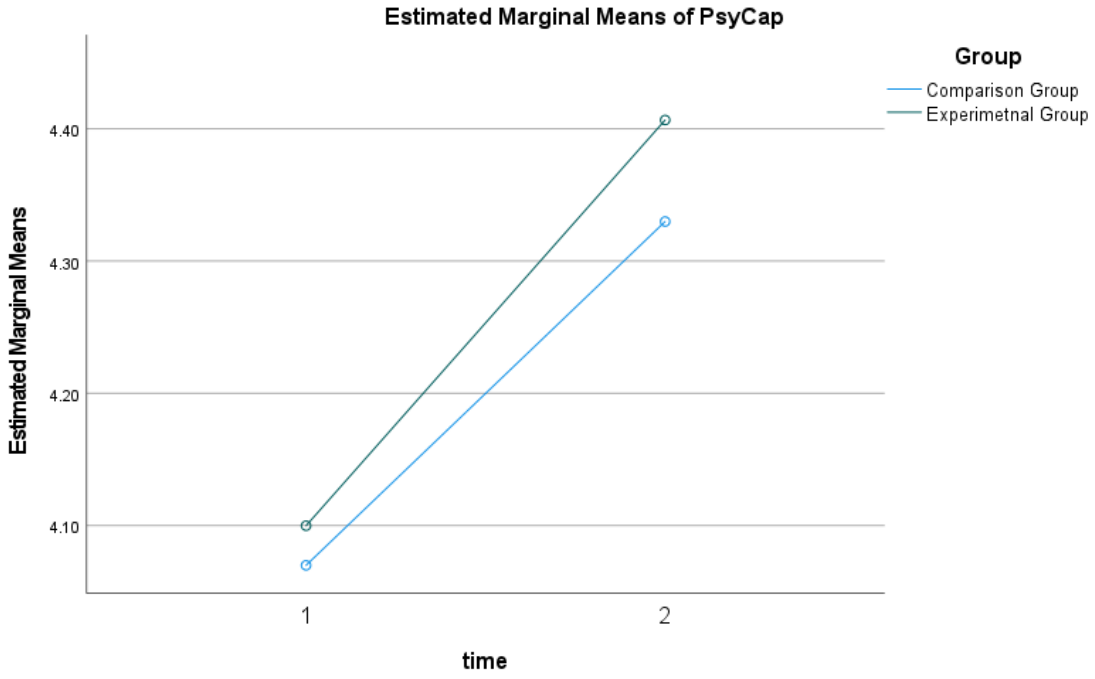


Figure 39:

Profile Plot for PsyCap