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**Examining the effect of Positive Psychology Interventions to improve psychological wellbeing, workplace motivation and re-employment prospects in North Wales.**

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Examining the effect of utilising Positive Psychology Interventions to improve psychological wellbeing, workplace motivation and re-employment prospects in North Wales.

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August, 2019

Thesis submitted to Bangor University in partial fulfilment for the degree of Doctor of Philosophy.



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### List of useful acronyms

BPN	Basic Psychological Needs Scale
BPNT	Basic Psychological Needs Theory
CD-RISC	Connor Davidson Resilience Scale
CfW	Communities for Work Service
DASS-21	Depression, Anxiety and Stress Scale
EWP	Expressive Writing Paradigm
GDP	Gross Domestic Profit
LOC	Locus of Control
IMI	Intrinsic Motivation Inventory
MCII	Mental Contrasting with Implementation Intentions
MP	Motivational Persistence Scale
MPPI	Multicomponent Positive Psychology Intervention
OIT	Organismic Integration Theory
RCS	Rhyl City Strategy
PCBI	Positive Cognitive Behavioural Intervention
PE	Positive Events Diary
PPIs	Positive Psychology Interventions
SDT	Self-Determination Theory
SPANE	Scale of Positive and Negative Experience
SWL	Satisfaction with Life Scale
WHO	World Health Organisation
WOOP	Mental Contrasting (Wish, Outcome, Obstacle, Plan)

## Thesis Summary

The burden of mental health disorders is burgeoning and are a public health priority. These mental health disorders are characterised by one or more of: (1) abnormal thoughts, (2) maladaptive emotion regulation, (3) behavioural dysregulation and (4) strained relationships with others. Currently, to treat the psychosocial and behavioural problems associated with a mental health disorder, individuals are either prescribed psychotropic medication or transferred into psychotherapeutic treatment. However, demand continues to exceed available resources for psychotherapy and psychotropic medications come alongside a plethora of negative side effects which do not treat the root cause of the disorder. This presents a need to reorient focus towards the development of evidence-based early-intervention strategies to equip individuals to appropriately deal with adversity.

The global burden of mental health disorders also presents a significant problem in the workplace, where individuals often work whilst struggling. This is referred to as presenteeism, which harms workplace productivity and increases the number of sick days required by employees each year. However, the negative stigma associated with the disclosure of a mental health disorder to an employer remains a significant barrier to individuals seeking treatment. Stable employment is also classified as a wider determinant of health and wellbeing, with long-term unemployment being associated with a plethora of psychological ill-effects. Importantly, effects endure long-term and have permanent detrimental effects on life satisfaction. Also, the longer an individual is unemployed, the more complex their situation becomes, decreasing the likelihood of re-employment. Both of these come at significant economic cost to the UK Government, presenting a need to focus study on these populations.

Increasingly, public health initiatives place an emphasis on early-intervention approaches and the development of such interventions has captured public interest. Positive Psychology is one such approach. Specifically focusing on the development of light-touch evidence-based approaches to improve the wellbeing of the population. Positive Psychology Interventions (PPIs) have previously shown efficacy in the workplace and the unemployed. One example of a PPI is a reflective journaling intervention, where individuals document their experiences over the course of a week. Previously, both positive and

negative written emotional disclosure have demonstrated effectiveness when aiming to improve wellbeing. One of the inaugural findings in the reflective journaling literature is the '3 Good Things' intervention, which has demonstrated endured effects on wellbeing and depressive symptomology, in a large population sample.

Alongside a company sponsor (Rhyl City Strategy; see section 1.1), the primary aim of this body of work was to use reflective practice to improve intrinsic motivation, wellbeing and resilience in the long-term unemployed and employees. All diaries were first piloted in Higher Education Students before the successful interventions were implemented into an employed population. Specifically, Chapter 2, (Study 1) focused on reflection of basic psychological need satisfaction to improve intrinsic motivation and wellbeing. Chapter 3, (Study 2a) emphasised daily anxiety provoking events to improve resilience; Study 2b then reframed these anxieties into excitement. Study 2c then implemented the successful Excitement Diary into a small cohort of employees. Chapter 4, (Study 3) aimed to disentangle the mechanisms of the previously successful '3 Good Things' diary and implement a novel Locus of Control (LOC) diary simultaneously. Finally, Chapter 5 (Study 4) established the effectiveness of a multicomponent 6-week PPI (BOOST!) in a population of long-term unemployed individuals who resided in four counties in North Wales. Chapter 6 discusses the practical implications of research, alongside its strengths and limitations. A schematic of the thesis structure is presented in Figure 1.1.

Figure 1.1: Schematic of thesis structure.

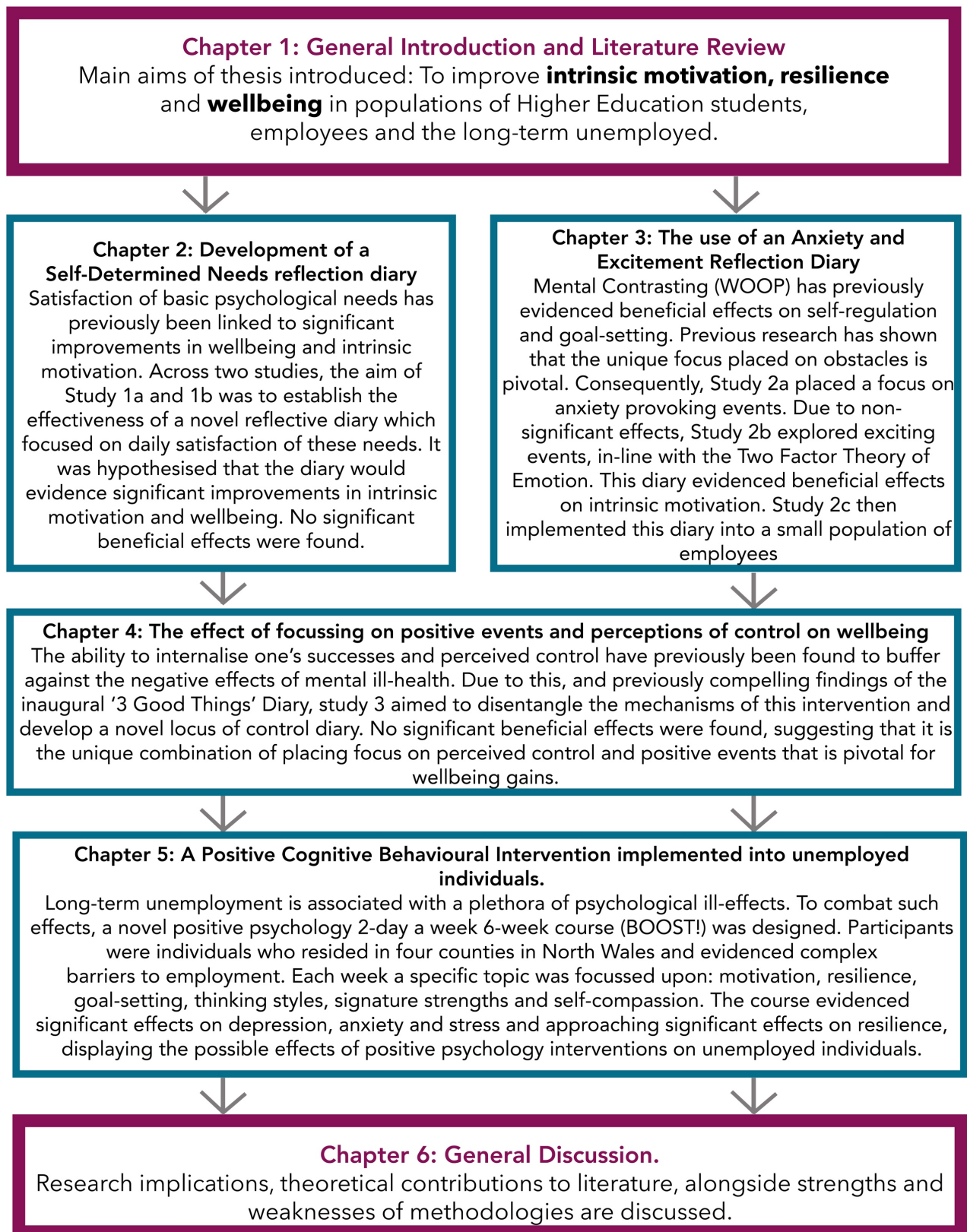


Figure 1.1: Schematic of thesis structure.

## The Nominated Company Sponsor for this PhD

### 1.1 Rhyl City Strategy (RCS)

In 2016, funding was secured on a collaboration between Bangor University and RCS to decipher the effect of PPIs on workplace wellbeing. This body of work is the culmination of that collaboration.

RCS are a local not-for-profit organisation, based in Rhyl, North Wales. They were established as part of the Department for Work and Pensions 'City Strategy' programme, alongside 15 other disadvantaged cities in the UK. The aim of the programme was to implement and evaluate a localised approach to unemployment and worklessness. In 2008, they formed a partnership with a community interest company, introduced to work alongside social enterprises who aim to use their profits for public good. This enabled their survival when the City Strategy scheme ceased in 2011. In 2019, RCS are the only original City Strategy programme still in existence. They now operate all across North Wales, developing and delivering innovative employability solutions.

RCS' primary aim is to contribute to the economic and social wellbeing of North Wales. They provide a range of interventions (i.e. counselling and physiotherapy) to individuals who have barriers to entering, sustaining or flourishing in employment (i.e. a mental health disorder or a musculoskeletal condition). Specifically focus is placed on those who are on or at risk of sickness absence from work or those who evidence complex barriers to employment. Since 2007, they have supported over 3,000 people to retain employment following a leave of sickness absence, created nearly 500 employment opportunities for the long-term unemployed and engaged over 5,000 individuals in training courses to improve their employment prospects. Some of their pioneering work includes the development of a Taste Academy training restaurant in 2010 and an In-Work Support Programme across Denbighshire, Anglesey, Conwy and Gwynedd in 2015.

In 2018, and on their 10-year anniversary of the community interest partnership, they announced a further £33-million of funding. This will be used in-part to develop a positive psychology course, implemented into workplaces across Wales and to continue their previous work.



## General Introduction

### 1.2. Mental health statistics in the workplace

Globally, mental health conditions are one of the main causes of the burden of disease (WHO, 2003; Vos, Barber, Bell, Bertozzi-Villa, Biryukov, Bollinger et al., 2015). Worldwide, depression is the most prevalent mental health problem, followed by anxiety (Steel, Marnane, Iranpour, Chey, Jackson, Patel, & Silove, 2014). Collectively these are referred to as Common Mental Health Disorders (Mental Health Foundation, 2016a).

This high prevalence of these common mental health disorders presents a significant problem in the workplace. In 2017, 44% of the working population in the UK suffered from a common mental health disorder (Stevenson & Farmer, 2017). Additionally, 1 in 6 individuals in the workplace evidenced symptoms associated with common mental health disorders at work, which do not meet diagnostic criteria (Waddell & Burton, 2006). These individuals are classified as 'Presentees' (Mental Health Foundation, 2016a; CIPD, 2018) and have a difficulty concentrating, maybe apprehensive at work, and have a difficulty managing tasks (Janssen, Kant, Swaen, Janssen, Schroer, 2003; Lerner, Adler, Chang et al., 2004; Harvey, Wadsworth, Wessely, & Hotopf, 2008). Ultimately this leads to workplace non-productivity and under-performance (Vingard, Alexanderson, & Norlund, 2004; Sanderson & Andrews, 2006; CIPD, 2018). On average, this non-productivity is costing the UK economy £15.1 million a year (ACAS, 2018), as an individual suffering from stress, depression or anxiety requires on average 25.8 days off work. These individuals who are off-work sick due to their long-term health condition are referred to as Absentees (Seymour & Grove, 2005; Sanderson & Andrews, 2006; Mental Health Foundation, 2016a; CIPD, 2018). Absenteeism is costing the UK economy £8.4 billion in lost work days, and a further £2.4 million is lost due to replacing staff who leave work because of mental ill-health issues (ACAS, 2018). In Wales in 2017 to 2018, it is estimated that 26.8 million work days were lost to work-related ill-health. Of these, stress, depression or anxiety accounted for the majority of days lost, at 15.4 million. (Health and Safety Executive, 2018).

As individuals spend between 25 and 33% of their waking hours at work (Harter, Schmidt, & Keyes, 2003), the detrimental effects associated make common mental health disorders one of the costliest conditions affecting employers (Goetzal, Ozminkowski,

Meneades, Stewart & Schutt, 2000; Goetzal, Hawkins, Ozminkowski & Wang, 2003). This cost also increases year on year (Stevenson & Farmer, 2017). In fact, the costs associated with a loss of productivity in the workplace are estimated to be twice the cost of sickness absence (Friedli, 2009). However, these estimated costs are likely to be an underestimation, as determining the effects of workplace non-productivity presents a unique measurement challenge. This is due in-part to the negative stigma that comes alongside the disclosure of a mental health condition to an employer (Stevenson & Farmer, 2017), leading to non-disclosure. As employers do not disclose, there are missed opportunities not utilised when an employee is struggling (Mental Health Foundation, 2016a). Furthermore, appropriate evaluation methods are not always utilised or favoured by organisations (Lee, Blake, & Lloyd, 2010). This presents a unique challenge to determine the most appropriate measure of wellness and an opportunity to intervene organisation-wide, pre-diagnosis. However, due to the time that individuals do spend at work, the workplace presents a captive audience for intervention, offering opportunities for organisational-wide change. In line with this, recent evidence has suggested that improving autonomy, perceptions of control, and enhancing wellbeing in the workplace can ameliorate population health concerns, where generalised effects from implementing workplace interventions to improve these factors are also observed (Public Health England, 2014a). For example, enhancements in at-home health promotion behaviours (e.g. *healthy eating, physical activity*) are identified as a consequence of engagement in workplace health interventions (Public Health England, 2014a). Due to these generalised beneficial effects of interventions and the time individuals spend at work, the workplace provides the ideal psychosocial environment to implement wellbeing interventions, offering opportunities to improve general population health.

### 1.3 Mental health statistics in the unemployed

Within the context of this thesis, unemployment is defined as those without employment for 12 months or more and seeking work (Public Health England, 2014b). This is in contrast to those who are economically inactive who do not proactively seek employment opportunities (Public Health England, 2014b) and Absentees who are off-work due to physical or mental ill-health (Mental Health Foundation, 2016a; CIPD, 2018).

An individual's physical and mental health and wellbeing is substantially determined by social, environmental and economic factors, not just the absence of disease. These factors are defined as the wider determinants of health and can be categorised into protective and risk factors. Public Health bodies in the UK identify that being in stable employment is one of these wider determinant of health (Public Health England, 2017; Public Health Wales, 2018). However, according to The European Commission (2018) levels of unemployment and the associated ill-effects were the most important issue facing the European Union in 2016. This presents a need to focus study on those out of employment and aim to counteract the ill-effects associated.

Specifically, in the UK, 2.6 million people currently claim health-related unemployment benefits, with 42% of these entitled due to a mental health condition (HM Government, 2009). Due to the plethora of psychological ill-effects caused by unemployment which endure long-term (Kamerāde & Bennett, 2017), this is not a short-term dependency on such benefits and therefore comes at significant cost to the UK Government. These associated psychological ill-effects include depression, anxiety, low subjective wellbeing and low self-esteem (Paul & Moser, 2009) and permanent detrimental effects on life satisfaction (Lucas, Clark, Georgellis, & Diener, 2004; Lucas, 2005). Due to these accompanying ill-effects, unemployment accounts for 20% of all suicides globally (Nordt, Warnke, Seifritz, & Kawohl, 2015; Milner, Page, & LaMontagne, 2014). In a meta-analysis, the magnitude of these psychological ill-effects compared to employed individuals was medium sized (depression,  $d = .50$ , anxiety,  $d = .40$ , subjective wellbeing,  $d = .51$ , self-esteem,  $d = .45$ ; Paul & Moser, 2009). This evidences the psychological health of an unemployed individual is half that of their employed counterpart. Also, the more prolonged an individual's unemployment, the more complex their re-employment becomes (Seymour & Grove, 2005; Waddell & Burton, 2006). For example, those who are long-term unemployed show between four and ten times the prevalence of depression and anxiety, respectively (Waddell & Burton, 2006; Lelliott, Tulloch, Boardman, Harvey, Henderson, & Knapp, 2008). Consequentially, there is a decreased likelihood that an individual who is long-term unemployed will find employment. Alongside this, individuals who are unemployed are also more likely to binge drink, smoke and be physically inactive (Pharr, Moonie, & Bungum,

2012) and as a result are four times more likely to consult their GP than the general population (Lelliott, et al., 2008), presenting further hidden associated costs.

This low psychological health is also not fully explained by increased financial strain during periods of unemployment (Ford, Clark, McManus, Harris, Jenkins et al., 2010), suggesting a multifactorial problem. According to Jahoda's Latent Deprivation Model (1982 as cited in Paul, Geithner, & Moser, 2009), employment provides an abundance of psychosocial benefits, beyond financial reprieve. These psychosocial benefits can be explained by five latent functions: time structure, social contact, collective purpose, status and activity. Specifically, this model suggests that only employment can provide these latent benefits, whilst unemployment leads to deprivation (Paul, Geithner, et al., 2009; Paul & Batinic, 2010). Ultimately, deprivation of these factors leads to psychological distress; conversely an increase of latent benefits precedes improvement in psychological health (Creed & Macintyre, 2001; Creed, Muller, & Machin, 2001). Importantly, unemployed individuals report significantly less latent benefits than those who are out of the labourforce (Creed, Muller, & Patton, 2003) and their employed counterparts (Paul & Batinic, 2010).

The increasing number of individuals who are unemployed, the plethora of associated psychological ill-effects and the complexity of re-employment, presents a significant need to design interventions to combat mental ill-health and unemployment and to buffer against the effects of future adversity. One of the primary aims of this body of work was to do just this, as Chapter 5 was intended to provide individuals with a 'toolkit' of self-driven interventions to combat these ill-effects.

#### **1.4 Interventions available to improve mental health in presentees and the unemployed.**

Interventions currently available to combat mental ill-health in presentees and the unemployed include group interventions, counselling, mental health coaching, occupational therapy, medication and Cognitive Behavioural Therapy (CBT). These interventions have previously been successfully implemented into populations of Presentees (Proudfoot, Corr, Guest, & Dunn, 2009), Absentees, (*via the Return to Work Scheme*; Hamberg- van Reenen, Proper, & van der Berg, 2012) and the unemployed (Proudfoot, Guest, Carson, Dunn, & Gray, 1997). For employees with depression, CBT has been found to reduce the risk of sickness absence in 46% of the population (Lexis, Jansen, Huibers, Van-Amelsvoort,

Berkouwer, Tjin A Ton, Van den Brandt et al., 2012), alongside demonstrating beneficial outcomes on employee wellbeing, job satisfaction, and workplace productivity (Proudfoot et al., 2009). Moreover, when implemented into the unemployed, CBT improves job-seeking self-efficacy, life-satisfaction and motivation for work (Proudfoot et al., 1997). In fact, due to these beneficial effects, the UK Government has more recently improved access to such therapies. The aim of the Improving Access to Psychological Therapies (IAPT) programme (Clark, Layard, Smithies, Richards, Sackling, & Wright, 2009; Hogarth, Hasluck, Gambin, Behle, Li, & Lyonette, 2013) is to address the mental health problems that underpin workplace non-productivity and unemployment. In turn, increasing re-employment prospects and reducing the number of individuals who currently claim state benefits. This treatment is instead of or in-line with psychotropic medications, which, due to a growth in the number of mental health diagnoses, have increased in necessity (Olfson & Marcus, 2009). However, there are side-effects that come alongside prescribed psychotropic medications, which have detrimental effects on workplace productivity. In a systematic review of workplace interventions, it was found that the physical symptomology linked with taking anti-depressant medication was similar to that of depression (e.g. nausea, headaches, dizziness, trembling). These unpleasant side effects also cause non-compliance to medication, which further leads to reduced symptom management, detrimental health implications, and work non-productivity (Haslam, Atkinson, Brown & Haslam, 2005).

Placing such an inordinate focus on talking therapies is also both a labour intensive and costly approach, as treatment requires one on one sessions with a trained professional (Corbiere Shen, Rouleau & Dewa, 2016; Donker, Blankers, Hedman, Ljótsson & Christensen, 2015). Moreover, demand continues to exceed availability for psychotherapeutic treatment (NICE, 2011). For example, there is currently a 12-month waiting list for talking therapies, which an individual can seek privately, providing shorter waiting times. However, it could cost the individual up to £100 per session for these treatments (NHS, 2018), which some could not afford. As demand exceeds availability for these treatments, this presents a need to reorient focus onto early intervention illness prevention strategies, which could be implemented alongside psychotherapeutic interventions.

Also, current Occupational Health Interventions place the onus on the individual to disclose a mental health issue to an employer. However, the negative stigma that comes

alongside the disclosure of a mental health issue is a barrier to individuals seeking treatment (Stevenson & Farmer, 2017). Alongside this, when interventions are framed to participants as 'mental health activities' this deters participation in such programmes (Millel, Liossis, Schochet, Biggs, & Donald, 2008).

To combat some of the labour and monetary costs of talking therapies, an increasing number of these therapies are computerised, where the individual is guided through the sessions by an electronic guide. This computerised approach has shown to be significantly more cost-effective than Treatment as Usual (i.e. antidepressants or CBT). Specifically, those who engaged in a computerised CBT programme are shown to cost £407 less in lost employment costs than those who engaged in CBT sessions with a trained therapist. These individuals also benefit from 28.4 more depression free days, equivalent to 0.032 of QALY gain, compared to those who were engaged in treatment as usual (McCrone, Knapp, Proudfoot, Ryden et al., 2004). However, prevention interventions go one step further and have been shown to be more cost-effective than both treatment as usual and these computerised programmes (Hamberg-van Reenan, et al., 2012), further suggesting a need to reorient focus. Although little research has been conducted in the UK regarding the cost-benefit of workplace wellbeing activities, work has been conducted in the USA. Specifically, the return of investment for workplace wellbeing activities is estimated to be \$2.50 per dollar spent on the programme (Aldana, 2001). This serves as a powerful justification to reorient focus towards such programmes. Providing these organisational-wide change solutions should ameliorate the effects of non-disclosure of a mental health condition to an employer. However, these interventions have been the least studied to date (Tetrick & Winslow, 2015). This provides a substantial rationale that study should support the development and implementation of early-intervention, pre-diagnosis strategies to prevent the detrimental effects of mental ill-health in the employed and unemployed (Harnois & Gabriel, 2000).

### **1.5 Public Health perspectives.**

As previously stated, current public health initiatives identify unemployment and the work environment as one of the main social determinants of mental health (Mental Health Foundation, 2016a). Therefore, to combat the psychological ill-effects, the UK Government released the Stevenson Farmer Report in 2017, which outlined manageable steps to combat

workplace ill-health. This report led to the creation of a framework for employers across the UK to improve the mental health of their employees. These included the promotion of monitoring systems to improve employee wellbeing, a need to encourage open conversations about mental health and a requirement to implement a mental health at work plan. The report identified three phases of workplace ill-health: (1) those who are thriving, (2) those who are struggling ("Presentees") and (3) those who are ill and off work ("Absentees"; Stevenson & Farmer, 2017). It is important to note that the first two are the primary focus of this thesis, which is hypothesised to lead to decreases in the third.

The proposed early-intervention approach is also in-line with the UK Government's Public Health and Welfare Agenda (Waddell & Burton, 2006) and public interest; 53% of individuals captured in a National Wales Survey identify that the NHS should allocate more spending to illness-prevention strategies (Stay Well in Wales; Sharp, Hughes, & Bellis, 2018). Wales in particular has made steps to improve the availability of these evidence-based illness prevention strategies. For example, The Wellbeing of Future Generations Act (Welsh Government, 2015), requires each public body to outline well-being objectives, to design a more prosperous, resilient and healthier Wales. This was introduced as part of the Welsh Government's 10-year strategy to improve the mental wellbeing of all people in Wales to prevent the development of mental disorder (Mental Health Foundation, 2016b). However, the primary focus of this legislation is public sector organisations, of which only 32% of the working population of North Wales are employed by (Statistics Wales, 2019a), presenting a need to focus study more widely. Furthermore, in 2015, Public Health Wales introduced the Corporate Health Standard, as part of the 'Healthy Working Wales' initiative (Public Health Wales, 2015). Here, the primary aim was to develop policies that promote the health and wellbeing of employees. However, one issue with these public health promotion initiatives is that population-wide wellbeing is often suggested to be a by-product of relative Gross Domestic Product (GDP), where changes in GDP are assumed to produce changes in population wellbeing. However, this can only give a partial image of wellbeing (Diener, Lucas, Schimmack, & Helliwell, 2009). In fact, according to the Office of National Statistics (2019a), GDP in the UK has increased over the last 10 years, inconsistent with figures for the mental health of the population for the same period (Mental Health Foundation, 2016a). This demonstrates a need to present a more nuanced approach to measure changes in

wellbeing of the population. Further, a more recent representative survey of the Welsh population suggests that current initiatives are not enough; 76% of individuals would like their employer to do more to improve their wellbeing (Sharp, et al., 2018). Here, Positive Psychology can make valuable contributions to improve workplace wellbeing.

## 1.6 Positive Psychology

The World Health Organisation (WHO; 2014) define health as a *"state of complete physical, mental and social well-being and not merely the absence of disease or infirmity"*. Encompassed within this definition, there is a significance placed on positive mental health, defined by WHO (2014) as *"state of well-being in which every individual realises his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully and are able to make a significant contribution to their community"*. Specifically, the WHO have outlined four crucial factors for positive mental health: (1) emotion (affect/ feeling), (2) cognition (perception), (3) social functioning (relation with others) and (4) coherence (sense of meaning and purpose in life; Friedli, 2009). These definitions of health encapsulate the aim of positive psychology, a salutogenic approach to health promotion (Bringsén, Anderson, Ejlertsson, & Troein, 2012).

Positive Psychology study is focused on the Dual-Factor Model of Mental Health (Greenspoon & Saklofske, 2001; Suldo & Shaffer, 2008). A biopsychosocial model, which views health not simply as the absence of disease (Fava & Sonino, 2008). This is due in-part as this leads to the individual being psychologically vulnerable in the event of future adverse experiences, due to a lack of focus placed on wellbeing outcomes (Ryff & Singer, 2003). Instead, Positive Psychology's foreground of study is the psychological mechanisms that promote flourishing, which aids to maintain and prevent mental disorder (Seligman, 2002; Keyes & Michalec, 2009 as cited in Hefferon, 2013; Bakker & Van Woerkom, 2017).

Positive Psychology is a humanistic approach, interested in positive attributes to mental health, providing a more holistic approach to psychological study (Hefferon & Boniwell, 2011). Broadly, the aim is to define the subjective, social and cultural states that characterise flourishing. This is defined by Keyes (2002) as *"high levels of wellbeing; filled with positive emotion and to be functioning well psychologically and socially"* (pg. 210). This focuses study primarily on wellbeing and the development of constructive cognitions about



one's future (Seligman, 2002), alongside idiosyncratic positive personal traits or character strengths (Seligman & Csikszentmihalyi, 2000; Seligman, Steen, Park, & Peterson, 2005). Specifically, study focuses on the identification of distal buffers to mental disorder (Keyes & Lopez, 2002 in Snyder & Lopez, 2002; Seligman, 2002) and protective factors for physical health disorders (Taylor, Kemeny, Reed, Bower, & Gruenwald, 2000); shifting inquiry from a deficit focus to asset emphasis. Ultimately the hope is that positive psychology will eventually disappear, as study to understand the factors that facilitate optimal functioning are embedded within the regular study of psychology (Linley, Joseph, Harrington, & Wood, 2006).

This approach to study was a reaction against the traditional disease model, where psychology focused on curing dysfunction (Gable & Haidt, 2005). However, this led to a misconception that positive psychology study dichotomises positive and negative experiences. Instead, positive psychology views experience as falling along a continuum (Linley, et al., 2006) and urges psychologists to adopt a more open and appreciative enquiry regarding human potential, motivation, and capacity (Sheldon & King, 2001). In actuality, more recent positive psychology research aims to do just this, by providing a more nuanced approach to study. This is the Second Wave of Positive Psychology (Ivtzan, Lomas, Hefferon, & Worth, 2016). Here, the aim is not to deny distressing, unpleasant or negative experiences of life, nor is it an effort to develop an unwavering optimistic view of experiences (Gable & Haidt, 2005). Instead endeavours to improve adaptive coping, realism and the ability to deal with life's challenges are focussed upon (Wong, 2012; Ivtzan, et al., 2016), acknowledging that there is value in experiencing negative emotions (Lomas & Ivtzan, 2016). Specifically, according to the Principle of Complementarity (Lomas & Ivtzan, 2016), negative emotions are incorporated within the dialectic definition of Flourishing, as this allows for further understanding of the complexities in the ways in which individuals can appreciate life (Wong, 2012; Ivtzan et al., 2016). Furthermore, the Principle of Appraisal (Lomas & Ivtzan, 2016) suggests there is value in labelling and harnessing negative experiences, as these events can have positive utility. The Second Wave is interested in factors that promote resilience and post-traumatic growth (Tedeschi & Calhoun, 2004) and interventions that alleviate distress and develop adaptive coping strategies (Ivtzan et al., 2016). Sceptics could argue that the inclusion of negative emotions within positive psychology is counterintuitive

and against its formative ethos. However, it is important to acknowledge that the aim is not to revert study back towards the medical model. Here, the inclusion of negative experiences provides a dialectical approach to flourishing, where individuals are encouraged to accept their negative emotions, which interact with positive occurrences (Ivtzan, et al., 2016). This is referred to as the Dual-Systems Model (Wong, 2012).

### **1.6.1. Population identification**

Positive Psychology functions at a macro scale, where PPIs are applied across a cohort. This itself is classified into different populations, previously identified by Huppert (2009) in the Mental Health Spectrum (see Figure 1.2). Languishers are those who do not reach diagnostic criteria for a mental health disorder (Keyes, 2002); whereas Flourishers are those who live within a range of optimal functioning (Frederickson & Losada, 2005). Flourishing has several positive correlates such as academic achievement, master goal-setting, self-control and perseverance (Howell, 2007a; Hefferon & Boniwell, 2011). Those who are able to flourish evidence fewer missed work days (Keyes, 2010), increased resilience in the face of challenge (Ryff & Singer, 2003), more positive relationships (Ryan & Deci, 2000a) and life longevity (Diener & Chan, 2011). Previous research has evidenced that between 15 and 20% of the population are currently flourishing, 65% are moderately mentally healthy and 17% are languishing (Keyes, 2002; Huppert, 2009; Hefferon & Boniwell, 2011).

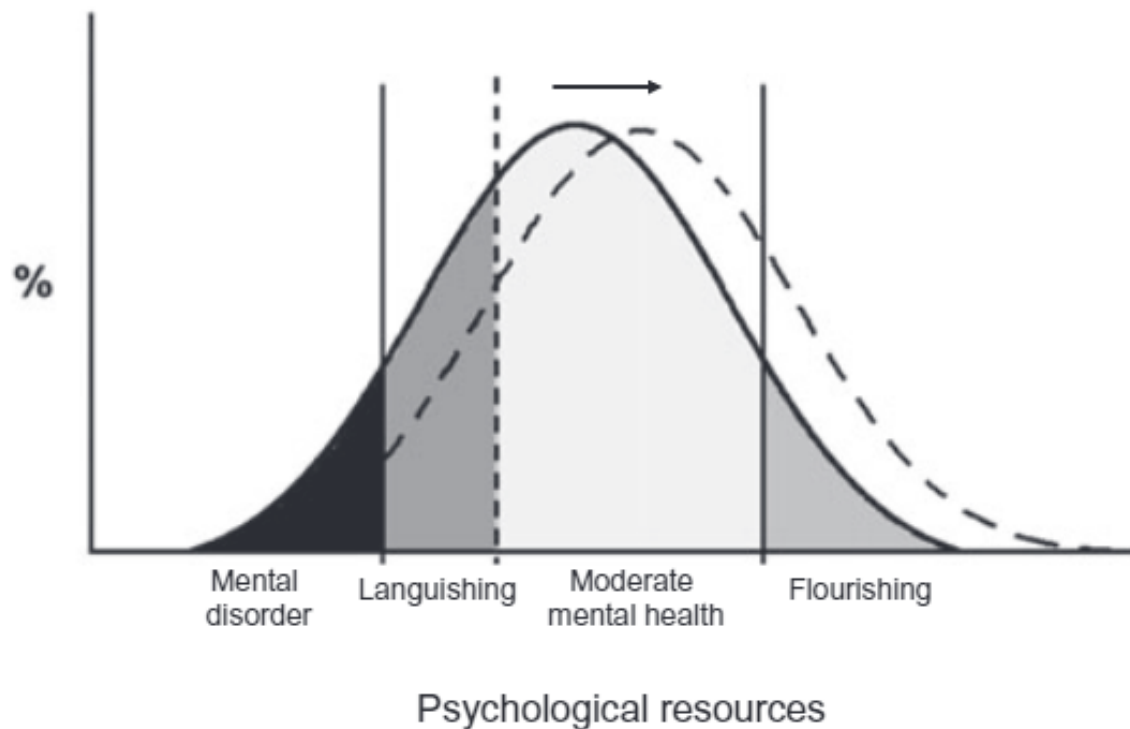
*Figure 1.2: The Mental Health Spectrum*

Figure 1.2: The Mental Health Spectrum. The dotted line represents the effect of shifting the mean of the mental health spectrum. Retrieved from: Huppert, 2009, pg. 153

The aim of Positive Psychology is to increase the number of individuals who flourish and decrease the number who languish (Keyes, 2002).

It is of note that these recognised populations have also been described in the Stevenson Farmer Report (2017) published by the UK Government as important populations to focus study upon in the workplace. In this instance, Languishers can also be thought of as Presentees. In the context of this thesis, the aim was to decrease the number of Presentees and increase the number of individuals who psychologically flourish at work. With this in mind, flourishing characterises high-performing employees and precedes career success (Boehm & Lyubomirsky, 2008). Flourishing in the workplace is also positively associated with performance ratings, job satisfaction and negatively with absenteeism (Connolly & Viswesvaran 2000;

Cropanzano & Wright 1999; Pelled, Eisenhardt, & Xin 1999; Betsi Cadwaladar University Health Board, 2018).

### 1.6.2 Defining wellbeing

The hedonic approach to wellbeing is defined as high levels of positive affect and the absence of negative emotion, in addition to high subjective life satisfaction (Diener, Suh, Lucas, & Smith, 1999; Hefferon & Boniwell, 2011). This is also referred to as subjective wellbeing and is an instinctive need to seek pleasure and avoid pain (Gallagher & Lopez, 2009). These positive emotions, as described by Broaden Build Theory (Frederickson, 2001; 2004), have the ability to broaden momentary thought, increase approach motivation, and promote discovery and creativity, which in turn augments personal and psychological resources. These positive emotions also improve psychological resilience, effective coping strategies (Frederickson, 2001; 2004; Tugade, Frederickson, & Barrett, 2004), and enable closer social relationships (Kahneman, Krueger, Schkade, Schwarz, & Stone, 2004). They are also associated with a decreased likelihood of the development of physical health conditions (Diener & Biswas- Diener, 2008; Rasmussen & Scheier, & Greenhouse, 2009) and protection against mental health disorder (Taylor, Kemeny, Bower, & Gruenewald, 2000). Reflection on positive experiences also directly affects attributional style, previously evidenced as a major predictor of depression relapse (Seligman, Nolen-Hoeksema, Thornton, & Thornton, 1990; Macloed & Moore, 2000). Ultimately, individuals who demonstrate increased positive affect exhibit increased persistence, higher levels of creativity and an ability to multitask (Diener, 2000; Frederickson, 2001), all shown to improve work engagement (Harter, Schmidt, Asplund, Killham, & Agrawal, 2010; Bortolotti & Antrobus, 2015).

Although there is value in increasing positive emotion, happiness and subjective wellbeing do not fully encapsulate the holistic definition of wellbeing and merely describes one component part. In fact, there are several inadequacies with reducing wellbeing solely to hedonistic pursuits. For example, measurement of wellbeing as pure hedonism assumes a lack of wellbeing is defined by low levels of positive affect. In contrast, life pursuits driven purely by pleasure are not meaningful

or fulfilling (Ryff, 1989); individuals with low positive affect can derive more meaning from activities, be more engaged in their pursuits and therefore can evidence higher wellbeing (Seligman, 2011). The pure pursuit of hedonism has also been criticised for failing to understand psychological wellness (Ryff, 1989), and ignoring the philosophical complexities of wellbeing (Vittersø, 2004). In fact, although these positive emotions serve a short-term motivational function, excessive optimism or delusion leads individuals to under-estimate risk (McGuire-Snieckus, 2014) and have amplified negative reactions when heightened expectations do not come to fruition (Britton, Sliter, & Jex, 2012). Furthermore, a constant pursuit of pleasurable activities leads to brief positive reactions, but a later return to a happiness set-point (Lucas, et al., 2004; Diener, Lucas, & Scollon, 2006). This is termed Hedonic Adaptation (Diener & Diener, 1996), which leads individuals to be in a constant search for happiness. This persistent pursuit is often referred to as the Hedonic Treadmill (Brickman & Campbell, 1971 in Brickman, Coates, & Janoff-Bulman, 1978). However, these individuals often lack the realisation that such efforts are futile (Diener et al., 2006).

It is therefore not possible to reduce wellbeing solely to hedonistic pursuits. Instead wellbeing gains should be derived from goal striving and deeply held intrinsic values (Ryan & Deci, 2001). This is eudaimonic wellbeing and is defined as the pursuit of happiness within a manner that is consistent of human excellence and one's best potentials (Ryan & Deci, 2001; Waterman, 2007). One underlying theory of eudaimonic wellbeing is the fulfilment of essential psychological needs to achieve self-actualisation, as described by Self-Determination Theory (see Chapter 2; Ryan & Deci, 2000a; Ryan & Deci, 2001). This type of wellbeing is achieved when one's pursuits are congruent with deeply held values and individuals are fully engaged in their pursuit (Waterman, 1993).

Evidence from a number of investigators has indicated that wellbeing is best conceived as this multidimensional phenomenon that includes aspects of both the hedonic and eudaimonic conceptions of wellbeing (Sheldon, Ryan & Reis, 1996; Reis, Sheldon, Gable, Roscoe & Ryan, 2000; Ryan & Deci, 2001). Those who pursue both the eudaimonic and hedonic dimensions simultaneously evidence superior increases in life satisfaction, compared to those who singularly pursue one route (Peterson,

Park, & Seligman, 2005). Wellbeing theorists argue that several constructs describe wellbeing. For example, Seligman (2011) identified five components of wellbeing that give rise to flourishing. These are defined as: positive emotions, engagement, relationships, meaning and accomplishment (PERMA; Seligman, 2011). Importantly, no one element of the PERMA model defines wellbeing, but each contribute independently (Seligman, 2011; Csikszentmihalyi, 2014). In fact, according to Delle Fave and colleagues (Delle Fave, Brdar, Friere, Vella-Brodrick, & Wissing, 2011) there is a dynamic harmonisation between the hedonic and eudaimonic perspectives; the five factors of PERMA are significantly correlated with measures of subjective wellbeing ( $r = .98$ ; Goodman, Disabato, Kashdan, & Kauffman, 2017; Seligman, 2018), suggesting that the two conceptualisations are not distinct. Importantly, the inclusion of both dimensions within a definition of wellbeing also has significant ramifications for the study of intrinsic motivation and happiness (Ryan & Deci, 2001). This multifaceted approach and the inclusion of a eudaimonic perspective to wellbeing also suggests that negative experiences and the ability to deal with life's adversities could ostensibly lead to flourishing (Wong, 2012; Lomas & Ivtzan, 2016).

## 1.7 Intrinsic motivation

Intrinsic motivation refers to one engaging in an activity because it is inherently enjoyable and interesting (Ryan & Deci, 2000b; Deci & Ryan, 2008a), one that assimilates with intrinsic goals, values and sense of self (Ryan & Deci, 2000b; Patrick, Knee, Canavello, & Lonsbary, 2007). These behaviours are also defined as autonomously motivated. Importantly intrinsic motivation is conducive to the development of eudaimonic wellbeing, cognitive flexibility and enhanced task-performance, persistence and creativity (Sheldon, Ryan, Rawsthorne, & Ilardi, 1997; Ryan & Deci, 2000a). Intrinsically motivated behaviours do not require external rewards, rather the reward is an expression of one's sense of self (Deci & Ryan, 2010). Consequently, these behaviours have an internal locus of causality, previously evidenced to be a determining factor in one's attributional style, which predicts the likelihood of the development of depression (deCharms, 1968 as cited in Ryan & Connell, 1989; Seligman, 1990; Macloed & Moore, 2000; see Chapter 4). This contradicts extrinsic motivation, where activities are completed for the approval from others, or are

accomplished for an external pressure or reward (Deci & Ryan, 2008). This type of motivation generally arises from outside the individual (Deci & Ryan, 2000b), often referred to as controlled motivation. This results in an external locus of causality, which decreases psychological wellbeing (Ryan, 1982; Vansteenkiste, Niemiec, & Soenens, 2010). In fact, meta-analytic study has confirmed that extrinsic rewards undermine intrinsic motivation; generally, individuals who received an extrinsic reinforcer (e.g. *monetary rewards or prizes*) for completing a previously rated interesting activity, subsequently find it less interesting than their non-rewarded counterparts (Deci, Koestner & Ryan, 2001). Nevertheless, offering choice, acknowledging an individual's feelings, and providing performance feedback all improve intrinsic motivation, due to them satisfying one's psychological needs for autonomy and competence (Deci & Ryan, 2010; Vansteenkiste, Niemiec et al., 2010).

Importantly within the context of this thesis, if an employee is intrinsically motivated, they evidence superior psychological health in the workplace (Trépanier, Fernet & Austin, 2013). This is owed to the fact that intrinsic motivation moderates the relationship between job characteristics (*i.e. high job demand and low job control*; Fernet, Guay & Senécal, 2004) and psychological health (*burnout and engagement*; Parker, Jimmieson & Amiot, 2010). Also, when workplace tasks are intrinsically motivating, they yield better performance (Koestner & Losier, 2002; Kuvaas & Dysvik, 2009), and are associated with greater job satisfaction (Gagné, Chemolli, Forest, & Koestner, 2008; Lam & Gurland, 2008) and employee wellbeing (Ilardi, Leone, Kasser, & Ryan, 1993). Furthermore, individuals who display higher intrinsic motivation also demonstrate increased effort expenditure when job searching, compared to those who are more externally motivated (Vinokur & Schul, 1997).

In response to previous theorists who conceptualise motivation as a binary notion (*i.e. intrinsic and extrinsic*), which does not fully encapsulate self-regulation, Self-Determination Theorists propose a theory of internalisation. This is Organismic Integration Theory (OIT; Vansteenkiste, Niemiec et al., 2010), derived from the concept of psychological need fulfilment, where individuals internalise extrinsic contingencies to align with one's sense of self. This is founded upon a theory of self-regulation. Specifically, this suggests that the development of self-regulated behaviour (*i.e. one that is self-motivated*) includes the ability for individuals to face challenges that are useful but not inherently enjoyable, and thus not intrinsically motivating. The workplace and job-searching are these such contexts

where tasks are completed for a separate outcome (e.g. *monthly salary or the prospect of a successful job application*; Gagné & Deci, 2005; Greguras, Diefendorff, Carpenter, Tröster in Gagné, 2015). In particular, OIT suggests that individuals take on social values and extrinsic contingencies and transform these into personal values (Ryan & Deci, 2000a). This is described as an organismic dialectical approach, where the environment, alongside a proactive requirement to fulfil psychological needs, influences the amount and quality of internalisation (Deci, Eghrari, Patrick & Leone, 1994). Figure 1.3 below displays the OIT taxonomy, which is arranged on a continuum from left to right in terms of the degree to which behaviours are self-determined. On the far left, is amotivation, which results from a lack of perceived competence and a lack of value gained from the activity (Ryan, 1995). The taxonomy then specifies five further types of motivation (four types of extrinsic and one intrinsic motivation) which vary in the extent to which the resulting behaviours are autonomous.

OIT places a specific emphasis on differentiating between Integrated and Introjected motivation, describing two different types of internalisation that represent different quality motivation. Introjected regulation refers to an inner control, where guilt or self-approval determines behavioural action (Deci et al., 1994). When under this control, an individual's behaviour is often self-esteem contingent (Ryan & Connell, 1989), leading to substantial pressure, tension and anxiety (Deci et al., 1994). Conversely, integration refers to internalisation where an individual assimilates the value of an activity, accepting full responsibility for its completion. As such, this behavioural regulation is said to be self-determined. As one has assimilated the goal and accepted volition of its completion, integrated motivation is not associated with tension or anxiety (Deci et al., 1994). Controlled or introjected regulation tends to undermine intrinsic motivation, whereas integrated motivation enhances enjoyment and proactive coping (Ryan, 1982; Ryan & Connell, 1989).



Figure 1.3. The OIT Taxonomy.

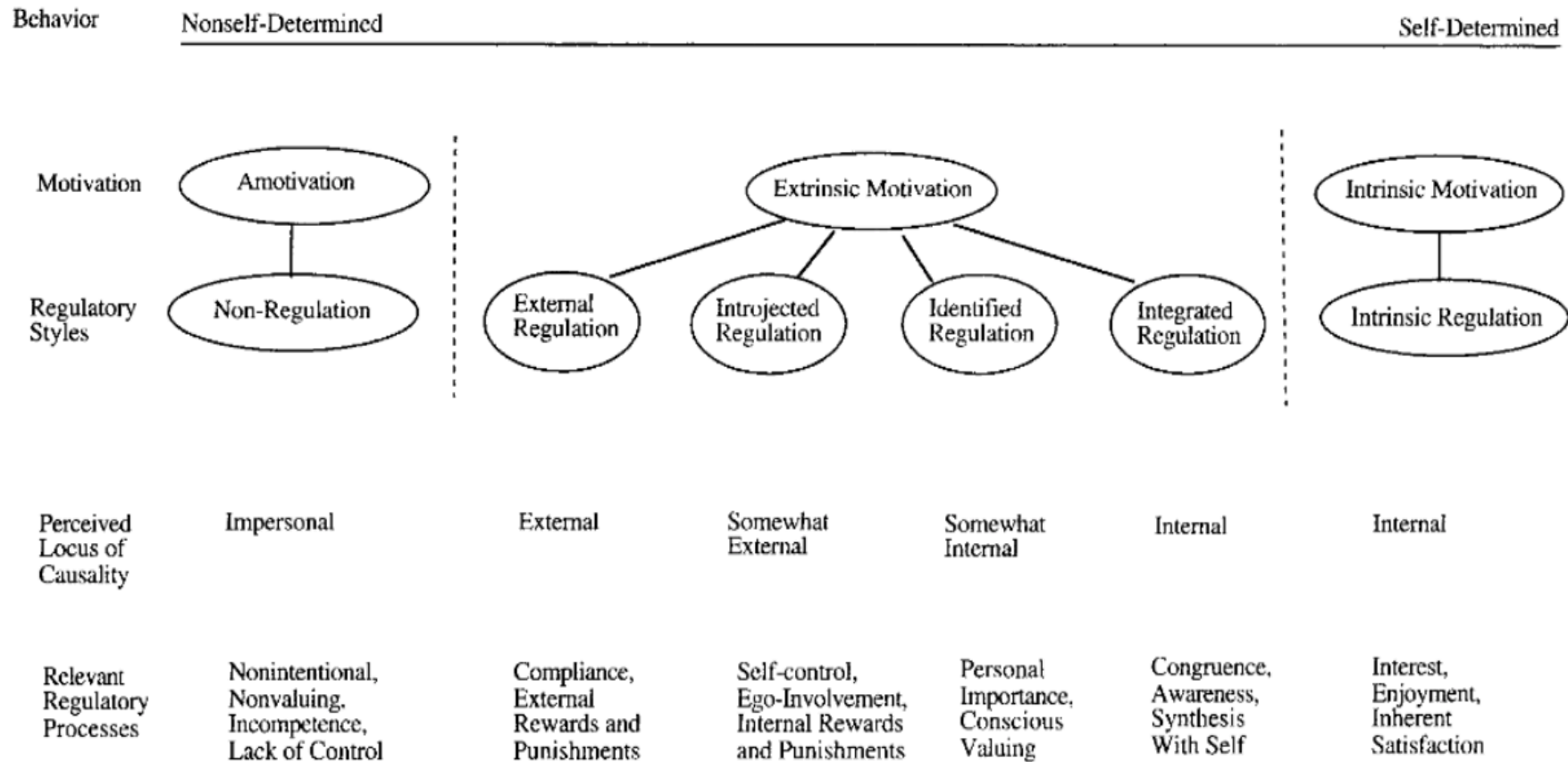


Figure 1.3: The internalisation taxonomy. Here motivation lies from amotivation to intrinsic motivation. Retrieved from: Ryan &amp; Deci, 2000a, pg. 72.

Importantly, the work environment may differ from traditional definitions of controlled and autonomous environments, by providing more of an equal emphasis on both sides of the continuum (e.g. task-contingent, performance-contingent and engagement contingent reward systems; Deci, et al., 2001). Therefore, psychological growth theorists provide the ideal conceptualisation of motivation in this context, by providing the environmental factors, alongside the individual traits necessary to facilitate basic need satisfaction, which leads to internalisation. It therefore seems of value to place an explicit focus on interventions which emphasise fulfilment of core psychological needs and facilitate basic need satisfaction. In turn, this should lead to internalisation, increased intrinsic motivation and eudaimonic wellbeing. One of the primary aims of this thesis is to design interventions which aim to do just this. Therefore, the Self-Determination Theory paradigm is investigated in Chapter 2.

### **1.8. Resilience.**

Currently, there is a lack of consensus amongst researchers as to the definition of resilience. This is due in-part to idiosyncratic possible responses to an adverse experience and the multifaceted nature of the concept. For example, when an individual is faced with an adverse situation, there are three possible outcomes. An individual can either: (1) succumb to the stressor, increasing the likelihood of developing Post-Traumatic Stress Disorder (PTSD) in the future, (2) recover from adversity, (3) or display post-traumatic growth (Hefferon & Boniwell, 2011). Also, there is a lack of consensus amongst researchers whether resilience is defined as a trait, outcome or a dynamic process (Hu, Zhang, & Wang, 2015). The trait definition of resilience suggests that individuals possess a collection of characteristics that modify, ameliorate or adapt to the circumstances they encounter (Connor & Davidson, 2003; Ong, Bergeman, Bisconti & Wallace, 2006; Fletcher & Sarkar, 2013). An outcome-oriented approach regards resilience as a homeostatic function or behavioural outcome that allows individuals to recover (Bonano, 2004; Harvey & Delfabbro, 2011; Masten, 2018). Whereas the process conceptualisation proposes that person-environment interactions enable this capacity to develop over time (Egeland, Carlson, & Sroufe, 1993; Windle, 2011). Each of these hypotheses are of value as they identify the personal characteristics and the factors that lead to an individual to cope in the face of adversity. However, this lack of consensus

amongst researchers has led to a lack of unity when operationalising the possible outcomes of 'being resilient'. This is crucial to improve understanding of psychological resilience, as this supports the development of appropriate intervention strategies for those at risk of psychopathology (Windle, 2011; DeTerte, Stephens & Huddleston, 2014; Chmitorz, Kunzler, Helmreich, Tüscher, Kalisch, Kubiak, Wessa, & Lieb, 2018).

Positive Psychology conceptualisations of resilience are predominantly interested in the positive change characteristics that enable an individual to thrive in the face of adversity and the protective factors, harm reduction and health promotion characteristics associated with resilience (Friedli, 2009; Davydov, Stewart, Ritchie & Chaudieu, 2010). Like the Sustainable Happiness Model (Sheldon & Lyubomirsky, 2006; Lyubomirsky, Sheldon, & Schkade, 2005), which suggests a proportion of wellbeing gain is modifiable, positive psychology conceptualises a proportion of resilience to be malleable and trainable and a percentage due to stable traits. This notion separates resilience into three accepted types: (1) Resistance Resilience defined when an individual possesses an inner strength to deal with adverse situations, similar to previous trait definitions; (2) Recovery Resilience displayed when one is able to recover from adversity to previous levels of functioning, more akin to the outcome oriented approach; and (3) Reconfiguration Resilience or post-traumatic growth described as the experience of positive change as a result of dealing with a traumatic event (Tedeschi & Calhoun, 2004; Calhoun & Tedeschi, 2013; Ivztan et al., 2016). This definition of resilience encapsulates all possible reactions and conceptualisations previously defined in research and therefore presents the ideal model to define resilience.

Implicit within positive psychology is a focus on personal character strengths, positive emotion and using resources to control and manage daily life, all previously linked to improvements in wellbeing and mental health (Seligman, et al., 2005; Seligman & Csikszentmihalyi, 2000; see Chapter 3 & 5). Specifically, positive psychology hypothesises resilience to be encompassed by positive cognition, emotions and behaviours (Curran, Machin, & Gournay, 2006). Previous research by Fava and Tomba (2009) has proposed five factors of resilience that enable flourishing. These are: (i) environmental mastery, (ii) personal growth, (iii) purpose in life, (iv) autonomy, and (v) sense of acceptance. This suggests that an individual takes responsibility for their successes, is open to new experiences, and is directed towards achieving personally relevant goals, underpinned by positive cognitions

about oneself and their abilities (MacLeod & Moore, 2002; see Chapter 4). One way to do this is to encourage an openness to experiences and alter an individual's attributional style. Here, attribution and classification of events as to their stability (*i.e. temporary vs. stable*), pervasiveness (*i.e. global vs. local*) and controllability (*i.e. internal vs. external*; Peterson & Seligman, 1984) can predict the likelihood of the development of clinical depression (Sweeney, Anderson, & Bailey, 1986; Peterson & Vaidya, 2001; Ball, McGuffin, & Farmer, 2008) and future resilience, decreasing the likelihood of the development of PTSD (Kleiman, Liu, Riskind, & Hamilton, 2013). Specifically, individuals who attribute their failures to internal, stable and global factors and their successes to external, temporary and specific causes are most vulnerable to depression (Peterson & Seligman, 1984; for intervention see Chapter 4 & 5).

It is of paramount importance that individuals view their attributes as modifiable to improve future resilience via an intervention. Here, Dweck (2017) proposes that to view one's abilities as fixed or malleable is an essential component of resilience and this is driven by the adoption of a Fixed or Growth mindset, respectively. Compared to Growth Mindsets, Fixed Mindsets are associated with higher incidences of anxiety and depression (Romero, Master, Paunesku, Dweck & Gross, 2014). Indeed, a Growth Mindset is also associated with increased perceptions of control, increased effort expenditure and persistence towards a goal, all necessary attributes in the workplace and in the unemployed (Heslin & Keating, 2016). Adoption of a particular thinking style is also modifiable, where lacking control and feeling powerless is associated with negative mental health outcomes (*i.e. Learned Helplessness*; Seligman, 1972). Importantly, a large proportion of developed resilience programmes utilise this versatility.

Previously, improved resilience has been associated with increased effort expenditure when job-seeking (Heslin & Keating, 2016), job satisfaction (Kaspárková, Vaculík, Procházka, & Schaufeli, 2018) and workplace productivity (Rioli & Savicki, 2003). Importantly, resilience programmes tend not to deal with the real adversity, but the topics help to build psychological resilience and the tools to buffer the effects of future adversity and stress (Frederickson, Tugade, Waugh, & Larkin, 2003). One example of these interventions is the Promoting Adult Resiliency programme (Millea, et al., 2008). This programme focusses on the development of personal resources, defined as core self-evaluations (*e.g. locus of*

*control, emotional stability*; Judge, Locke, Durham & Kluger, 1998), positive organisational behaviour (e.g. *positive reactions to stress*; Luthans, 2002) and personal resilience (e.g. *dispositional optimism and perceived control*; Major, Richards, Cooper, Cozzarelli & Zubek, 1998). This programme has previously shown effectiveness when implemented into workplaces, to improve self-efficacy, depression and perceived levels of workplace stress (Millea et al., 2008). One of the aims of Chapter 5 was to do just this, by providing a population of unemployed individuals the tools to thrive when job-searching.

Significantly, the positive psychology approach to resilience is of value to policy and practice, as interest moves away from deficit models of illness and psychopathology (Friedli, 2009; Windle, 2011) and is in-line with the WHO definition of positive mental health (see section 1.6). Research which utilises resilience promotion and post-traumatic growth factors is also critical in job-seeking intervention development (Koen, Klehe, van Vianen, Zikic, & Nauta, 2010) and organisational psychology (Jackson, Firtko, & Edenborough, 2007). This is due to the job-search process being an emotional experience abundant with setbacks (Song, Uy, Zhang, & Shi, 2009; Wanberg, Zhu, & Van Hooft, 2010; Wanberg, Basburg, Van Hooft, & Samtani, 2012). Also, in the workplace, individuals must learn to be self-motivated and to recover from adversity. These positive psychology models also highlight the multi-directional ways in which thinking, feeling and behaviours are connected. By becoming aware of the ways in which these are associated, individuals are able to step back, rationalise situations, find more appropriate solutions and enable the chance of improving psychological resilience and improving wellbeing. This is essential in the workplace as one must learn to not overreact to potentially emotionally charged situations. This epitomises the aim of this body of work; the overall aim was to develop light-touch interventions which buffer against the psychological ill-effects associated with adversity in the workplace and job-searching.

### **1.9. Positive Psychology Interventions (PPIs)**

Previous research in positive psychology has suggested that deliberate acts can intentionally improve an individual's happiness (Layous, Chancellor, & Lyubomirsky, 2014; Schueller & Parks, 2014; Sin & Lyubomirsky, 2009). PPIs are one example of these intentional actions that lead to long-term gains in wellbeing and eudaimonic wellbeing, in clinical and

non-clinical populations (Park & Biswas-Diener, 2013 in Kashdan & Ciarocchi, 2013). To classify as a PPI, these interventions must be driven by evidence-based positive psychology theory, intend to improve psychological wellbeing, and demonstrate long-term effects (Sin & Lyubomirsky, 2009; Bolier, Haverman, Westerhof, Riper, Smit, & Bohlmeijer, 2013; Lyubomirsky & Layous, 2013; Parks & Biswas-Diener, 2013 in Kashdan & Ciarocchi, 2013). Previously developed PPIs include, but are not limited to: writing letters of gratitude (Sheldon & Lyubomirsky, 2006; Toepfer, Cichy, & Peters, 2012), counting one's blessings (Emmons & McCullough, 2003; Seligman et al., 2005), performing acts of kindness (Dunn, Aknin, & Norton, 2008), visualising "best possible selves" (Sheldon & Lyubomirsky, 2006; Layous, Nelson, & Lyubomirsky, 2013), recognising and using one's 'Signature Strengths' (Seligman et al., 2005) and the 'Nine Beautiful Things' intervention (Proyer, Gander, Wellenzohn, & Ruch, 2016). These aim to reinforce happiness, increase positive thoughts, behaviours, emotions and can account for 40% of the variance in one's happiness (Lyubomirsky, et al., 2005; Baselman & Bartels, 2018). In turn, this decreases the likelihood that maladaptive coping, rumination, languishing and thus mental disorder will develop (Seligman, et al., 2005; Lyubomirsky & Layous, 2013; Layous, et al., 2014; Suldo, Savage, & Mercer, 2014).

PPIs are typically simple, self-administered, and accessible exercises, requiring little to no financial resources (Lyubomirsky & Layous, 2013; Layous, et al., 2014). This means that they have several benefits: their delivery is more convenient and costs significantly less than traditional therapeutic interventions. For example, they can be administered via the internet (e.g. *Happify platform*; Parks, Williams, Tugade, Hokes, Honomichl & Zilca, (2018) or mobile app (e.g. *LiveHappy app*; Parks, Della Porta, Pierce, Zilca, & Lyubomirsky, 2012). Also, these type of interventions have also evidenced improved resilience in the workforce and decreased presenteeism as a consequence (Williams, Parks, Carmier, Stafford & Whillans, 2018).

Meta-analytic findings display that self-administered interventions are more effective than no treatment and are comparable to antidepressants and psychotherapy for treatment of depression (Cuijpers, Berking, Andersson, Quigley, Kleiboer, & Dobson, 2013; Wojnarowski, Firth, Finegan, & Delgadillo, 2019), evidencing improvements of one category on the Mental Health Spectrum (Parks et al., 2018). Self-administered interventions are also

perceived to be the most acceptable form of treatment for depression. Specifically, there is no significant difference in perceived acceptability between psychotherapy, seeing a General Practitioner and self-guided treatment (Hanson, Webb, Sheeran, & Turpin, 2016). However, antidepressants, internet-based self-help interventions and bibliotherapy evidence significantly lower levels of perceived acceptability (Hanson et al., 2016). Comparable effects of self-administered PPIs and self-help CBT literature are also noted in a population of mild to moderate depressives (Hanson, 2018). PPIs can also be utilised to counter negative thought patterns and behaviours, alongside more traditional therapeutic interventions (e.g. CBT; Layous et al., 2014). In previous research PPIs have been utilised as part of an integrative PPI (Lopez-Gomez, Chaves, Hervas, & Vazquez, 2017), alongside psychotropic medications or as part of Positive Psychotherapy (Seligman, Rashid, & Parks, 2006).

As PPIs are typically self-administered, this also facilitates interpersonal support from peers and family more easily than traditional therapeutic interventions (Layous, Chancellor, Lyubomirsky, Wang, & Doraiswamy, 2011). This self-administration increases the likelihood that participants will attribute the success of the intervention to themselves, not to an external agent (Layous, et al., 2011). This leads to improvements in one's internal locus of control, and psychological need for autonomy, both previously linked to improvements in wellbeing and intrinsic motivation (Ryan & Deci, 2000a; Klonowicz, 2001). In a recent meta-analysis, the magnitude of the effects of PPIs was small to medium sized in the general population ( $r = .15 - .29$  for well-being and  $r = .14 - .31$  for depression; White, Uttl & Holder, 2019), which is comparable to psychotherapy interventions ( $r = .32$  for self-esteem and adjustment; Smith & Glass, 1977; Sin & Lyubomirsky, 2009).

However, it is acknowledged that those who have a mental health diagnosis may have difficulty engaging in self-administered PPIs. Previous research has concluded that anhedonia, a symptom of affective disorders, is linked to motivational deficits (Rygula, Abumaria et al., 2005). This presents a problem for PPI implementation, as the self-guided nature of intervention implementation requires increased intrinsic motivation (Layous et al., 2011). However, programs which aim to combat pathological disorders and moderate to severe mental health issues do not fit within the scope of this body of work. For these individuals, incorporating PPIs alongside clinical practice or as suggested techniques which accompany computerised treatment or whilst an individual is on a waiting-list could aid in an

individual's recovery. It is important to note that the aim of this body of work is not to replace study which aims to develop clinical interventions, where study has rightly focused upon and evidenced the effectiveness of interventions in moderate to severe populations. As individuals who have mild to moderate mental health difficulties do fit within the scope this definition, and these individuals' evidence mild anhedonia, it is suggested that PPIs may still be implemented effectively into these populations. Furthermore, as statistics for mild to moderate depression and anxiety is increasing, placing a financial strain on current resources, the aim of this body of work is to reorient focus towards early intervention strategies for these individuals.

Within positive psychology, a debate currently exists as to the percentage of wellbeing that can be explained by genetics versus the environment. Previous research has proposed that after genetics (50%) and life circumstances (10%), 40% of an individual's happiness levels are malleable (Sustainable Happiness Model; Lyubomirsky, Sheldon, et al., 2005). This finding is corroborated by more recent research. Baselman Bartels (2018) indicate that the genetic aetiology of eudaimonic and hedonic wellbeing is shared between phenotypes ( $r = .53$ ); it can be inferred from this that 47% of the variance in wellbeing can also be explained by environmental factors. However, there is also a suggestion that it is impossible to separate the influence of these three variables. Instead these are major factors which influence wellbeing, but are not independent. In fact, by changing one's environment by engaging in positive interventions, leads to favourable changes in immune cell gene expression profiles (Nelson-Coffey, Fritz, Lyubomirsky, & Cole, 2017). These findings suggest that heritability does not limit happiness (Bang Nes, 2010) and a proportion of wellbeing gain is malleable and variable due to engagement in PPIs.

PPIs may also enhance the value of public health interventions based on effective behavioural science theories and methodologies to improve health outcomes (Kobau, Seligman, Peterson, Diener, Zack, Chapman, & Thompson, 2011). As these interventions are broad in scope, offer easy access and can be self-administered, they can also ameliorate the effect of high attrition which occurs in more traditional 'mental health activities' in the workplace (Millear et al., 2008). However, currently self-administered PPIs evidence the lowest mean  $r$  effect size, when compared to individual therapy and group administered PPIs (Sin & Lyubomirsky, 2009). This suggests that self-administered PPIs are currently not



optimised in this population, necessitating further study. However, the ease of use of such interventions and the profound and comparable effects to therapeutic interventions noted necessitates further study in populations which are lacking in motivation and wellbeing. This is a previously noted characteristic of both populations of interest in this body of work.

### 1.9.1 Written emotional disclosure and journaling interventions as PPIs

Amongst a psychologically healthy sample, written emotional disclosure (either positive or negative) has evidenced comparable effects to discussions with a psychotherapist (Donnelly & Murray, 1991; Murray, Lamnin, & Carver, 1989). Journaling interventions are one example of written emotional disclosure and PPI, where individuals document their experiences over the course of a week. Previous examples of journaling interventions include, but are not limited to: moments of wellbeing (Fava, 1999), acts of kindness (Otake, Shimai, Tanak-Matsumi, Otsui, & Frederickson, 2006), grateful acts (Emmons & McCullough, 2003) and the Expressive Writing Paradigm (Pennebaker & Francis, 1996).

Reflecting on one's experiences (either positive or negative) has been shown to enhance positive mood (Burton & King, 2004), wellbeing (Emmons & McCullough, 2003; Seligman et al., 2005), increase physical activity (Emmons & McCullough, 2003) and decrease the likelihood of developing physical illnesses (Burton & King, 2004), in a wide range of populations (e.g. *adolescents*; McCabe-Fitch, Bray, Kehle, Theodore & Gelbar, 2011; Reiter & Wilz, 2015; *workers*; Meier, Cho & Dumani, 2016; & *children*; Carter, Hore, McGarrigle et al., 2016). Specifically, positive reflection facilitates an increased positive mood, enhances creativity and openness to experiences and functioning, in line with Broaden-Build Theory (Frederickson, 1998; 2001; 2004). As this positive reflection increases the likelihood of developing a positive memory bias, this in turn reduces hedonic adaptation (Diener & Diener, 1996), promotes positive perceptions of the self, and adaptive behavioural and emotional reactions (Reiter & Wilz, 2015). Moreover, when these positive events are savoured or shared, this effect is enhanced (Gable, Reis, Impett, & Asher, 2004). Additionally, in the same way that negative behaviours, such as binge eating and substance abuse cluster, there is increasing evidence that this is mimicked in positive health behaviours (Frederickson & Joiner, 2002). For example,

those who engaged in a brief gratitude intervention were also found to spent more time exercising than those who recounted their daily hassles (Emmons & McCullough, 2003).

In an inaugural paper, Seligman et al., (2005) compared the effects of five diary interventions on subjective wellbeing and depressive symptomology, including 'Gratitude Visit' and 'You at Your Best'. After participants had engaged with one of these interventions for 5 days, significant decreases in depressive symptomology and increases in wellbeing were noted at 6-month follow-up for both the '3 Good Things' and 'Identifying and Using Signature Strengths' intervention. Furthermore, writing and delivering a letter of gratitude evidenced significant positive changes in wellbeing at 1-month follow-up. The '3 Good Things' intervention has also been replicated in adults (Mongrain & Anselmo-Matthews, 2012; Tagalidou, Baier, & Laireiter, 2019) and children (Carter et al., 2016), evidencing mixed effects (Mongrain & Anselmo-Matthews, 2012; Tagalidou, et al., 2019). Giannopoulos & Vella-Brodrick (2011) also extended Seligman's work in line with the 'Orientations to Happiness' framework (Peterson, et al., 2005). This required participants to document the value of either pleasurable, engaging or meaningful experiences, or a combination of the three, on emotional wellbeing and orientations to happiness. Moreover, when the '3 Good Things' intervention is implemented into workplaces, beneficial effects on affective wellbeing are observed both in the evening (Bono, Glomb, Shen, Kim, & Koch, 2013) and the next morning (Meier, et al., 2016), which persists for 10-weeks post-intervention (Chancellor, Layous, & Lyubomirsky, 2015). This positive reflection has also been shown to predict lower exhaustion and disengagement from tasks, consequently improving job performance (Fritz & Sonnentag, 2005) and work engagement (Daniel & Sonnentag, 2014).

### **1.9.2. The value of reflecting on negative experiences.**

Previous research has postulated that flourishing is measured as an index of the frequency of positive emotions and the infrequency of negative emotions (Lyubomirsky, King et al., 2005). Therefore, previous iterations of journaling interventions have rightly encouraged and evidenced the value of positive reflection on wellbeing and depressive symptomology (e.g. Seligman et al., 2005). However, as a consequence of confronting negative emotions, post-traumatic growth may occur which necessitates a need to

encourage participants to confront these negative emotions (Kashdan & Kane, 2011). In line with this, more recent positive psychology study has proposed that flourishing is more related to an ability to embrace and utilise negative emotions than first thought (i.e. "*The Second Wave of Positive Psychology*"; Itzvan, et al., 2016).

One possible intervention to encourage negatively valenced reflection is the Expressive Writing Paradigm (EWP). This engenders emotional disclosure, requiring participants to freely write and "let go" of any and all emotions relating to a traumatic event for up to 90 minutes per day (Pennebaker & Francis, 1996). Here, the impetus is placed on the individual, where they are encouraged to explore their emotions in a private non-judgemental manner. This improves and facilitates processing to stressful situations when adapting to an adverse event (Rude, Gortner, & Pennebaker, 2004). Over a number of days, repeated instances of writing about these events underlies the emotional health benefits of the paradigm (Sloan & Marx, 2006; Sloan, Feinstein, & Marx, 2008). The mechanisms underlying the EWP are seen as similar to that utilised in psychotherapy or counselling, as individuals can identify a distressing memory, label it, and discuss its causes and implications (Meads & Nouwen, 2005), in a non-judgemental manner (Gortner, Rude, & Pennebaker, 2006; Rude, Maestas, & Neff, 2007). Talking about these negative experiences privately into a dictaphone, has also been shown to improve life satisfaction and enhance mental and physical health (Lyubomirsky, Sousa, & Dickerhoof, 2006). This is due in-part as this cathartic expression allows for traumatic memories to be organised into a more predictable and controllable manner and for individuals to generate more adaptive schemas about themselves, others and the world (Pennebaker & Seagal, 1999; Smyth, True, & Souto, 2010), thereby helping to prevent future depressive episodes. Consequently, this repeated explicit focus on negative emotions lessens the physiological and emotional response and extinction of the negative reaction occurs (Konig, Eonta, Dyal, & Vrana, 2014). Intensification of positive emotion, happiness and psychological acceptance also occurs as a consequence (North, Pai, Hixon, & Holahan, 2011).

A growing number of studies have evidenced the value of emotional expression, specifically via the EWP, on psychological and physical health (Smyth, 1998; Frattaroli, 2006), in a number of populations (Mackenzie, Wiprycka, Hasher, & Goldstein, 2007;

Sbarra, Boals, Mason, Larson, & Mehl, 2013). Specifically, a meta-analytic review of studies in healthy participants showed that the greatest benefits were observed for measures of psychological wellbeing ( $d = .66$ ), followed by physical health ( $d = .42$ ) and general functioning ( $d = .33$ ; Smyth, 1998; Frisina, Borod, & Lepore, 2004). These benefits include: decreased depressive symptomology (Sloan, et al., 2008), lower rumination (Gortner, et al., 2006), two previously noted symptoms which lead to increased work stress (Syrek, Weigelt, Peifer & Antoni, 2017). However, some studies have not been able to repeat these effects (Meads & Nouwen, 2005; Reinhold, Bürkner, & Holling, 2018). Although it is of note that these subsequent meta-analyses have been conducted with a relatively small sub-sample of studies. The EWP has also been associated with decreased symptoms associated with post-traumatic stress (Blasio, Camisasca, Carvita et al., 2015) and improved mental (Sloan & Marx, 2006; Baikie, Geerligs, & Wilhem, 2012) and physical health (King & Miner, 2000). In the workplace, the EWP has also evidenced beneficial effects in reducing absenteeism (Pennebaker & Francis, 1996) and dealing with the negative experiences associated with job-loss and improving job-reacquisition (Spera, Buhrfeind, & Pennebaker, 1994).

As tendencies to ruminate and suppress negative thoughts are indicative of a depression diagnosis and incomplete processing of negative events (Nolen-Hoeksema & Davis, 1999; Nolen-Hoeksema, Larson, & Grayson, 1999), this reflection on emotionally traumatic events and the associated health benefits seems paradoxical. One explanation for this seemingly counterintuitive finding is the Self-Judgement Hypothesis (Gortner et al., 2006), where it is hypothesised that it is not the negative reflection on the event that causes rumination, but rather the perceived negative judgement of the experience (Rude, et al., 2007). Given the instructions of the EWP encourage an individual to “let go” and to explore their “deepest thoughts and feelings” it is hypothesised that the EWP counteracts the negative self-judgements that characterise brooding (Gortner et al., 2006) which gives rise to the beneficial health effects noted above. However, many people may have difficulty allowing themselves to express negative emotions and may need to be given explicit permission or tools to experience them (Ben-Shahar, 2007).

This ability for participants to express themselves in a private non-judgemental manner seems to be a significant moderator in the effectiveness of the paradigm. For

instance, those who are most expressive display significant reductions in anxiety (Niles, Haltom, Mulvenna, Liberman, & Stanton, 2014), depression (Lumley, 2004), and increased physical health (Austenfeld, Paolo, & Stanton, 2006). Whereas those low in expressiveness exhibit heightened anxiety post-intervention (Niles, et al., 2014). Secondly, this ability to structure and organise a traumatic memory also results in more adaptive schemas about themselves, others and the world (Smyth, et al., 2010). However, it is important that the reconstruction of such events is specific, as this reduces distress (Vrielynck, Philippot, & Rimé, 2012). Additionally, when the content of the journals is analysed, the ratio of positive to negative words is fundamental: a moderate number of negative words about upsetting events evidences the greatest drop in physician visits in the months following engagement with the intervention (Pennebaker, Mayne, & Francis, 1997).

Notwithstanding, one problem with the EWP is that it is primarily designed for individuals to process emotions which accompany a substantial event in one's life and is a labour-intensive exercise to complete, requiring up to 90 minutes over multiple days to be effective. In sum, it was of interest whether harnessing and identifying daily negative emotions (e.g. anxieties) leads to wellbeing gains when individuals have permission to explicitly express these. However, despite the apparent values of the practice, the intensive nature of the EWP is not in-line with the aims of this body of work. Therefore, the EWP was integrated into a light-touch diary specifically focused on harnessing negative emotions and its links to goal achievement (see Chapter 3).

#### **1.10. The diary interventions utilised in thesis.**

It is of note to distinguish the affective reflective diary practices utilised in this body of work and other previously proposed diary methods. The studies in this thesis used a series of affective reflection diaries, which aimed to have beneficial effects on wellbeing, encapsulated by the previously proposed definition of a PPI. Conversely, another body of research exists, which use diaries to systematically reconstruct previous day occurrences, alongside the subjective experience associated with these events. Examples of this include the Day Reconstruction Method (*DRM*), originally proposed by Kahneman, et al., (2004) and the Experience Sampling Method (*ESM*; Larson & Csikszentmihalyi, 1983; Hefferon &

Boniwell, 2011). These are important to acknowledge as both are longitudinal research methods where participants journal their thoughts, feelings and behaviours at multiple occasions across time. However, both are outside the scope of this body of work, as they are merely used as methodological tools to capture the events of the previous day. This is in contrast to the interventional activities aimed to increase positive emotion or wellbeing, which are more akin to the aims of a PPI and the aims of this thesis.

It is hypothesised that reflective journaling practices provide the ideal conceptualisation of an intervention to be implemented into employees and the long-term unemployed. This is because they can be efficiently implemented as they are self-administered, allow for a population-wide approach and require little to no financial input (Chancellor, et al., 2015). They also have a lower barrier of entry for those who lack motivation, energy or enthusiasm (Layous, et al., 2011), a previously identified characteristic of presentees and the long-term unemployed. PPIs are also traditionally designed to target languishing individuals as identified by the Mental Health Spectrum (see Figure 1.2; Huppert, 2009). In this instance, these are presentees and the long-term unemployed. However, currently self-administered PPIs are not optimised to increase wellbeing as evidenced by the small effect sizes, necessitating further study.

### **1.11. Thesis Summary.**

This thesis comprises four experimental chapters with a brief summary and hypotheses presented below and in Figure 1.1 (pg. 3). Chapter 2 and 3 (Study 2b) utilised a positive reflection diary implemented into student populations. Whereas Study 2a implemented a negatively framed Anxiety diary in-line with research into the EWP and the recent Second Wave of Positive Psychology movement. Study 2c then administered these interventions into a small population of employees. Chapter 4 then aimed to disentangle the mechanisms of the '3 Good Things' intervention (Seligman et al., 2005) and explored the efficacy of a novel LOC diary simultaneously. Lastly, Chapter 5 integrated PPIs into a novel 6-week course (BOOST!) implemented into unemployed individuals who evidenced complex barriers to employment and resided in four counties in North Wales.

In this body of work, the Scale of Positive and Negative Experience (SPANE; Diener, Wirtz, Tov, Kim-Prieto, Choi, Oishi, & Biswas-Diener, 2009) and the Satisfaction of Life (SWL;

Diener, Emmons, Larsen, & Griffin, 1985) scale were administered in all investigations. The SPANE measure was used as an instrument to gather insight into momentary positive and negative affect and the SWL measure as a reflective measure of global cognitive judgements of life satisfaction. The Intrinsic Motivation Inventory (IMI; Deci, et al., 1994), was applied to gain a measure of intrinsic motivation, a by-product of eudaimonic wellbeing. To measure changes in persistence over time, the Motivational Persistence Scale (MP; Constantin, Holman, & Hojbotă, 2011) was administered in Chapters 2, 3, and 4. The Depression, Anxiety, Stress short-form Scale (DASS-21; Lovibond & Lovibond, 1995) was implemented in Chapters 2, 3, and 5 to measure non-clinical levels of depression, anxiety and stress. In Chapter 4, this was altered to the Centre for Epidemiologic Studies-Depression Scale (CES-D; Radloff, 1977) to quantify depressive symptomology. To measure resilience, the Connor Davidson Resilience Scale (CD-RISC; Connor & Davidson, 2003) was implemented in Chapters 3, 4 and 5. These are self-report measures which have previously evidenced high reliability and validity. It was hoped that these scales enabled a comprehensive reflection of both subjective and eudaimonic wellbeing, intrinsic motivation, and resilience.

#### 1.11.1 Summary of Hypotheses by chapter.

##### 1. Chapter 2: The development of a self-determined needs diary to improve intrinsic motivation, wellbeing and basic need satisfaction in two populations of Higher Education Students.

After engaging with a self-determined needs diary for a week, participants will:

H<sub>1</sub> - evidence increased persistence and intrinsic motivation at post-test and long-term follow-up.

H<sub>2</sub> – display increased psychological need satisfaction at post-test and long-term follow-up.

H<sub>3</sub> – show increased positive affect and life satisfaction and decreased depression, anxiety and stress at post-test and long-term follow-up.

All effects are compared to a placebo control diary. Individuals exposed to this diary will show none of these changes

**2. Chapter 3: The use of a reflective Anxiety and Excitement journaling intervention to improve wellbeing, resilience, and motivation on Higher Education students and employees who reside in North Wales.**

**2i. Study 2a**

**Subsequent to participants engaging with an anxiety diary for a week, participants will:**

H<sub>1</sub> – evidence increased resilience at post-test and follow-up.

H<sub>2</sub> – display beneficial effects on wellbeing which will endure long-term.

H<sub>3</sub> – show decreased depression, anxiety and stress and increased positive affect and life satisfaction at post-test and long-term follow-up.

H<sub>4</sub> – evidence beneficial effects of increased persistence and intrinsic motivation at post-test and long-term follow-up.

Those in the placebo control condition would not show any of these changes.

**2ii. Study 2b**

**Reflecting on exciting events in a journaling intervention will:**

H<sub>1</sub> – increase participants resilience at post-test and follow-up, compared to a placebo control diary.

H<sub>2</sub> – have beneficial effects on participant's wellbeing which will endure long-term, compared to a placebo control diary.

H<sub>3</sub> – decrease depression, anxiety and stress and increased positive affect and life satisfaction at post-test and long-term follow-up, compared to those exposed to a placebo control diary.

H<sub>4</sub> – evidence beneficial effects of increased persistence and intrinsic motivation at post-test and long-term follow-up.

Those in the placebo control condition would not show any of these changes.



### **2iii. Study 2c**

Implementing the Excitement Diary into a population of employees will evidence similar effects as in the student population. Employees in the experimental condition will be compared to a placebo control diary condition, consisting of participants from the same company.

### **3. Chapter 4: A diary study investigating the effect of focusing on positive events and perceptions of control on wellbeing.**

H<sub>1</sub> - Individuals exposed to either a Positive Events or Locus of Control diary for a week would evidence significantly increased intrinsic motivation and persistence at post-test and long-term follow-up. Participants in a placebo control condition would evidence none of these changes.

H<sub>2</sub> – Participants exposed to either a Positive Events or Locus of Control Diary would evidence significantly increased positive affect, life satisfaction and decreased depressive symptomology at post-test and long-term follow-up. Participants in a placebo control condition would evidence none of these changes.

H<sub>3</sub> - Individuals exposed to the LOC diary would also show adaptive changes in their perceived locus of control, which endure long-term. Participants in the positive events and placebo control condition would not display these adaptive changes.

### **4. Chapter 5: PCBI: A Positive Cognitive Behavioural Intervention implemented into unemployed individuals who reside in four counties in North Wales.**

As a consequence of partaking in a novel positive psychology course, job-seekers would at post-test:

H<sub>1</sub> – evidence decreased depression, anxiety and stress symptomology.

H<sub>2</sub> – display increased intrinsic motivation.

H<sub>3</sub> – exhibit significantly increased positive affect and life satisfaction at post-test.

H<sub>4</sub> – demonstrate increased resilience.

## Chapter 2: The development of a self-determined needs diary to improve intrinsic motivation, wellbeing and basic need satisfaction in two populations of Higher Education Students.

### Abstract

**Objective:** Satisfaction of one's psychological needs, as defined by Self-Determination Theory (SDT), has previously been implicated as a determining factor in evidenced beneficial increases in wellbeing and intrinsic motivation. Increasing intrinsic motivation is vital in the workplace as improved task-performance, enhanced motivational persistence and the development of an internal locus of control are observed as a consequence. To develop this type of motivation, a particular focus is placed within SDT on an organismic dialectical approach. Here, significance is placed not only on the optimum environmental constraints that lead to the development of intrinsic motivation, but also one's innate drive to optimal functioning. As the workplace provides an environment with an equal emphasis on reward systems and opportunities for personal growth, it was hypothesised that SDT provides the ideal conceptualisation of intrinsic motivation in this context. Due to research which evidences the value of positive daily reflection, the aim of Study 1 was to develop a novel SDT Diary which placed a focus on daily satisfaction of these psychological needs.

**Design:** A Mixed Measures design was employed; participants were randomly allocated to either an SDT Diary condition or placebo control and measured at three time points (pre-, post-test and follow-up). Participants engaged with their allocated diary for one-week.

**Participants:** Over two studies, the final sample totalled 139 Higher Education Students.

**Measures:** In both studies, participants completed self-report measures of intrinsic motivation, basic psychological need satisfaction (and need frustration in Study 1b) and wellbeing.

**Results:** Across two studies, a series of Mixed Measures ANOVAs evidenced no significant beneficial effects.

**Conclusion:** Findings suggest that placing an explicit focus on and reflecting upon the fulfilment of one's psychological needs does not significantly impact upon self-reported intrinsic motivation and wellbeing.

## Introduction

In Chapter 1, intrinsic motivation was defined and the environmental conditions which lead to the development of this type of motivation were outlined. A specific focus was placed upon the observed benefits of improving intrinsic motivation, both generally and in specific domains (i.e. in the workplace; see section 1.7). To summarise the evidence presented in Chapter 1, intrinsically motivated behaviours are conducive to the development of an internal locus of control, a previously evidenced determining factor in decreased predicted likelihood of the development of depression (Seligman, 1990; Macloed & Moore, 2000). Secondly, in the workplace, if an employee is intrinsically motivated, they evidence increased psychological health (Parker, et al., 2010), greater job satisfaction (Gagné, et al., 2008; Lam & Gurland, 2008) and wellbeing (Ilardi, et al., 1993). Chapter 1 identified Self-Determination Theory (SDT; Ryan, 1995; Ryan & Deci, 2000a) as a model of self-regulation and intrinsic motivation. A particular focus was placed on OIT, a sub-theory of SDT (Vansteenkiste, Niemiec, et al., 2010), as a self-regulation model which perfectly encapsulates the challenges associated with improving workplace motivation. Due to research which has demonstrated the value of reflective practice, the following investigation integrated the SDT paradigm into a daily journaling intervention, which was administered in two populations of Higher Education Students. The aim of this diary was to improve intrinsic motivation, wellbeing and basic need satisfaction.

### 2.1 Self-Determination Theory.

Previous drive theories have focused on motivation evoked by deprivation (i.e. *Maslow's Hierarchy of Needs*) or a need to maintain homeostasis (i.e. *Hull's Drive Reduction Theory*). However, one major criticism of these theories is that they do not attempt to explain why individuals engage in behaviours that appear to satisfy needs when they are already fulfilled (i.e. *eating when satiated or drinking when not thirsty*; Sheldon & Niemiec, 2006) or participate in activities which appear to be maladaptive, self-defeating or masochistic (i.e. *bungee jumping*). Conversely, an approach that takes into account both

physiological motives (*i.e. deprivation or operant contingencies*) inherent drives and individual beliefs greatly improves one's ability to predict behaviour (McClelland, 1985).

SDT (Ryan, 1995; Ryan & Deci, 2000a; 2000b), is one such theory. It is a macro-theory of personality, which hypothesises that motivation is driven by an innate need towards psychological growth. Of vital importance in this investigation, core psychological need fulfilment is the precursor for intrinsic motivation, eudaimonic wellbeing and crucially flourishing (Ryan, 1995; Hodgins, Koestner & Duncan, 1996; Ryan & Lynch, 1989 Ryan & Deci, 2000a; Ryan, Huta & Deci, 2008; Deci & Ryan, 2010; Vansteenkiste & Ryan, 2013; Gonzalez, Swanson, Lynch & Williams, 2016). Need fulfilment is derived from the assumption that individuals are active organisms, who seek to master a challenge and integrate new experiences into a coherent sense of self (Vansteenkiste, Niemiec, et al., 2010). Alongside possessing a natural human tendency to seek and conquer optimal challenges and interesting activities (Deci & Ryan, 2000a). This is described by Causality Orientation Theory (COT; Vansteenkiste, Niemiec, et al., 2010) where need satisfaction is a function of either an individual's natural autonomous or controlled orientation. However, as this natural tendency towards psychological growth does not operate automatically, SDT also outlines the environmental characteristics that facilitate or undermine need satisfaction which promotes eudaimonic wellbeing (Cognitive Evaluation Theory; CET; Vansteenkiste, Niemiec, et al., 2010; Ryan & Deci, 2000a; 2000b). This unique approach, which encapsulates both a natural human tendency and the environmental cues necessary, is described as an organismic dialectical approach. Importantly, this synthesis between idiosyncratic characteristics and a need supportive environment encourages the development of intrinsic motivation (OIT; Ryan & Deci, 2000b; Deci & Ryan, 2008a).

### 2.1.1 Basic Psychological Needs Theory (BPNT)

BPNT, a further sub-theory of SDT, indicates that conditions that supports one's basic psychological need satisfaction for autonomy, competence and relatedness are essential for wellness, fostering the highest quality form of motivation (*i.e. intrinsic motivation*; Ryan & Deci, 2000b). Autonomy refers to a level of volitional control over one's actions, to have a sense of choice (Ryan, 1995; Ryan &

Deci, 2000a), to be self-directed in one's endeavours and to be the originator in one's behaviour (DeCharms, 1968 as cited in Ryan & Connell, 1989; Ryan & Deci, 2006; Patrick, et al., 2007). Competence refers to a level of virtuosity or skill and the need to feel effective to achieve one's desired outcomes (Patrick et al., 2007; Vansteenkiste & Ryan, 2013). Lastly relatedness, refers to a need for social interaction and support; the need to feel connected to and supported by others (Baumeister & Leary, 1995; Patrick et al., 2007). BPNT assumes that individuals have an innate tendency to develop themselves socially and benefit from being cared for, which is encapsulated by Relationships Motivation Theory (RMT; Deci & Ryan, 2000a).

All three of these needs have been uniquely associated with increases in wellbeing, self-esteem and positive affect (Deci & Ryan, 2000a; Patrick, et al., 2007). SDT argues that it is the degree to which these needs are satisfied that is the most important predictor in flourishing (Ryan & Deci, 2000a). Although there may be cultural differences in the way that these needs are expressed, various studies from the SDT literature have demonstrated that singularly satisfying the three basic psychological needs has unique additive effects for psychological wellbeing (Deci & Ryan, 2000a) in different age groups (Soenens, Durlez, Vansteenkiste, & Goossens, 2007) or in culturally diverse groups (Deci, Ryan, Gagné, Leone, Usunov, & Kornazheva, 2001; Vansteenkiste, Lens, Soenens & Luyckx, 2006; Chen, Vansteenkiste, Beyers et al., 2015). Satisfaction of one's psychological needs has also been shown to contribute to wellbeing in a variety of domains, including the workplace (e.g. Illardi, et al., 1993; Gagné & Deci, 2005; Meyer & Gagné, 2008; Dysvik & Kuvaas, 2012), when increasing physical activity (e.g. Fortier, Sweet, O'Sullivan & Williams, 2007; Chatzisarantis & Hagger, 2009; Teixeira, Carraca, Markland, Silva, & Ryan, 2012) and proliferation of health behaviours (e.g. Edmunds, Ntoumanis & Duda, 2006).

### 2.1.2. SDT and its definition of intrinsic motivation.

Previous theories have hypothesised motivation as a binary concept, where individuals will either have no motivation or a great deal (Ryan & Deci, 2000b; Deci &

Ryan, 2008). Uniquely, SDT distinguishes the level of motivation (*i.e. amount*) from the orientation (*i.e. extrinsic vs intrinsic*; Ryan & Deci, 2000b), referring to either an autonomous (*i.e. intrinsic*) or controlled (*i.e. extrinsic*) orientation (see Section 1.7). Unlike some perspectives, SDT proposes that extrinsic motivation can vary greatly in its relative autonomy (Ryan & Connell, 1989). As identified in Chapter 1, OIT, a sub theory of SDT, specifically differentiates between Integrated and Introjected motivation (see Figure 1.3). These describe two different types of internalisation that represent different quality motivation. Introjected motivation is governed by inner control or guilt, leading to increases in anxiety and decreases in wellbeing (Deci et al., 1994). Conversely, Integrated motivation refers to self-determined behaviours, where an individual accepts full responsibility for task-completion, enhancing enjoyment and proactive coping (Ryan, 1982; Ryan & Connell, 1989). However, as outlined in Chapter 1, SDT does not assume that this integrative process is automatic. Instead SDT assumes an organismic dialectical approach, acknowledging that internalisation depends on one's natural tendency towards optimal functioning and the contextual supports for basic psychological need satisfaction (Deci, Vallerand, Pelletier, & Ryan, 1991; Ryan & Deci, 2000a; Vansteenkiste, Niemiec et al., 2010) and human functioning (Patrick, et al., 2007). These social and environmental cues can then induce or reduce intrinsic motivation, as outlined by CET (Ryan & Deci, 2000a; Vansteenkiste, Niemiec et al., 2010).

The goal for employers is to maximise opportunities where extrinsically motivating activities can become autonomously motivating (Deci & Gagne, 2005; Greguras et al., in Gagné, 2015). Importantly, the work environment may differ from traditional definitions of controlled and autonomous environments, by providing more of an equal emphasis on both sides of the continuum (*e.g. task-contingent, performance-contingent and engagement contingent reward systems*; Deci, et al., 2001). SDT suggests that organisations can attempt to facilitate this process by designing tasks that are challenging, varied, and have an impact on others (Deci & Ryan, 2000; Humphrey, Nahrgang & Morgeson, 2007).

SDT, therefore is the ideal model as it accounts for integrated motivation, when the task is not interesting in itself, but requires discipline and determination to succeed (Koestner & Losier, 2002).

## 2.2. The current investigation

It is hypothesised that SDT provides the ideal conceptualisation of the environmental conditions that support intrinsic motivation (linked to improved wellbeing; Ryan & Deci, 2000a), alongside accounting for the factors conducive to improving intrinsic motivation, which is of value to further understand motivation in the workplace (Gagné & Deci, 2005; Greguras, et al., in Gagné, 2015). One way in which it might be possible to provide the necessary environmental factors to support internalisation is to place an explicit focus on the satisfaction of basic psychological needs through a journaling intervention, which have previously evidenced to lead to wellbeing gains (for review see Section 1.9 of this thesis). However, to date, previous research is yet to develop such an intervention. Therefore, the current investigations intended to test the effectiveness of an SDT diary, which aimed to improve wellbeing, intrinsic motivation, motivational persistence and basic need satisfaction.

It was hypothesised that, after engaging with a self-determined needs diary for a week, participants would:

**H<sub>1</sub>** - evidence beneficial effects of increased persistence and intrinsic motivation at post-test and long-term follow-up.

**H<sub>2</sub>** – display increased psychological need satisfaction at post-test and long-term follow-up.

**H<sub>3</sub>** – demonstrate increased positive affect and life satisfaction and decreased depression, anxiety and stress at post-test and long-term follow-up.

Whilst those exposed to a placebo control diary would exhibit none of these changes.



## Study 1a: Methods

### Participants

Previous research has evidenced that PPIs evidence small effect sizes (Sin et al., 2009; Boiler et al., 2013; White et al., 2019). Using this expected small effect size ( $d = .2$ ; Cohen, 1992), an a-priori power analysis using G\*Power (Faul, Erdfelder, Lang, & Buchner, 2007; Faul, Erdfelder, Buchner, & Lang, 2009) was conducted. To determine a significance at 95% power, for a Mixed Measures ANOVA with two groups, using an alpha of .05, a sample size of 66 participants was needed to gain enough power. Given the potential for attrition across a multiple stage study, a total of 108 participants were recruited to take part in the study. Seventy participants in total were included in the final analysis. These were undergraduate psychology students (18+ years), recruited via an on-line participation panel or through word of mouth. Constraints with the participation panel meant that only a two-part study could be advertised. Therefore, participants received their follow-up questionnaires on an on-line platform (*Sensemaker*; Cognitive Edge, 2019). Upon their completion of the follow-up measures, participants could either receive: (1) a further course credit, or (2) entry into an Amazon voucher prize draw as a reward for their engagement.

### Ethical Considerations

All participants were aged over 18 years of age, given detailed information about the study and informed they could withdraw without penalty at any time. Each participant then gave informed consent to research. All data was treated confidentially; for all outcome measures participants received a unique ID and diaries were non-identifiable. The study was also guided and approved by Bangor University School of Psychology Ethics Board (ethics code: 2016-15820).

### Materials

**Self-Determined Needs Diary.** In this diary, participants were required to reflect on '3 Good Things' that had happened that day alongside their causal attributions, as per Seligman, et al., (2005). Alongside this, the diary necessitated them to outline how these events fulfilled

their three basic psychological needs for Autonomy, Competence and Relatedness (Ryan & Deci, 2000a; see Appendix 1.1).

**Three Events Diary.** The placebo control diary required participants to journal three events that had happened each day alongside their causal attributions. These events were neutral in valence and the magnitude of each event (*i.e. purchasing a coffee vs. completing an assignment*) was not specified by research (see Appendix 1.2). This diary was similar to that proposed by Giannopoulos & Vella-Brodrick (2011), which evidenced no significant beneficial effects.

Participants were required to complete their diary once a day for five-days, using an online data-capture tool (*Sensemaker*; Cognitive Edge, 2019). The time of day when participants completed the diary was not specified by research but captured by the software, alongside the time taken to complete the diary.

## Design

A 2x3 Mixed Measures design was employed. Participants were randomly assigned into one of two conditions (*SDT or Three Events*) and were assessed at three time points (*pre-, 1-week post-test and 2-month follow-up*). All participants were given the same measures (detailed below) but exposed to different diaries dependant on their condition allocation.

## Measures

**Demographic questionnaire.** At pre-test, participants were asked for variables including age and gender (see Appendix 1.3).

**Basic Psychological Needs Scale (BPN; Ryan & Deci, 2000a; Gagné, 2003).** The BPN is a 21-item scale used to assess the satisfaction of Self-Determined needs for Autonomy, Competence and Relatedness in one's general life. Participants were required to rate on a 7-point Likert scale (*0 = not at all true, 4 = somewhat true, 7 = very true*; see Appendix 1.4) to indicate how much that statement related to them. Previous research has reported Cronbach's-  $\alpha$  for the scale between .70 to .84 (Gagné, 2003; Thøgersen-Ntoumani,

Ntoumanis, Cumming, & Chatzisarantis, 2011). This was reflected in the current sample, with a Cronbach's-  $\alpha$  of .85.

**Intrinsic Motivation Inventory (IMI;** Deci, et al., 1994). The IMI is a 17-item scale which assesses levels of intrinsic motivation and self-regulation. Participants rate, on a 7-point Likert scale (*1 = not at all true; 7 = very true*), how much the statement related to them in the last week on a chosen activity. For the purposes of research, the chosen activity was academic work (see Appendix 1.5). In the current study, a composite intrinsic motivation score for academic work was derived. McAuley, Duncan and Tammen (1989) report good Cronbach's-  $\alpha$  score of .85 for this scale. This acceptable internal consistency was reflected in this population with a Cronbach's-  $\alpha$  score of .82.

**Scale of Positive and Negative Experience (SPANE;** Diener, et al., 2009). SPANE is a 12-item scale, which assesses levels of positive (SPANE-P) and negative affect (SPANE-N) and affect balance (SPANE-B). Participants rate adjectives which describe how they have felt (e.g. *pleasant, unpleasant*) over the last week on a 5-point Likert scale (*very rarely, rarely, sometimes, often, always*; see Appendix 1.6). A composite measure (SPANE-B) is determined by scoring the 5-point Likert scale (*1 = very rarely, 5= always*) and subtracting the SPANE-N score from the SPANE-P score. This gives a score from 24 to -24 which determines how positive or negative the participant felt. When compared with the Positive and Negative Affect Schedule (PANAS; Watson, Clark & Tellegan, 1988), the convergent validity of the scale is .59, .70 and .77 for the positive, negative and balance scales respectively (Diener et al., (2009). For the purposes of the current research only the SPANE-B scale was used in analysis. Diener et al., (2009) report good internal consistency of the scale with a Cronbach's-  $\alpha$  score of .88, which was reflected in this population with a Cronbach's-  $\alpha$  score of .89.

**Satisfaction with Life (SWL;** Diener, et al., 1985). The SWL scale is a 5-item measure designed to assess cognitive judgements of an individual's life satisfaction. Participants indicate how much they agree or disagree with each of the 5-items on a 7-point Likert scale (*1 = strongly disagree, 7 = strongly agree*; see Appendix 1.7). A composite measure is gathered by summing responses from the five statements to gain a score between 0-35 to indicate how

satisfied participants are with life. Pavot and Diener (1993) evidenced that the scale had good internal consistency, reporting a Cronbach's- $\alpha$  score of .87, which was reflected in this population with a Cronbach's- $\alpha$  score of .84. The SWL scale has also been shown to be negatively correlated with clinical measures of both depression (Beck's Depression Inventory (BDI) Beck, Ward, Mendelson, Mock & Erbaugh, 1961;  $r = -.72$ ) and the negative affect scale ( $r = -.48$ ) and positively correlated with the positive affect scale from PANAS ( $r = 0.44$ ; Smead, 1991 as cited in Pavot & Diener, 1993) which evidences the scale's convergent validity. Convergent validity of the scale also ranges from .58 to .68 when compared with other wellbeing measures (Pavot & Diener, 1993).

**Depression, Anxiety and Stress Scale (DASS-21; Lovibond & Lovibond, 1995).** DASS-21 is a short form of the DASS-42 scale used to assess levels of depression, anxiety and stress in clinical and non-clinical populations (Brown, Korotitsch, Chorpita & Barlow, 1997; Antony, Bieling, Cox, Enns & Swinson, 1998; Page, Hooke & Morrison, 2010). Participants are required on a 4-point Likert scale ( $0 = \text{never}$ ,  $1 = \text{sometimes}$ ,  $2 = \text{often}$ ,  $3 = \text{almost always}$ ) to indicate how each statement has applied to them over the last week (see Appendix 1.8). Previous research has reported Cronbach's- $\alpha$  for the DASS-depression, DASS-anxiety and DASS-stress scale between .94 to .97, .84 to .92 and .90 to .95 respectively (Parkitny & McAuley, 2011; Brown et al., 1997; Antony et al., 1998; Page et al., 2007; Nieuwenhuijsen, de Boer, Blonk, Verbeek, & van Dijk, 2003). For the purposes of current research, a composite measure was calculated, which reported a Cronbach's- $\alpha$  score of .92. Convergent validity, when correlated with the Hospital Anxiety Depression Stress (HADS) Scale, for the three subscales is good (depression  $r = .75$ , anxiety  $r = .66$ , stress  $r = .58$ ; Nieuwenhuijsen et al., 2003). Furthermore, when individuals with depression, anxiety and stress are compared to individuals with adjustment disorders, there is a significant overall effect of group ( $F(1,3.17) = 17.25$ ,  $p < .001$ ) which evidences the scale's good criterion validity (Nieuwenhuijsen et al., 2003).

**Motivational Persistence (MP; Constantin, et al., 2011).** A 16-item scale used to evaluate levels of long-term purpose pursuing (LTTP), current purpose pursuing (CPP) and recurrence of unattained purposes (RUP). Participants were requested to rate on a 5-point Likert scale (1

= *not at all*, 2 = *not very like me*, 3 = *somewhat like me*, 4 = *mostly like me*, 5 = *very much like me*) how much that statement has applied to them over the last week (see Appendix 1.9). Constantin et al., (2011), report Cronbach's-  $\alpha$  for each scale of .72, .75 and .76 respectively. For the purposes of the current study a composite motivational persistence score was derived, with a Cronbach's-  $\alpha$  score of .83.

## Procedure

Upon arriving at the lab, participants were given a brief verbal introduction to the study and an Information Sheet to read (see Appendix 1.10) and asked to give informed consent to research (for consent form see Appendix 1.11). Participants then completed all measures (as detailed above). Once completed, they were given a "practice" paper version of the diary, where they reflected on activities from the previous day. The sole purpose of this was for participants to familiarise themselves with the diary and was not used in analysis. After this, participants were informed that they would later receive an email (roughly 3-4 hours after their session) containing the link to the on-line version of the diary (see Appendix 1.12) and a unique ID. Alongside this, participants were given a brief introduction to the diary methodology; informed that all their entries were confidential, and they were not constrained by time of day or where they made the diary entries (*i.e. home, work, university*). However, due to restrictions with the software, entries could not be made on mobile devices. Therefore, a desktop computer or laptop with internet access was required to complete the diary. Participants were asked to begin completing their diary entries on the day of their testing session and complete for the next consecutive 5-days. The day of participant's first and last diary entry was different for each participant dependent on the day of their first session. After completing all measures and the practice diary and participants were familiar with the methodology, they were excused from the testing room.

One-week later, participants returned to the lab for their post-test session, where they completed the same measures as in pre-test (detailed above). In this session, they were also informed that they could continue with the diary should they choose. Two-months after their post-test session, participants were emailed a link to the same questionnaires (for questionnaires see above) and were debriefed electronically (see Appendix 1.13).

## Data Analysis

To decipher the effect of the diary on self-report measures, a series of 2x3 Mixed Measures ANOVAs were conducted. Significance was set at  $p = <.05$ . When a significant main effect or interaction was found, post-hoc analyses were performed. These were either Paired-Samples T-Tests to decipher differences across time or Independent Samples T-Tests to detect group differences. Participants were removed from analysis if: (a) they failed to complete specific questionnaires correctly (i.e. failed to respond to specific questions; SPANE,  $n = 1$ , IMI,  $n = 5$ ), (b) were found to be outliers (defined as three Standard Deviations from the mean; Osborne & Overbay, 2004; SWL,  $n = 1$ , DASS,  $n = 1$ ), or (c) failed to complete questionnaires at the three-time points (pre-, post-test & 2-month follow-up;  $n = 38$ ). Due to this, the reported number of participants may differ between measures for subsequent analyses.

Apriori, for each data-set, a test of normality was conducted to check whether data violated parametric assumptions. To do this, methods proposed by Kim (2013) were utilised to calculate a normality z-score: as the sample  $n$  is  $\geq 50$ , but  $\leq 300$ , z-scores  $\geq \pm 3.29$  indicated that the distribution is non-normal, rejecting the null hypothesis. When there was a violation of skewness or kurtosis, data was transformed to bring data back within the accepted range of normality (methods proposed by Tabachnick & Fidell, 2001 & Field, 2009). If data was found to be negatively skewed, then it was first reflected (i.e. maximum score + 1 – participant's score) before applying transformation (Howell, 2007b; Tabachnick & Fidell, 2001). It is of note then when data was reflected, the interpretation of the variable is reversed (i.e. *larger scores are indicative of a lower score on the scale*).

Subsequently, baseline conditions were also compared across groups to ensure no differences existed at pre-test. To assess differences between groups on outcome measures at pre-test, Independent Samples T-tests were used. Due to significant baseline differences noted in some variables, which could invalidate post-test scores (Van Breukelen, 2006), change score calculations were derived using the below calculation:

$$\text{Change score} = \text{Time2} - \text{Time1}$$

For all variables, two change score calculations were derived; pre- to post & pre- to follow-up (methods proposed by Rogosa, Brandt & Zimawski, 1982 and Fitzmaurice, Laird & Ware,

2004). For demographic information, age and gender were categorical variables. Therefore, a Chi-Squared Test was used to assess baseline differences. If data violated the assumptions for a Chi-Squared Test (i.e. cells had expected counts less than 5), then a Fisher's Exact Test was used (Field, 2009).

### Study 1a: Results

#### Demographic information and tests for baseline differences

Investigations examined 70 participants (Male  $n = 13$ , Female  $n = 57$ ) all of whom completed all questionnaires at 3-time points (*pre-*, *post-test* & *2-month follow-up*). Participants were randomly assigned into one of two conditions (SDT,  $n = 37$  or Three Events,  $n = 33$ ) and were given a diary to complete for five consecutive days (SDT<sub>Mean</sub> = 4.76; SDT<sub>SD</sub> = 1.69; Three Events<sub>Mean</sub> = 4.97; Three Events<sub>SD</sub> = 1.19). An Independent Samples T-Test revealed no significant difference between groups for the number of diaries completed over the five days ( $t(64.57) = .62$ ,  $p = .54$ ). Fisher's Exact Test also revealed no significant differences between group for gender ( $p = .23$ ). Furthermore, Independent Samples t-tests were conducted on all measures at baseline for those participants who completed measures at all three time points ( $n = 70$ ), versus those who dropped out ( $n = 33$ ). This revealed a significant difference in SPANE-B ( $t(103) = 2.57$ ,  $p = .012$ ) between those who completed the study (SPANE-B<sub>Mean</sub> = 9.20, SPANE-B<sub>SD</sub> = 7.71) and those who did not (SPANE-B<sub>Mean</sub> = 5.06, SPANE-B<sub>SD</sub> = 5.06), indicating that those who completed the study had significantly higher SPANE-B scores at baseline than those who dropped out. No other significant differences were found for any measure (see Appendix 1.14).

#### Skewness and Kurtosis

A-priori data analysis indicated that the DASS-21 and SPANE-B measures were non-normally distributed and were therefore transformed (see Appendix 1.15 for z-scores). As the SPANE-B measure was negatively skewed, the data was first reflected. Subsequent square-root transformation brought the data back within normal distribution (*Skewness*: DASS-21<sub>pre</sub>,  $z = .94$ , DASS-21<sub>post</sub>,  $z = .82$ , DASS-21<sub>follow-up</sub>,  $z = 1.58$ ; SPANE-B<sub>pre</sub>,  $z = .24$ , SPANE-B<sub>post</sub>,  $z = .79$ , SPANE-B<sub>Follow-up</sub>,  $z = -.01$ ; *Kurtosis*: DASS-21<sub>pre</sub>,  $z = -.21$ , DASS-21<sub>post</sub>,  $z = .30$ , DASS-21<sub>follow-</sub>

$_{up}$ ,  $z = -.74$ ; SPANE-B $_{pre}$ ,  $z = -.33$ , SPANE-B $_{post}$ ,  $z = -.14$ , SPANE-B $_{Follow-up}$ ,  $z = -1.12$ ). The square-root transformed data was then used in all subsequent analyses.

### Baseline Differences

A series of a-priori Independent Samples T-Tests were conducted to test for baseline differences in all measures between groups (SDT & Three Events). As shown in Appendix 1.16, significant baseline differences were found for the IMI. Change score calculations were therefore derived for this scale and used in all subsequent analyses.

### Diary engagement

Table 1.1 below shows the number of diaries that participants engaged with, split by condition.

**Table 1.1. Number of diaries completed by participants from pre-test to follow-up, split by condition.**

No. of diary entries	SDT	Three Events
0	2	-
1	1	1
2	-	-
3	2	1
4	6	4
5	16	23
6	5	-
7	5	3
8	-	1

Table 1.1: Number of diary entries completed by participants during the testing period (pre-test to follow-up), split by condition.

As shown in Table 1.1, the total number of diaries that participants accomplished from pre-test to follow-up was 8, with 20% of participants ( $n = 14$ ) completing more than the required 5 diary entries. This suggests that only 20% of participants continued the diary



beyond the post-test session, which was verified by the date and time data provided by the Sensemaker software. Furthermore, 55% ( $n = 39$ ) of participants engaged with the required number of diaries ( $n = 5$ ), with a further 3% ( $n = 2$ ) failing to complete one-diary entry. Previous research has evidenced that greater effect sizes are found when participants engage in 3 or more writing sessions, compared to those who engage in fewer than 3 sessions (Frattaroli, 2006). Therefore, analyses were conducted when those who completed  $\leq 3$  were removed. No differences found in the final analyses when individuals who had completed  $\leq 3$  diaries were removed ( $n = 7$ ) from the data-set (see Appendix 1.17). Therefore, all participants, were included in subsequent analyses to maintain statistical power.

#### **Time by Condition effects for all measures.**

Analysis focused on participants' change over time and between conditions for all dependant variables. A series of 2x3 Mixed Measures ANOVAs were conducted to establish significant differences across time and between conditions for all measures; for the IMI scale, where a change score was derived, a 2x2 mixed measures ANOVA was conducted. Table 1.2 below shows the ANOVA output for these interactions.

**Table 1.2. Means and Standard Deviations ( $\pm 1$  SD from the mean) and mixed measures ANOVAs displayed for each measure.**

	SDT	Three Events	<i>F</i>	<i>df</i>	<i>p</i>	<i>d</i>
	M ( $\pm$ SD)	M ( $\pm$ SD)				
<b>SWL</b>			.81	2, 132	.44	.22
<i>Pre</i>	23.00 ( $\pm 7.08$ )	25.79 ( $\pm 5.74$ )				
<i>Post</i>	24.51 ( $\pm 6.11$ )	26.09 ( $\pm 6.46$ )				
<i>Follow-up</i>	25.03 ( $\pm 5.99$ )	26.42 ( $\pm 5.26$ )				
<b>SPANE-B ‡</b>			.49	2,134	.61	.17
<i>Pre</i>	3.83 ( $\pm 1.05$ )	3.54 ( $\pm 1.00$ )				
<i>Post</i>	3.89 ( $\pm 1.10$ )	3.48 ( $\pm 1.08$ )				
<i>Follow-up</i>	3.66 ( $\pm 1.28$ )	3.16 ( $\pm 1.22$ )				
<b>IMI ¥</b>			1.29	1, 67	.26	.28
<i>Pre to Post</i>	3.73 ( $\pm 9.36$ )	-2.88 ( $\pm 14.40$ )				
<i>Pre to Follow-up</i>	-.38 ( $\pm 9.36$ )	-3.72 ( $\pm 12.69$ )				
<b>MP</b>			.077	1.70, 110.53 †	.90	.064
<i>Pre</i>	49.31 ( $\pm 7.26$ )	51.74 ( $\pm 7.96$ )				
<i>Post</i>	50.14 ( $\pm 8.03$ )	52.65 ( $\pm 6.25$ )				
<i>Follow-up</i>	50.08 ( $\pm 8.79$ )	52.06 ( $\pm 7.51$ )				
<b>DASS-21 ‡</b>			.97	2, 134	.38	.24
<i>Pre</i>	3.90 ( $\pm 1.33$ )	3.75 ( $\pm 1.27$ )				
<i>Post</i>	3.75 ( $\pm 1.33$ )	3.23 ( $\pm 1.29$ )				
<i>Follow-up</i>	3.90 ( $\pm 1.67$ )	3.46 ( $\pm 1.09$ )				
<b>BPN</b>			.24	2, 120	.79	.13
<i>Pre</i>	105.29 ( $\pm 11.29$ )	108.87 ( $\pm 13.95$ )				
<i>Post</i>	105.10 ( $\pm 12.83$ )	110.26 ( $\pm 15.66$ )				
<i>Follow-up</i>	102.06 ( $\pm 12.44$ )	106.23 ( $\pm 14.06$ )				

Table 1.2: Mixed measures ANOVA interactions between time and condition. ¥ = due to significant baseline differences (as noted in Appendix 1.16), change score calculations were derived and a 2-way mixed measures ANOVA was performed; ‡ = transformed data (square-root (for Z-scores see Appendix 1.15)) used in data analysis; † = due to violation of sphericity (MP  $\epsilon$  = .002), the Greenhouse Geisser statistic is reported.

As shown in Table 1.2, no significant interactions between time and condition were found for any measure. Therefore, no further analysis was conducted.

### Study 1a: Discussion

In Study 1a, participants were asked to reflect on both three good things, alongside their causal attributions and the satisfaction of their basic psychological needs. This investigation evidenced that an SDT Positive Events Diary had no effect on wellbeing, basic need satisfaction and intrinsic motivation. Therefore, it can be inferred that a SDT Positive Events Diary does not create the environmental context required to facilitate basic need satisfaction and therefore increase wellbeing and intrinsic motivation.

## 2.3. Alterations made from Study 1a and implemented in Study 1b

### 2.3.1 A measure of psychological need frustration

Study 1a failed to evidence effects relating to the satisfaction of basic psychological needs for Autonomy, Competence and Relatedness, previously proposed as factors which support the development of intrinsic motivation (Ryan & Deci, 2000a; 2000b; Bartholomew, Ntoumanis, Ryan, Bosch, & Thøgersen-Ntoumanis, 2011). However, beyond psychological growth and need fulfilment, SDT also recognises that when psychological needs are impeded non-optimal behavioural patterns can occur (Deci & Ryan, 2000). SDT identifies that if these psychological needs are thwarted, (*e.g. in controlling contexts or when social connection is rejected*; Vansteenkiste & Ryan, 2013), it yields a more controlled form of motivation (Ryan & Deci, 2008), which has a detrimental impact on levels of wellbeing (Deci & Ryan, 2008; Vansteenkiste & Ryan, 2013) and psychological health (Gagne & Deci, 2005; Bartholomew, Ntoumanis, Ryan, Bosch, & Ntoumanis, 2011). Alongside this, adverse behavioural and motivational consequences can occur (Gonzalez et al., 2016; *e.g. binge eating, aggression & self-criticism*; Vansteenkiste & Ryan, 2013). This is conceptualised in the SDT literature as need frustration, an active attempt to thwart need satisfaction, where basic psychological needs are hindered in

social contexts (Bartholomew, Ntoumanis, Ryan, et al., 2011; Vansteenkiste & Ryan, 2013).

However, a distinction between need frustration and low basic need satisfaction is required, as low scores on measures of psychological need satisfaction do not accurately reflect the nature and intensity of need frustration (Bartholomew, Ntoumanis, Ryan, et al., 2011). Low basic need fulfilment merely reflects a lack of need satisfaction, but no active attempt at need thwarting is made (Bartholomew, Ntoumanis, Ryan et al., 2011). Conversely, need frustration is an active attempt to thwart need fulfilment (Vansteenkiste & Ryan, 2013), which predicts feelings of exhaustion, ill-being (Bartholomew, Ntoumanis, Ryan, et al., 2011) and psychological burnout (Lonsdale, Hodge & Rose, 2008; Perreault, Gaudreau, Lapointe & Lacroix, 2007). Need frustration, involves low need satisfaction, however in addition to this, need frustration can lead to defensive or self-protection strategies (Niemic, Ryan, & Deci, 2009). For example, when Autonomy and Competence are thwarted, rigid behaviour patterns can occur (i.e. *disordered eating*; Strauss & Ryan, 1987; Pelletier, Dion, Slovinec-D'Angelo, & Reid, 2004; Thøgersen-Ntoumani, Ntoumanis, & Nikitaras, 2010). As this is the first exploration into the effect of a reflective SDT diary intervention, it was of interest whether explicit focus on need satisfaction would in fact cause psychological reactance (Steindl, Jonas, Sittenthaler, Traut-Mattausch, & Greenberg, 2015) and lead to need frustration. Therefore, in Study 1b, a measure of psychological need frustration was incorporated.

### 2.3.2 Track-card and paper diary

It is a goal of health researchers to improve health promotion habits in the population (Rothman, Gollwitzer, Grant, Neal, Sheeran, & Wood, 2015). One aim of this PhD is to change an individual's wellbeing behaviours, by improving engagement with a journaling intervention. Habits are implicit behaviours, that are not reflected by an individual's thoughts or reported intentions, but are repeated behaviours which are cued by environmental features (Wood, Quinn, & Kashy, 2002). This repetition of behaviour can often reflect an individual's attempts to goal

achievement or learning by association (Wood & Neal, 2007). As they do not rely on explicit thought or intention, habits are effort-efficient, as the cognitive processing that initiates and controls the behaviour is performed quickly and unconsciously (Baumeister, Bratslavsky, Muraven, & Tice, 1998; Smith & DeCoster, 2000). Duhigg (2012) specifies that habits are formed in the presence of an environmental cue, a routine, and a reward. This has previously been termed the 'habit loop'. Importantly this reward can be either internal (i.e. progression towards a goal) or an external (i.e. a positive reinforcer in the environment; Wood & Neal, 2007; Judah, Gardner, & Anger, 2013). Over time, this habit loop becomes involuntary, leading to anticipation and craving of the reward (Duhigg, 2012). However, as old cues are present, familiar environments and routines can bring about unwanted behaviours (Wood & Neal, 2007). So this does not occur, environments can be deliberately modified. Specifically, by placing a visible cue that promotes healthy choice over triggering unhealthy ones, disruptions in old habits can occur (Galla & Duckworth, 2015; i.e. changing the visibility of food choices; Wansink & Sobal, 2007). One approach to do this, is to encourage the repetition of the desired behaviour in a stable context, as over time this becomes automated (Lally, van jaarsveld, Potts, & Wardle, 2010).

As participants evidenced low compliance with the diary beyond the post-test session, it was of interest whether the on-line tool was a hinderance to habit formation, as the environment lacked a sufficient cue or an adequate reward system. Therefore, in Study 2b, the diary was distributed on paper. To record engagement, alongside the paper diary, participants were also issued in the post-test session with a 7-day and 4-week track-card (see Figure 2.1). It was hoped that the inclusion of the environmental cue (i.e. physical diary and track-card) would increase participants' compliance to the diary.

Figure 2.1. The track-card distributed to participants at pre- and post-test to evidence their engagement with the diary.

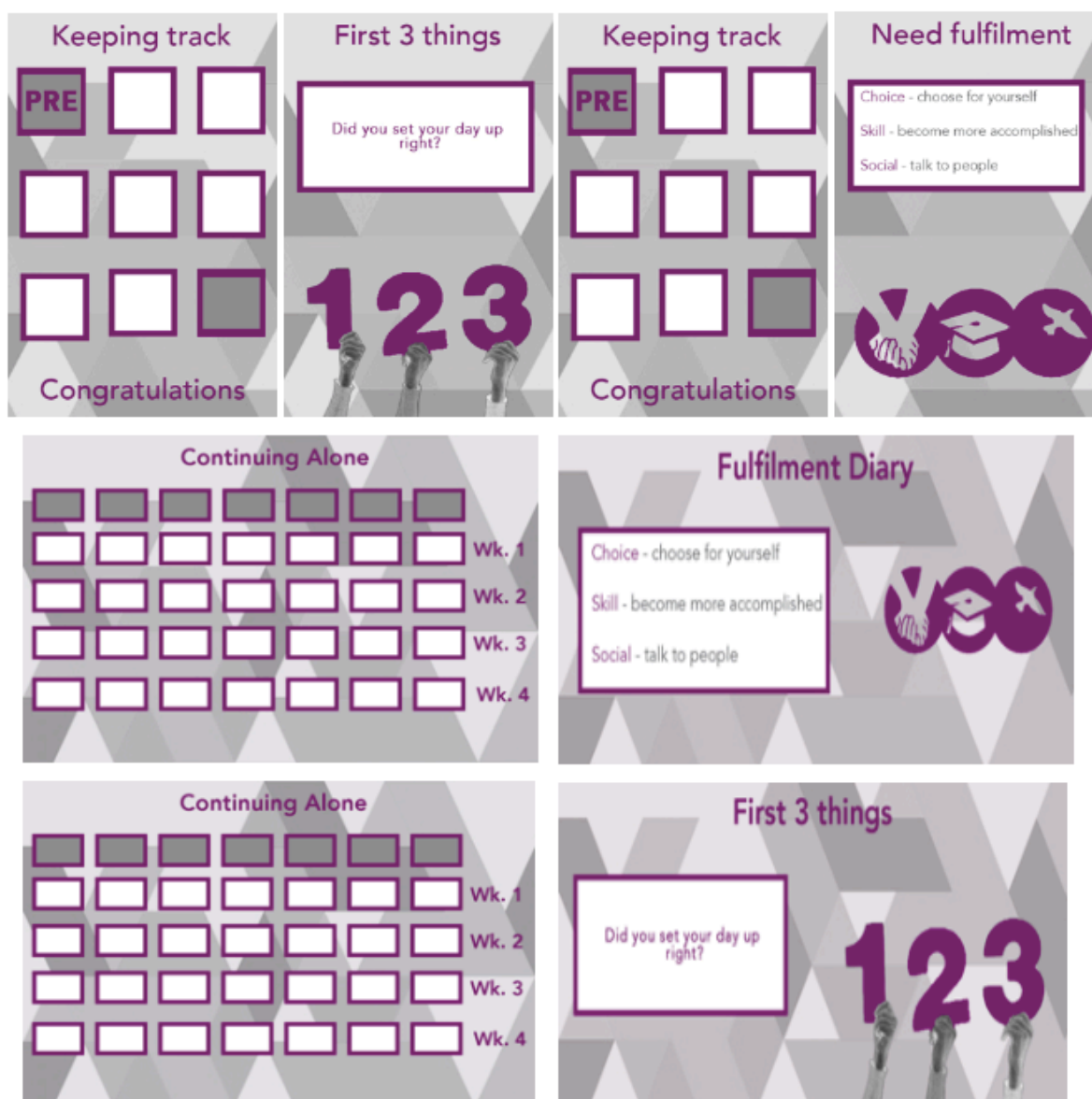


Figure 2.1. Displays the 7-day and 4-week track-card issued to participants. The top image exhibits the front and back profiles of the 7-day track-card issued to participants in the placebo control and experimental conditions. The middle and bottom image displays the front and back profiles of the 4-week track-card issued to both experimental and control participants.

### 2.3.3. Participant's engagement with the diary

Study 1a did evidence that those who persisted with the study displayed significantly increased positive affect, compared to those who did not continue. This

finding is perhaps not surprising given the link between positive emotion and motivational persistence. Broaden Build Theory (Diener, 2000; Frederickson, 2001;2004; for full description see Section 1.6), postulates that positive emotion facilitates approach behaviour (Carver & Scheier, 1990), which encourages individuals to partake in adaptive activities. This finding substantiates this research, suggesting that those with higher baseline positive emotion will engage in activities which are designed to be of benefit to their wellbeing. However, various researchers (Seligman et al., 2005; Froh, Kashdan, Ozmimkowski, & Miller, 2009; Carter et al., 2016) evidenced that those with the lowest baseline happiness made the greatest gains in positive emotion and greater decreases in depressive symptomology. For this reason, it is of vital importance to engage this population to make these gains. Therefore, in Study 1b, the diary was simplified to focus on events that satisfy one's SDT needs. Also, to reduce confusion amongst participants, one diary a day between the pre- and post-test session was required in Study 1b (i.e. 7 diary entries). The aim of this change was two-fold: (1) as participants were now completing their diaries in a paper version of the diary, this would reduce ambiguity in the data to track long-term compliance, (2) increase the likelihood that this behaviour would become a habit as there would no interruption between the first diary completion period and diaries completed between post-test and follow-up.

#### **2.3.4. The simplicity of the diary intervention**

As participants were required in part to focus on 3 Good Things as per the inaugural Seligman intervention, the null effects observed in this study, call into question the underlying mechanism which drives the endured effects previously observed. One possible reason for the endured profound effects is the simplicity of the intervention, compared to the intervention implemented in current research. Specifically, the simplicity of the 3 Good Things intervention led to a more easily available recall of positive events and an altered more positive thinking style for participants over time (Carter et al., 2016). Therefore, alongside altering the diary from the online tool to paper, mnemonics were also added to track-cards. This was

hypothesised to create an environmental cue and the creation of a positive memory bias to alter thinking style.

### Study 1b: Methods

#### Participants

To determine the required number of participants, a power analysis was first conducted using G\*Power. A total of 111 participants were recruited to take part in the study. Sixty-nine participants in total were included in the final analysis. For full description of the assumptions of the power analysis conducted, recruitment procedures and incentives refer to Study 1a (pg. 43).

#### Ethical Considerations

Please refer to Study 1a (pg. 43). Bangor University School of Psychology Ethics Board (ethics code: 2016-15820).

#### Materials

***Self-Determined Needs Diary.*** This was a simpler version of the diary noted in Study 1a. In this diary, participants reflected on three events that satisfied their basic psychological needs for Autonomy, Relatedness & Competence (1 event per need), alongside the causal attributions of each event (see Appendix 1.18).

***First Three Things Diary.*** In the placebo control diary, participants documented the first three things they achieved in the morning (*i.e. having a shower, eating breakfast*). This was framed to participants in the study as a 'Morning Routine Diary' (see Appendix 1.19).

Participants were required to complete their diary for 7 consecutive days and were issued with a track-card, which allowed participants to record their engagement. The time of day and the time taken to complete the diary was not recorded by research.

#### Design.

Please refer to Study 1a (pg. 44) for full description of design; see Figure 2.2 for schematic of study design.



Figure 2.2 Schematic of the study design

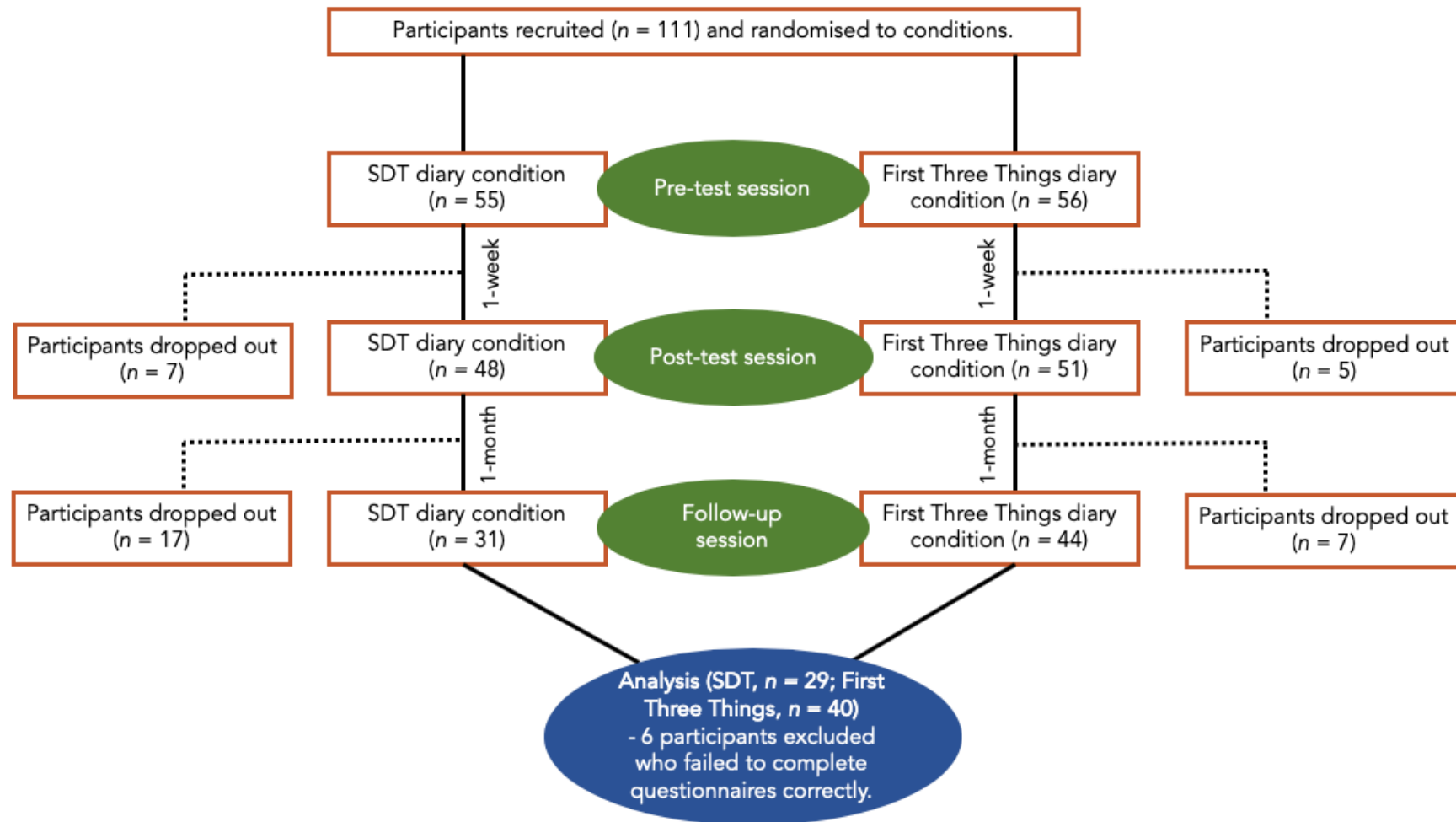


Figure 2.2: Schematic of the study design. Schematic depicts three testing sessions, two one-week apart and a third one-month later. Participants were randomly allocated into either the SDT or First Three Things condition.

## Measures

**Demographic questionnaire.** In addition to the pre-test demographic questionnaire described in Study 1a, participants were also required to report whether they held a part-time job alongside their studies and current volunteering roles, as prosocial behaviour is linked to increases in wellbeing (Meier & Stutzer, 2008; Martela & Ryan, 2016). As low income is also associated with the likelihood of individuals being diagnosed with depression (Hefferon & Boniwell, 2011), participants were required to report their average household income. They were also asked if they had an interest in Positive Psychology and previous participation in a PPI (see Appendix 1.20). At post-test, participants also reported their engagement with the diary (*i.e. I completed \_\_\_\_/7 diaries*) and whether they found the diary helpful or difficult (see Appendix 1.21).

The IMI, SPANE, SWL, DASS-21 and MP scale were implemented (for a full description of the scale please refer to Study 1a; pg. 44; see Appendix 1.5 to 1.9). The Cronbach- $\alpha$  noted for the measures in this population were as follows: IMI  $\alpha = .81$ , SPANE  $\alpha = .83$ , SWL  $\alpha = .74$ , DASS-21  $\alpha = .91$  and MP  $\alpha = .83$ . Alongside these measures and to replace the Basic Psychological Needs Scale implemented in Study 1a, the **Basic Psychological Need Satisfaction and Frustration Scale (Diary Version; BPNS-D; Chen et al., 2015)** was administered. The BPNS-D is a 12-item scale adapted from the BPNS (Chen et al., 2015). This scale assesses levels of basic psychological need satisfaction and frustration on a daily basis. It was adapted to incorporate participants' level of basic need satisfaction and frustration over the past week. Participants are asked to rate on a 6-point Likert scale (0= *Not at all true*, 5= *completely true*) to indicate how much each statement has applied to them over the last week (see Appendix 1.22). Chen et al., (2015), reports Cronbach's- $\alpha$  for the Need Satisfaction (BPN-SAT) and Need Frustration (BPN-FRUS) scale of between .60 to .88 and .58 to .73, respectively. This was reflected in the current sample, with a Cronbach- $\alpha$  score of .73 and .71 for both the BPN-SAT and BPN-FRUS scales respectively.

## Procedure

Methods used were similar to those detailed in Study 1a (for full description refer to pg. 47; for schematic to recap see Figure 2.2). Participants were given a booklet containing

7-diaries (either SDT or First Three Things), alongside a track-card to evidence engagement (see Figure 2.1). At one-week post-test, participants returned to the lab to complete questionnaires. At one-month follow-up, participants received an on-line link via email to the Sensemaker platform containing the same questionnaires (see Appendix 1.12) and the online debrief (see Appendix 1.13).

### Data Analysis

Please refer to Study 1a (please refer to pg. 48) for a description of the data analysis technique. It is of note that in Study 1b: 6 participants were excluded, who failed to complete specific questionnaires correctly (SPANE-B = 1; IMI = 5) and 42 participants were excluded for not completing questionnaires at all 3-time points.

### Study 1b: Results

#### Demographic information and notable baseline differences.

Analysis examined 69 participants (Male  $n = 6$ , Female  $n = 63$ ) all of whom completed questionnaires at 3-time points (*pre-, 1-week post-test & 1-month follow-up*). Participants were randomly assigned into one of two conditions (SDT,  $n = 29$  or First Three Things,  $n = 40$ ) and were given a diary to complete over seven consecutive days ( $SDT_{mean} = 6.00$ ,  $SDT_{SD} = 1.00$ ; First Three Things $_{Mean} = 5.98$ , First Three Things $_{SD} = 1.33$ ).

Independent Samples T-Tests revealed no significant differences between groups (SDT & First Three Things) for the number of diaries completed over the seven days ( $t(67) = .085$ ,  $p = .93$ ). Fisher's Exact Test also revealed no significant difference between groups (SDT & First 3 Things) for gender ( $p = .50$ ) or age ( $p = .15$ ; full demographic information shown in Appendix 1.23). Furthermore, no significant differences were found between participants who completed measures at all three time points ( $n = 69$ ), versus those who dropped out at any point ( $n=42$ ) on any measure at baseline (see Appendix 1.24). In line with the meta-analytic findings of Frattaroli (2006), it is also of note that there were no differences found in the final analyses when individuals who had completed  $\leq 3$  diaries were removed from the data-set ( $n = 3$ ; Frattaroli, 2006; see Appendix 1.25). Therefore, all participants (those who completed  $\leq 7$  diaries), were included in analysis to maintain statistical power.

Furthermore, a series of a-priori Independent Samples T-Tests were conducted to test for baseline differences between groups (SDT & First 3 Things). As displayed in Appendix 1.26, significant baseline differences were found in the DASS-21 ( $t(44.01) = -4.83, p = <.001$ ), BPN-SAT ( $t(67) = 3.48, p = .001$ ) and SWL ( $t(67) = 2.11, p = .039$ ) scales. Change score calculations were therefore derived for each measure and used in subsequent analyses.

### Participant's engagement with the diary.

Table 1.3 below represents the number of diaries participants engaged with between pre- to post-test, split by condition.

**Table 1.3. Frequency table representing the number of diaries completed by participants from pre- to post-test.**

No. of diaries	SDT	First 3 Things
1	-	-
2	-	2
3	-	1
4	1	2
5	11	3
6	4	15
7	13	17

Table 1.3: A frequency table representing the number of diaries participants completed pre- to post-test, split by condition.

As shown in Table 1.3, 21% ( $n = 30$ ) of participants completed 7 diaries, with only 4% ( $n = 6$ ) of participants completing less than 5 diaries.

### Helpfulness/ Difficulty of the diary.

To understand participants subjective experience when completing the diary, at post-test participants completed demographic questionnaires on the helpfulness and difficulty of the diary. Table 1.4 below displays the number of participants, who reported the diaries to either be helpful or difficult, split by condition.

As represented in Table 1.4, demographic information further revealed that 43% of participants noted that both diaries were helpful ( $n = 30$ ) and 78% ( $n = 54$ ) did not find either diary difficult to complete after engaging for 7-days.

**Table 1.4. Helpfulness and Difficulty ratings made by participants at post-test.**

	Helpful		Difficult	
	Yes	No	Yes	No
SDT	18	11	9	20
First 3 Things	12	28	6	34

Table 1.4: Frequency table displaying the number of ratings per condition for the helpfulness or difficulty of the diaries.

Post-hoc, it was of interest whether a participant's helpfulness rating had an affected intervention effectiveness. To do this, participants from the SDT condition were singularly analysed. A further series of 3x2 Mixed Measures ANOVAs were then conducted, using the helpfulness variable as the between subjects' factor. The results from this analysis are presented in Table 1.5 below.

Table 1.5. Means and Standard Deviations ( $\pm$  1SD from the mean) and ANOVA output for a series of Mixed Measures ANOVAs conducted on participants assigned to the experimental condition who rated the diary as helpful

	Helpful	Not helpful	<i>F</i>	<i>df</i>	<i>p</i>
	M ( $\pm$ SD)	M ( $\pm$ SD)			
<b>SWL ¥</b>			.96	1, 27	.34
<i>PretoPost</i>	.44 ( $\pm$ 6.07)	.18 ( $\pm$ 3.62)			
<i>PretoFollow-up</i>	1.39 ( $\pm$ 6.25)	-1.36 ( $\pm$ 6.07)			
<b>SPANE</b>			2.03	2,54	.14
<i>Pre</i>	5.00 ( $\pm$ 7.20)	4.91 ( $\pm$ 7.85)			
<i>Post</i>	6.89 ( $\pm$ 7.71)	2.09 ( $\pm$ 6.42)			
<i>Follow-up</i>	6.83 ( $\pm$ 8.18)	1.64 ( $\pm$ 8.94)			
<b>IMI</b>			3.91	2,52	.05
<i>Pre</i>	82.18 ( $\pm$ 9.50)	86.00 ( $\pm$ 11.14)			
<i>Post</i>	79.12 ( $\pm$ 15.56)	85.73 ( $\pm$ 7.93)			
<i>Follow-up</i>	80.88 ( $\pm$ 14.57)	75.36 ( $\pm$ 10.95)			
<b>MP</b>			.56	2,54	.57
<i>Pre</i>	51.22 ( $\pm$ 9.69)	49.10 ( $\pm$ 8.84)			
<i>Post</i>	50.56 ( $\pm$ 10.31)	51.27 ( $\pm$ 5.87)			
<i>Follow-up</i>	51.39 ( $\pm$ 11.91)	51.18 ( $\pm$ 7.05)			
<b>DASS-21 ¥ ‡</b>			.39	1,27	.54
<i>PretoPost</i>	-.66 ( $\pm$ 1.01)	-.09 ( $\pm$ 1.28)			
<i>PretoFollow-up</i>	-.19 ( $\pm$ .87)	.17 ( $\pm$ .80)			
<b>BPN-SAT ¥</b>			.41	1,27	.53
<i>PretoPost</i>	1.50 ( $\pm$ 3.85)	.73 ( $\pm$ 5.77)			
<i>PretoFollow-up</i>	1.28 ( $\pm$ 3.88)	1.36 ( $\pm$ 5.50)			
<b>BPN-FRUS</b>			.81	2,54	.45
<i>Pre</i>	16.89 ( $\pm$ 4.00)	16.64 ( $\pm$ 4.59)			
<i>Post</i>	13.94 ( $\pm$ 3.95)	15.91 ( $\pm$ 4.68)			
<i>Follow-up</i>	17.39 ( $\pm$ 4.78)	18.55 ( $\pm$ 5.85)			

Table 1.5: Mixed measures ANOVAs conducted between time and condition. ¥ = due to significant baseline differences (as noted in Appendix 1.26) change score calculations were derived and a 2-way ANOVA was used to analyse data; ‡ = transformed data (either Log 10 or square-root (see Appendix 1.27)) used in data analysis.

Table 1.5 above, displays that no significant differences were found between participants in the experimental condition who rated the diary as helpful or not. Therefore, no further analysis was performed.

### **Skewness and Kurtosis**

A-priori data analysis evidenced that the DASS-21 measure was non-normally distributed and was therefore transformed (z-scores are shown in Appendix 1.27). Subsequent, square-root transformation brought the data back within normal range (Skewness: DASS-21<sub>pre</sub>,  $z = 1.90$ , DASS-21<sub>post</sub>,  $z = 1.74$ , DASS-21<sub>follow-up</sub>,  $z = .89$ ; Kurtosis: DASS-21<sub>pre</sub>,  $z = -.010$ , DASS-21<sub>post</sub>,  $z = .41$ , DASS-21<sub>follow-up</sub>,  $z = -1.03$ ). The transformed data was then used in all subsequent analyses.

### **Time x Condition effects for all measures.**

Analysis focused on participants' changes over time and between conditions for all dependant variables. A series of 2x3 Mixed Measures ANOVAs were conducted to establish significant differences across time and between conditions for all measures; for the DASS-21, BPN-SAT, and SWL where change score calculations were derived, a 2x2 Mixed Measures ANOVA was conducted. Table 1.5 below shows the ANOVA output for these interactions.

As shown in Table 1.6, no significant interactions between time and condition were found for any measure. Therefore, no further analyses were conducted.

Table 1.6. Mixed Measures ANOVA output for each scale.

	SDT	First 3 Things	<i>F</i>	<i>df</i>	<i>p</i>	<i>d</i>
	M ( $\pm$ SD)	M ( $\pm$ SD)				
<b>SWL ¥</b>			.12	1, 67	.73	.09
<i>PretoPost</i>	.34 ( $\pm$ 5.20)	.13 ( $\pm$ 3.31)				
<i>PretoFollow-up</i>	.34 ( $\pm$ 6.22)	-.35 ( $\pm$ 4.77)				
<b>SPANE</b>			1.11	2,132	.33	.26
<i>Pre</i>	4.97 ( $\pm$ 7.32)	7.59 ( $\pm$ 5.58)				
<i>Post</i>	5.07 ( $\pm$ 7.51)	8.18 ( $\pm$ 7.69)				
<i>Follow-up</i>	4.86 ( $\pm$ 8.70)	5.51 ( $\pm$ 8.42)				
<b>IMI</b>			.23	2, 124	.79	.13
<i>Pre</i>	83.68 ( $\pm$ 10.15)	82.06 ( $\pm$ 13.33)				
<i>Post</i>	81.71 ( $\pm$ 13.32)	77.92 ( $\pm$ 14.04)				
<i>Follow-up</i>	78.71 ( $\pm$ 13.33)	76.75 ( $\pm$ 10.59)				
<b>MP</b>			.55	2, 134	.58	.18
<i>Pre</i>	50.72 ( $\pm$ 1.64)	50.95 ( $\pm$ 6.54)				
<i>Post</i>	50.83 ( $\pm$ 1.63)	50.40 ( $\pm$ 8.31)				
<i>Follow-up</i>	51.31 ( $\pm$ 1.89)	50.28 ( $\pm$ 7.53)				
<b>DASS-21 ¥ ‡</b>			.096	1, 67	.76	.06
<i>PretoPost</i>	-.44 ( $\pm$ .21)	-.048 ( $\pm$ 1.01)				
<i>PretoFollow-up</i>	-.051 ( $\pm$ .16)	.27 ( $\pm$ 1.15)				
<b>BPN-SAT ¥</b>			1.84	1, 67	.18	.33
<i>PretoPost</i>	1.21 ( $\pm$ 4.55)	-.60 ( $\pm$ 4.06)				
<i>PretoFollow-up</i>	1.31 ( $\pm$ 4.46)	-1.65 ( $\pm$ 4.14)				
<b>BPN-FRUS</b>			1.10	2, 134	.34	.26
<i>Pre</i>	16.79 ( $\pm$ 4.15)	13.95 ( $\pm$ 4.45)				
<i>Post</i>	14.69 ( $\pm$ 4.27)	13.50 ( $\pm$ 4.38)				
<i>Follow-up</i>	17.83 ( $\pm$ 5.14)	15.98 ( $\pm$ 5.16)				

Table 1.6: Mixed measures ANOVAs conducted between time and condition. ¥ = due to significant baseline differences (as noted in Appendix 1.26) change score calculations were derived and a 2-way ANOVA was used to analyse data; ‡ = transformed data (either Log 10 or square-root (see Appendix 1.27)) used in data analysis.



### **Study 1b: Discussion**

Again, this study evidenced that engagement with an SDT diary has no benefit on wellbeing, intrinsic motivation and basic psychological need satisfaction. Compared to Study 1a, Study 1b further suggests that simplifying the diary had no helpful effects on wellbeing, intrinsic motivation and basic psychological need satisfaction. However, Study 1b further indicates that the diary did not frustrate need fulfilment, evidencing that the diary had no detrimental effects on participants.

### **General discussion**

These two studies aimed to develop and test the effectiveness of a novel SDT diary. However, findings indicated that neither diary had significant beneficial effects on wellbeing, basic need satisfaction or intrinsic motivation. Although this study failed to evidence the efficacy of an SDT diary in its current form, the value of developing a light-touch intervention still remains (see Chapter 1, Section 1.9 of this thesis for full review). Therefore, to further increase the efficacy of this type of intervention, it is of value to explore the intricacies of the diary content in future research.

### **2.4. Future research directions**

Current findings suggest that reflecting on and placing an explicit focus on the fulfilment of one's basic psychological needs does not significantly impact upon self-reported satisfaction of those needs and therefore does not lead to improvements in intrinsic motivation or wellbeing. However, these findings are inconsistent with previous research which implies that need fulfilment and gains in wellbeing arise out of social contexts that provide the relevant nutrients (Deci & Ryan, 2000; Bartholomew et al., 2011). One explanation for this is that merely reflecting on the day's events does not provide the necessary social context to promote need fulfilment. A recommendation for future research is to instead focus on future goal pursuit and the satisfaction of basic psychological needs. Instead of the proposed reflection diary, individuals would complete a future oriented diary, where participants would aim to fulfil their psychological needs daily in the near future. The value in this diary would be that the goals would reflect one's personal interests or values,

alongside fulfilling their psychological needs for autonomy, competence and relatedness. These goals that reflect personally held values are described as self-concordant goals, which have previously been shown to positively relate to goal achievement. This is due to them allowing individuals to exert more effort and feel a greater sense of readiness to change their behaviour (Sheldon & Elliot, 1999; Koestner, Otis, Horberg, Gaudreau, Powers, Di Dio, Bryan, Jochum, & Salter, 2006). To further encourage goal pursuit in this way, participants should also construct Implementation Intentions (*i.e. if-then plans*; Gollwitzer & Sheeran, 2006), which have been shown to reduce value-action, further increasing the likelihood of achieving self-concordant goals (Koestner, Powers, Pelletier, & Gagnon, 2008). Incorporating Implementation Intentions into the diary, would also shift the psychological distance of the goal from "now" to "later" (Psychological Distance Theory; Trope & Liberman, 2011), which improves goal-setting (Wieber, Sexer, & Gollwitzer, 2014), self-control (Van Koningsbruggen, Stroebe, Papies, & Aarts, 2011) and self-regulation (Oettingen, Kappes, Guttentag, & Gollwitzer, 2015).

Although previous research by Self-Determination Theorists has evidenced the social-contextual and individual factors as antecedents and moderators of work-place motivation (Ryan & Deci, 2000a), the implicit directionality between these concepts has previously merely been assumed. However, the direction of this relationship has important ramifications for the study of SDT in the workplace, as there are three important empirical questions to address. These are: (1) does need satisfaction promote autonomous motivation?; (2) does autonomous motivation promote need satisfaction?; (3) or is this relationship bi-directional? Specifically, if need satisfaction leads to gains in autonomous motivation, it may provide guidance as to how to promote autonomous motivation and the beneficial effects that follow. However, if autonomous motivation promotes need satisfaction, then focusing on improving workplace motivation would begin with improving autonomous motivation through autonomy support. Recent research by Olafsen and colleagues (Olafsen, Deci, & Havari, 2018), suggests that it is in-fact autonomy support which facilitates basic need satisfaction and consequentially autonomous motivation. Autonomy support refers to the extent to which authority figures recognise an individual's feelings and provide choice (Deci, Ryan, et al., 2001). The incorporation of autonomy support into an

intervention has previously been shown to improve the self-concordance of goals (Ryan & Deci, 2000b; Koestner, Horberg, et al., 2006) and to promote basic need satisfaction (Ryan, Patrick, Deci, & Williams, 2008). To do this, a meaningful rationale should be presented, that does not acknowledge the presence of rewards or punishments and instead provides alternative possibilities (Oliver, Markland, Hardy, & Petherick, 2008). These opportunities can be highlighted in the language used. For example, not using phrases such as "should" or "would" increases participant's perception of choice (Vansteekiste, Simons, Lens, Sheldon, & Deci, 2004). Autonomy Support has also been shown to significantly effect improvements in prosocial behavior and wellbeing, 6-weeks post-intervention (Nelson, Della Porta, Jacobs Bao, Lee, Choi & Lyubomirsky, 2014). The current investigation suggests that placing an explicit focus on psychological needs does not promote need satisfaction nor the development of autonomous motivation. Therefore, concurring with the third question outlined above. Therefore, to incorporate autonomy support into the journaling intervention seems a valuable future direction for study. It could also be inferred that the inclusion of Autonomy Support into the diary would lead to increased intrinsic motivation and wellbeing. Also, to place a specific focus in future research on the socio-contextual factors and workplace environment, in-place of an explicit focus on need satisfaction seems valuable.

## **2.5. Strengths of the current research**

Although this study failed to evidence beneficial effects of an SDT diary in its current format, the measures used to determine participant's motivation, wellbeing and basic need satisfaction displayed good to excellent internal consistency in this population. This indicates that the conclusions gathered are seemingly valid as the questionnaires used were reliable measures in the student populous. Future research could replicate these to compare the effectiveness of future diaries to current research.

## **2.6. Limitations of the current research**

Study 1b aimed to test the effectiveness of a simplified version of the diary proposed in Study 1a. However, as neither study evidenced beneficial time by condition effects on wellbeing, motivation or basic need satisfaction, this investigation was unsuccessful.

Previous research has provided evidence that satisfaction of the autonomy need facilitates the fulfilment of one's competence need (Markland, Ryan, Tobin, & Rollnick, 2005). However, as the current research was the first of its kind to aim to test the effectiveness of an SDT diary, instead of placing a focus on these two needs the decision was made to focus on the social contexts that satisfy all three, justified in research by Ryan & Deci, 2000a. To further increase the simplicity of the diary and the likelihood of the development of a positive memory bias in the future, an explicit focus could be placed singularly on the autonomy need.

Moreover, in Study 1a, one finding of interest that could not be fully explored in Study 1b was that those who completed the study evidenced higher baseline affect, as measured by SPANE-B. One further interesting future avenue for research would be to median split the group by their SPANE scores to assess whether affect differences appear between individuals who choose to participate in PPI studies versus those who drop-out. However, this was not possible in current research due to a lack of statistical power.

To preserve participant privacy, the decision was made to omit the diary study content from analysis. However, previous research has evidenced that individuals have daily fluctuations in fulfilment of their psychological needs (Reis, et al., 2000) and this is affected by contextual influences (Guay, Mageau & Vallerand, 2003). Nevertheless, given that this was the first exploration to explore the effectiveness of a novel SDT diary, it was of interest whether the diary would provide the ideal social context to facilitate need satisfaction. It was also hoped that omitting the entries from analysis would encourage individuals to reflect without the fear of social judgement, as outlined by the Self-Judgement Hypothesis in the EWP literature. However, an interesting future avenue for research could be to correlate daily fluctuations in one's psychological need fulfilment with the content of the diaries. It could be that individuals are more engaged in activities which satisfy their psychological needs on days when they do not feel fulfilled, or vice versa.

## Conclusion

These experiments aimed to assess the effectiveness of a novel SDT diary. Unfortunately, over two experiments, no time by condition interactions for any measure

were observed, and therefore this study failed to evidence the efficacy of the diary in its current form. However, a high compliance rate was noted in both experiments. Therefore, a success of the current work is derived from the usefulness of both paper and an on-line tool as a distribution platform for engagement with PPIs. Given the little amount of research into the intricacies of the diary methodology and the apparent benefits discussed in the introduction, when providing social contexts which satisfy basic psychological needs, the need to develop such an intervention remains.

**Chapter 3: The use of a reflective Anxiety and Excitement journaling intervention to improve wellbeing, resilience, and motivation on Higher Education students and employees who reside in North Wales.**

**Abstract**

**Objective:** Study 2 focused on the evaluation of two light-touch diary interventions in two populations; Higher Education Students and employees who reside in North Wales. Specifically, these diary interventions focused on the effect of reflection on specific emotions to promote resilience, intrinsic motivation and wellbeing. In Study 2a, anxiety was selected due to research which proposes that focusing on obstacles to a goal predicts future achievement of this goal. Due to the population-wide null effects displayed, this specific focus on anxiety was then reformulated into excitement in Study 2b, in-line with the Two Factor Theory of Emotion.

**Design:** A Mixed Measures design was employed; participants were randomly allocated to either an Anxiety Diary (Study 2a), Excitement Diary (Study 2b & 2c) or placebo control condition and measured at three time points (pre-, post-test and follow-up). Participants engaged with their allocated diary for one-week.

**Participants:** Across three studies, 130 Higher Education students and 26 employees who reside in North Wales.

**Results:** A series of Mixed Measures ANOVAs evidenced no significant time by condition effects for the Anxiety Diary. For the Excitement Diary, a significant interaction for intrinsic motivation and motivational persistence were displayed, which did not endure over time. In a small population of employees, analysis revealed a significant effect on participant's resilience, which endured over time. In Study 2a and 2b, further individual analysis also revealed a polymodal distribution for participant's resilience. These differing resilience scores then led to significant effects on motivational persistence displayed.

**Conclusion:** Due to the individual differences evidenced in both Study 2a and 2b, this proposes the existence of two self-regulatory strategies to cope with high arousal emotional events. Research is therefore equivocal regarding the value of the population-wide approach currently utilised in positive psychology research.

### Study 2a: Implementation of an Anxiety Diary on a student population.

As identified in Chapter 1, one alternative approach to the previously studied positive reflection diaries, is the EWP (Pennebaker & Francis, 1996; for a full description see section 1.9). Here, individuals reflect on negative, emotionally upsetting or traumatic events, for up to 90 minutes over the course of a number of days (Pennebaker & Francis, 1996). Over a number of days, repeated instances of writing about these events underlies the emotional health benefits of the paradigm (Sloan & Marx, 2006; Sloan, Marx, & Epstein, 2005). A growing number of studies has demonstrated the effects of expressive writing on psychological health (see Smyth, 1998 and Gortner, et al., 2006 for meta-analysis) and future job prospects when dealing with the negative emotions associated with job loss (Spera, et al., 1994). This ability for participants to express themselves in a private non-judgemental manner seems to be a significant moderator in the effectiveness of the paradigm (Swinkels & Giuliano, 1995; Esterling, et al., 1999; Gortner, et al., 2006). For instance, those who are most expressive display significant reductions in anxiety (Niles, et al., 2013), depression (Lumley, 2004), and increased physical health (Austenfeld, Paolo, & Stanton, 2006). Secondly, this ability for participants to structure and organise a traumatic memory also results in more adaptive schemas about themselves, others and the world (Smyth, et al., 2010). Notwithstanding, one problem with the EWP is that it is primarily designed for individuals to process emotions which accompany a substantial event in one's life and is a labour-intensive exercise to complete, requiring up to 90 minutes over multiple days to be effective. Therefore, it was of interest in the following study whether a light-touch version could be developed. This intervention specifically focused on the reflection of a specific emotion (i.e. anxiety).

#### 3.1. The adverse effects of positive reflection on goal achievement

Although past research has demonstrated the value of positive reflection on wellbeing (e.g. Seligman, et al., 2005), there is evidence that positive fantasy (*i.e. positive mental images of a desired future*; Oettingen & Mayer, 2002) can impede goal achievement (Oettingen & Wadden, 1991). In fact, paradoxically, the more positively fantasies are experienced, the less effort individuals invest in realising the goal (Kappes & Oettingen,

2011). One explanation for this is that positive fantasies provide an individual with a short-term reinforcer, seducing an individual to mentally indulge, which yields little motivation to implement the desired future in the present (Oettingen & Mayer, 2002). This indulgence also reduces systolic blood pressure, inducing a state of lethargy and low energy for goal completion (Kappes & Oettingen, 2011). This inertia can also impede task-performance on anxiety provoking events (Wood Brooks, 2013).

### 3.2. Mental Contrasting

Mental Contrasting or the “WOOP” method (Wish, Outcome, Obstacle & Plan) is a goal setting paradigm proposed by Gabrielle Oettingen (2000). It is a self-regulation model, where participants are encouraged, in the first instance, to indulge in a ‘wish’, similar to the positive fantasies mentioned above. This identifies a desired goal in the future, but then critically also requires participants to plan to overcome obstacles which may impede their future goal achievement (Oettingen, 2012). This has previously evidenced to be effective when dieting (Johannsen, Oettingen & Mayer, 2012), to reduce cigarette consumption (Oettingen, Mayer, & Thorpe, 2009) and to improve other health-related behaviours (Johannsen et al., 2012; Sheeran, Harris, Vaughan, Oettingen, & Gollwitzer, 2013). Specifically, the Mental Contrasting research emphasises that it is the identification of obstacles and strategies to overcome them (*i.e. the barriers and anxieties relating to goal achievement*) that predicts future goal success (Oettingen, Pak, & Schnetter, 2001). One explanation for this is that the identification of obstacles creates a link between the present reality and the desired outcome, revealing the actions necessary to achieve the goal (Oettingen, 2000; Oettingen et al., 2001). Although the identification of struggles to goal achievement makes the accomplishment seem more challenging, this generates motivational energy and persistence towards achieving this future goal (Oettingen & Mayer, 2002; Oettingen, 2014; Sevincer, Busatta, & Oettingen, 2014). However, an individual’s self-confidence seems to be a significant mediator in the effectiveness of the paradigm (Oettingen & Gollwitzer, 2010).

The identification of obstacles and steps to overcome these is also hypothesised to reduce the value-action gap, a previously noted impediment to goal achievement



(Wispirski, Gallivan, & Chapman, 2018). The recognition and mastery of these obstacles also encourages psychological flexibility and increased optimism (SuperBetter; McGonigal, 2014; Roepke, Jaffee, McGonigal, Broome, & Maxwell, 2015), mitigating the potential calming effects of positive fantasies and dreaming (Oettingen & Mayer, 2002; Oettingen, 2014; Sevincer, et al., 2014). Moreover, when Implementation Intentions (*i.e. if-then plans*; Gollwitzer & Sheeran, 2006) are integrated within the Mental Contrasting paradigm (MCI), this effect strengthens, with effects of the paradigm being observed up to two years later (Stadler, Oettingen, & Gollwitzer, 2010).

### 3.3. The current investigation

Clearly, the critical element of the Mental Contrasting paradigm, which leads to goal identification and thus goal achievement is the recognition of obstacles to a goal. Moreover, there seems to be value in focusing on strategies to overcome daily struggles, as this prepares individuals to deal with challenging events as they arise (McGonigal, 2014; Roepke, et al., 2015). Particularly in defensive pessimists, who anticipatory fault find to overcome potential obstacles towards goal achievement, placing an specific emphasis on negative emotion seems valuable (Norem, 2008). This is substantiated by a recent movement in Positive Psychology which further emphasises the importance of acknowledging and harnessing negative emotions to improve eudaimonic happiness and goal achievement (*i.e. The Second Wave*; Ivtzan, et al., 2016; see section 1.6). Broadly, the aim of The Second Wave of Positive Psychology is to provide a more nuanced, dialectical view of happiness which seeks to allow individuals to cope with negative and challenging experiences (Ivtzan et al., 2016). This approach confirms that solely focusing on positive emotions does not always encourage individuals to thrive (Ivtzan et al., 2016).

Consequently, repeated instances of identifying and harnessing negative emotions (*e.g. anxieties*), alongside formulating a plan to overcome these struggles differently in the future is crucial to predict goal achievement. Furthermore, interventions which aid the development of coping strategies to harness negative emotion may also prevent the development of clinical disorder (Horowitz & Wakefield, 2007). However, many people may have difficulty allowing themselves to express negative emotions and may need to be given

explicit permission to experience these emotions (Ben-Shahar, 2007). Two potential tools to allow for this expression are the Mental Contrasting and the EWP. The current study integrated these two approaches and developed a light-touch reflective negatively framed Anxiety Diary. In the diary, participants were asked to reflect on an anxiety relating to a goal, then determine what was holding them back from achieving the goal. Every day, participants identified daily struggles (i.e. based on Obstacles from the Mental Contrasting paradigm) which they planned to overcome differently next time (i.e. an if-then plan).

It was predicted that those exposed to the Anxiety Diary would:

H<sub>1</sub> – evidence increased resilience at post-test and follow-up.

H<sub>2</sub> – display beneficial effects on wellbeing which will endure long-term.

H<sub>3</sub> – show decreased depression, anxiety and stress and increased positive affect and life satisfaction at post-test and long-term follow-up.

H<sub>4</sub> - evidence beneficial effects of increased persistence and intrinsic motivation at post-test and long-term follow-up.

Those assigned to the placebo control condition would not display any of these changes.

## Study 2a: Methods

### Participants

This design of this study was the same as Study 1a; for full details of the power analysis conducted refer to pg. 43. In this study, a sample size of 66 participants was needed to gain enough power. Due to inevitable attrition in a multi-stage study, a total of 119 participants were recruited to take part in the study. The final sample totalled 74 participants. These were undergraduate students (18+ years) recruited via an on-line platform or through word of mouth. Like the studies in Chapter 1, due to technical constraints with the participation panel, only a two-part study could be advertised. To overcome this, participants completed their follow-up questionnaires on an on-line platform (Sensemaker; Cognitive Edge, 2019), which also allowed for participants to be debriefed electronically. As an added incentive, participants who completed this follow-up

questionnaire could either: (1) be entered into a prize draw to win a £50 Amazon voucher, or (2) receive a further course credit.

### **Ethical Considerations**

All participants were aged over 18 years of age, given detailed information about the study and informed they could withdraw without penalty at any time. Each participant also gave informed consent to research. All data was treated confidentially; for all outcome measures participants received a unique ID and there were no identifiers on diaries. The study was guided and approved by Bangor University School of Psychology Ethics Board (ethics code: 2016-15820).

### **Materials**

**Anxiety Diary.** For the experimental diary, participants were required to identify an anxiety, which they related to a goal and identified possible barriers to goal completion, similar to the pre-proposed WOOP method. Once a day, participants then identified daily barriers or struggles, whether they had overcome them and if they faced that barrier again, how they would tackle it differently (i.e. if-then plans; see Appendix 2.1).

**Three Events Diary.** The placebo control diary required participants to write down three events that had happened each day alongside their causal attributions (see Appendix 1.2). These events were neutral in valence and the size of the event (*i.e. getting a coffee vs. completing an assignment*) was not specified by research. This diary was similar to that used by Giannopoulos and Vella-Brodrick (2011), which evidenced no significant beneficial effects. Participants were asked to complete each diary once a day for 5-days, using an online data-capture tool (Sensemaker; Cognitive Edge, 2019). The time of day when participants completed the diary was not specified by research but captured by the software, alongside the time taken to complete the diary.

### **Design**

A 2x3 Mixed Measures design was employed. Participants were randomly assigned into one of two conditions (Anxiety Diary or Three Events Diary) and were measured at three

time points (pre-, post-test, & 2-month follow-up). All participants were given the same measures (detailed below) but were exposed to different diaries dependant on their condition allocation. For schematic of the study design see Figure 3.1 below.

### Measures

For full description of demographic questionnaire and measures used please refer to Study 1a (pg. 44). The Cronbach's-  $\alpha$  noted for measures in this population were as follows: IMI,  $\alpha = .74$ , SWL,  $\alpha = .86$ , SPANE-B,  $\alpha = .89$ , MP,  $\alpha = .81$ , & DASS-21  $\alpha = .94$ . One change was made: the BPN scale used in Study 1 was replaced with the Connor Davidson Resilience Scale (CD-RISC) to decipher change in participant's resilience over time. The description of this scale is below:

**The CD-RISC** (Conor & Davidson, 2003) is a 25-item scale, which assesses participant's resilience. On a 5-point Likert scale (*0 = not true at all; 4 = true nearly all of the time*), participants indicate how much each statement has applied to them over the last week (see Appendix 2.2). Durish, Yeates and Brookes (2018), evidenced the scale's Convergent Validity, by indicating that the scale negatively correlates with the depressive axis of the Behavioural Assessment for Children ( $r = .41, p = .003$ ) and the Strengths and Difficulties Questionnaire ( $r = -.45, p = .001$ ). Conor and Davidson (2003) also reported Cronbach's-  $\alpha$  score of 0.89 for the scale, indicating good internal consistency. This value was reflected in this population, with a Cronbach's-  $\alpha$  score of 0.90.

Figure 3.1: Schematic of the study design.

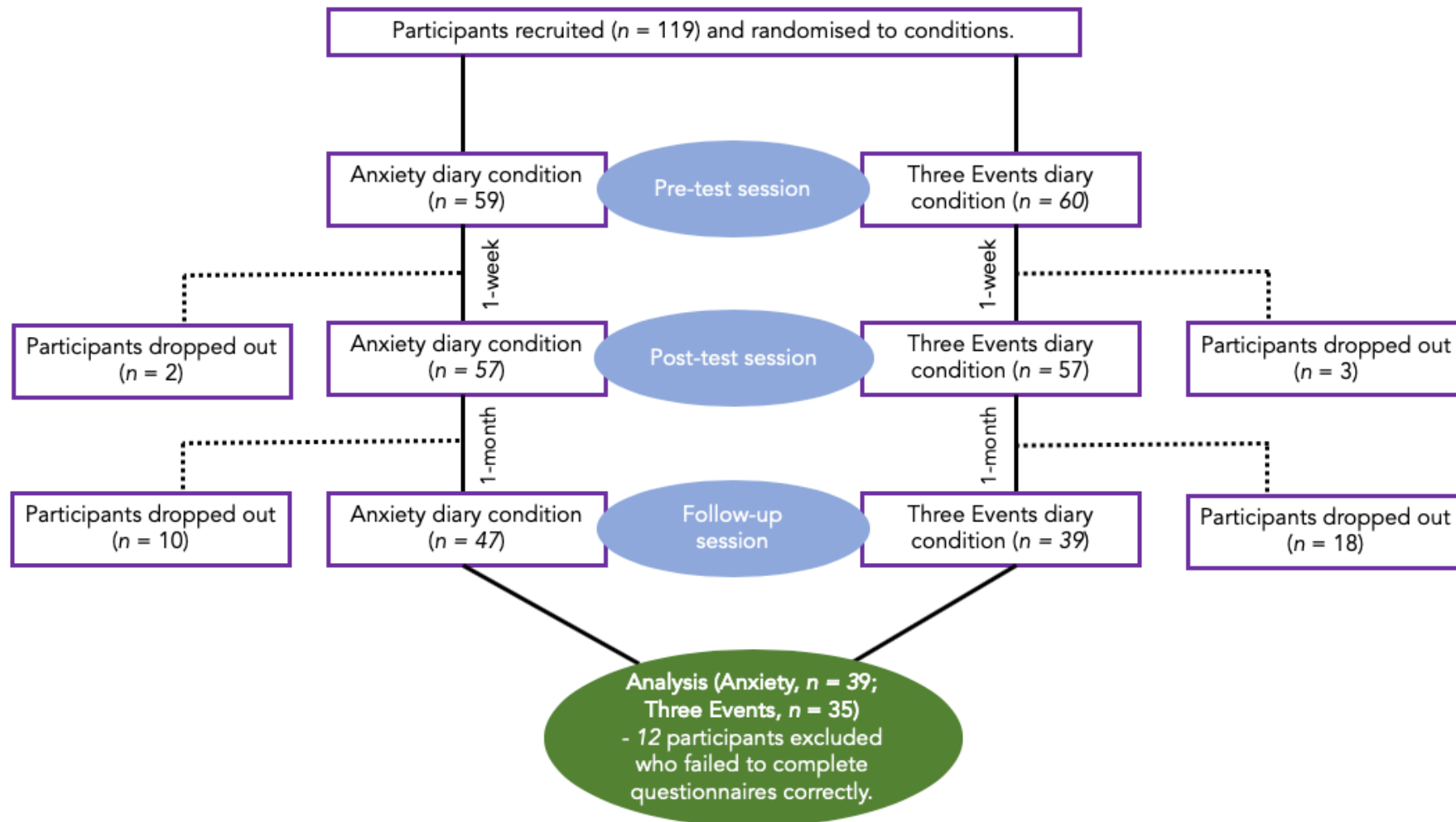


Figure 3.1: Schematic of the study design. This depicts the three testing sessions, two one-week apart and one two-months later and the random allocation of participants to the testing conditions.

## Procedure

Methods used were similar to those detailed in Study 1a (for a full description refer to pg. 47). Participants were given a diary (either "Anxiety Diary" or the "Three Events Diary") to engage with for 5-days. This was distributed to participants via an on-line link (Sensemaker; Cognitive Edge, 2019), alongside a unique ID to maintain anonymity. Participants then returned to the lab and completed the measures described above for a second time, one-week later. At two-month follow-up, participants received follow-up questionnaires via an on-line link which directed them to the Sensemaker platform (Cognitive Edge, 2019) and were debriefed on-line (for Information Sheet, Consent Form and on-line debrief see Appendix 2.3 to 2.5). For schematic of the study design see Figure 3.1.

## Data Analysis

Data analysis techniques are outlined in Study 1a (please refer to pg. 48). In this study, it is of note that no outliers were found, 12 data points were removed where measures were not completed correctly (CD-RISC = 3, SWL = 3, IMI = 3, DASS-21 = 3), and 44 participants were excluded for failing to complete all measures at pre-, post-test and follow-up.

## Study 2a: Results

This study explored the effect of an Anxiety Diary intervention on 74 participants (Male,  $n = 21$ , Female,  $n = 53$ ). All of whom completed all measures at 3 time-points (*pre-, post-test and 2-month follow-up*). Those studied were randomly assigned into one of two conditions (Anxiety,  $n = 39$  or Three Events,  $n = 35$ ) and were given a diary intervention to complete for five consecutive days (Anxiety<sub>mean</sub> = 4.77, Anxiety<sub>SD</sub> = 1.20; ThreeEvents<sub>Mean</sub> = 4.74, ThreeEvents<sub>SD</sub> = .89). An Independent Samples T-Test revealed no significant difference between groups for the number of diaries completed over the five days ( $t(72) = .11$ ,  $p = .92$ ). Fisher's Exact Test also confirmed no significant difference between groups (SDT or Three Events) for gender ( $p = .21$ ). Furthermore, Independent Samples T-Tests

evidenced no significant differences for any measure between those who continued the study ( $n = 74$ ) and those who dropped out ( $n = 44$ ; see Appendix 2.6).

### Skewness and Kurtosis

A-priori data analysis revealed that the DASS-21 measure was positively skewed (for z-scores see Appendix 2.7). The measure was therefore square-root transformed, which brought data back within the normal range (*Skewness*: DASS-21<sub>pre</sub>,  $z = .69$ , DASS-21<sub>post</sub>,  $z = 1.08$ , DASS-21<sub>follow-up</sub>,  $z = 1.56$ ; *Kurtosis*: DASS-21<sub>pre</sub>,  $z = -.68$ , DASS-21<sub>post</sub>,  $z = .79$ , DASS-21<sub>follow-up</sub>,  $z = -.34$ ). The square-root transformed data was then used in all subsequent analyses. A series of a-priori independent t-tests were also conducted to test for baseline differences for all measures between groups (Anxiety & Three Events). A difference at baseline was found in the SPANE-B ( $t(72) = -2.57$ ,  $p = .012$ ,  $d = .60$ ; see Appendix 2.8). Change score calculations were therefore derived for this measure and used in all subsequent analyses.

### Diary engagement

Table 2.1 below shows the number of diaries that participants completed over the course of the study, split by condition.

**Table 2.1. Frequency table for participants compliance with the diary pre- to post-test.**

No. of diaries	Anxiety	Three Events
0	-	-
1	-	1
2	1	-
3	5	3
4	1	8
5	23	21
6	7	1
7	1	2

Table 2.1: The number of diaries completed by participants over the course of the study, split by condition.

Table 2.1 displays the total number of diaries that participants engaged with pre-test to follow-up was 7, with 15% of participants ( $n = 11$ ) completing more than the required 5 diaries. All participants completed at least 1 diary entry, with 59% ( $n = 44$ ) of participants completing the required 5 diary entries. Analysis was also conducted when those who had completed  $\leq 3$  diaries were excluded ( $n = 10$ ), according to methodology proposed by Frattaroli (2006). It is of note that no significant differences were found in the final analysis between these two groups (see Appendix 2.9). Therefore, all participants were included in subsequent analyses to maintain statistical power.

### Time x Condition effects for all measures

Analysis focused on participant's change over time and between conditions for all dependant variables. Trend findings evidenced that those in the Three Events condition increased in MP over time ( $\text{Mean}_{\text{pre}} = 50.66$ ,  $\text{SE}_{\text{pre}} = 1.37$ ;  $\text{Mean}_{\text{post}} = 53.54$ ,  $\text{SE}_{\text{post}} = 1.28$ ;  $\text{Mean}_{\text{follow-up}} = 52.29$ ,  $\text{SE}_{\text{follow-up}} = 1.54$ ) compared to those in the Anxiety diary condition who remained stable ( $\text{Mean}_{\text{pre}} = 48.41$ ,  $\text{SE}_{\text{pre}} = 1.21$ ;  $\text{Mean}_{\text{post}} = 49.33$ ,  $\text{SE}_{\text{post}} = 1.28$ ;  $\text{Mean}_{\text{follow-up}} = 46.95$ ,  $\text{SE}_{\text{follow-up}} = 1.23$ ). Moreover, as displayed in trend findings, those in the Three Events condition, increased in resilience over time ( $\text{Mean}_{\text{pre}} = 66.09$ ,  $\text{SE}_{\text{pre}} = 2.02$ ;  $\text{Mean}_{\text{post}} = 68.64$ ,  $\text{SE}_{\text{post}} = 2.12$ ;  $\text{Mean}_{\text{follow-up}} = 66.39$ ,  $\text{SE}_{\text{follow-up}} = 2.53$ ), whereas those in the Anxiety diary condition remained stable over time ( $\text{Mean}_{\text{pre}} = 60.79$ ,  $\text{SE}_{\text{pre}} = 2.37$ ;  $\text{Mean}_{\text{post}} = 60.68$ ,  $\text{SE}_{\text{post}} = 2.52$ ;  $\text{Mean}_{\text{follow-up}} = 59.00$ ,  $\text{SE}_{\text{follow-up}} = 2.41$ ).

A series of 2x3 Mixed Measures ANOVAs were conducted to establish significant differences across time and between conditions for all measures; for the SPANE-B measure, where change scores were derived, a 2x2 Mixed Measures ANOVA was conducted. Table 2.2 below shows the output of these interactions.



**Table 2.2. Means, Standard Deviations ( $\pm 1$  SD from the mean) and ANOVA output for Mixed Measures ANOVAs conducted.**

	Anxiety	Three Events				
	M ( $\pm$ SD)	M ( $\pm$ SD)	<i>F</i>	<i>df</i>	<i>p</i>	<i>d</i>
<b>SWL †</b>			.99	1.71, 121.14	.24	.24
<i>Pre</i>	21.85 ( $\pm$ 7.51)	24.35 ( $\pm$ 5.82)				
<i>Post</i>	22.26 ( $\pm$ 7.49)	25.47 ( $\pm$ 6.65)				
<i>Follow-up</i>	21.56 ( $\pm$ 7.95)	24.79 ( $\pm$ 7.78)				
<b>IMI</b>			1.59	2, 138	.21	.81
<i>Pre</i>	78.31 ( $\pm$ 13.18)	80.88 ( $\pm$ 15.91)				
<i>Post</i>	75.18 ( $\pm$ 13.47)	78.66 ( $\pm$ 16.53)				
<i>Follow-up</i>	68.38 ( $\pm$ 15.65)	76.22 ( $\pm$ 17.49)				
<b>SPANE-B ¥</b>			1.89	1, 72	.17	.38
<i>Pre</i> to <i>Post</i>	.33 ( $\pm$ 6.37)	.60 ( $\pm$ 6.49)				
<i>Pre</i> to <i>Follow-up</i>	.13 ( $\pm$ 7.77)	-1.94 ( $\pm$ 9.68)				
<b>MP</b>			2.12	2, 144	.12	.47
<i>Pre</i>	48.41 ( $\pm$ 7.53)	50.66 ( $\pm$ 8.09)				
<i>Post</i>	49.33 ( $\pm$ 8.02)	53.54 ( $\pm$ 7.59)				
<i>Follow-up</i>	46.95 ( $\pm$ 7.66)	52.29 ( $\pm$ 9.12)				
<b>DASS-21 ‡ †</b>			1.88	1.83, 125.94	.16	.84
<i>Pre</i>	4.55 ( $\pm$ 1.47)	4.02 ( $\pm$ 1.54)				
<i>Post</i>	4.50 ( $\pm$ 1.39)	3.86 ( $\pm$ 1.23)				
<i>Follow-up</i>	4.12 ( $\pm$ 1.27)	4.12 ( $\pm$ 1.27)				
<b>CD-RISC</b>			.89	2, 138	.42	.32
<i>Pre</i>	60.79 ( $\pm$ 14.58)	66.09 ( $\pm$ 11.63)				
<i>Post</i>	60.68 ( $\pm$ 15.50)	68.64 ( $\pm$ 12.17)				
<i>Follow-up</i>	59.00 ( $\pm$ 14.85)	66.39 ( $\pm$ 14.56)				

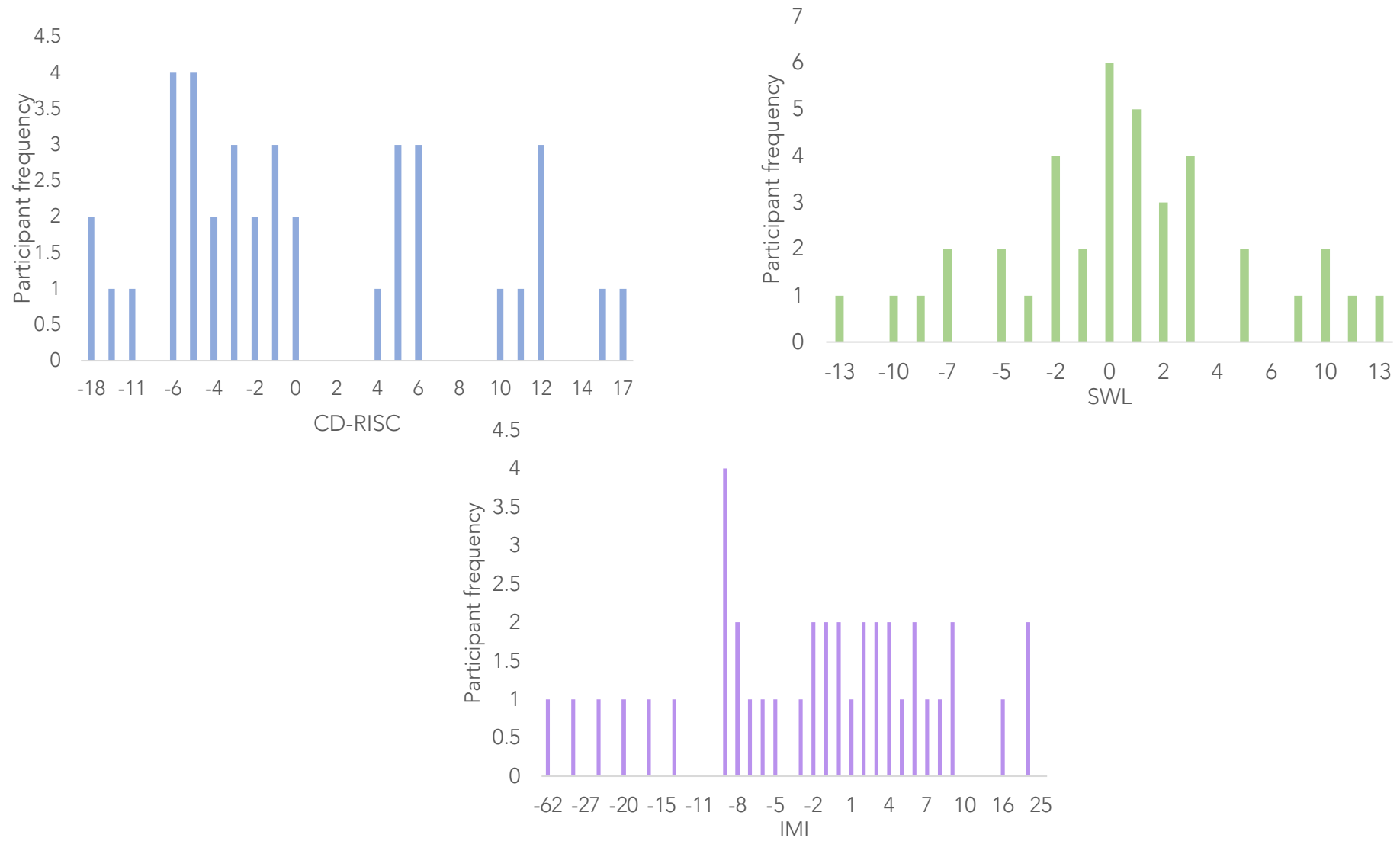
Table 2.2: Means and Standard Deviations ( $\pm 1$  SD from the mean) shown for a series of 2x3 Mixed Measures ANOVAs conducted to test the effect of an Anxiety Diary. ‡ = square-root transformed data used in analysis; ¥ = change score calculations derived, a 2x2 Mixed Measures ANOVA conducted; † = Due to a violation of sphericity, the Greenhouse Geisser statistic reported (SWL,  $\epsilon = .001$ ; DASS-21,  $\epsilon = .03$ ).

As shown in Table 2.2, no significant interactions between time and condition were found for any measure. Therefore, no further analyses were conducted.

### **Individual analysis**

Post-hoc, it was of interest whether individual differences were driving these null effects. If these were evidenced, it would suggest that there were individual differences in the self-regulatory strategies used when participants dealt with anxiety provoking events as a consequence of engaging with the diary. Therefore, individual's pre- to post-test change scores were plotted on a frequency chart. Individuals from the experimental condition were analysed singularly; those in the control condition were excluded from analysis. Figure 3.2a to 3.2f below displays the frequency plot for these change scores for individuals in the Anxiety Diary condition.

Figure 3.2a to 3.2f. Frequency plot for individual change scores pre-to post-test in the Anxiety Diary condition.



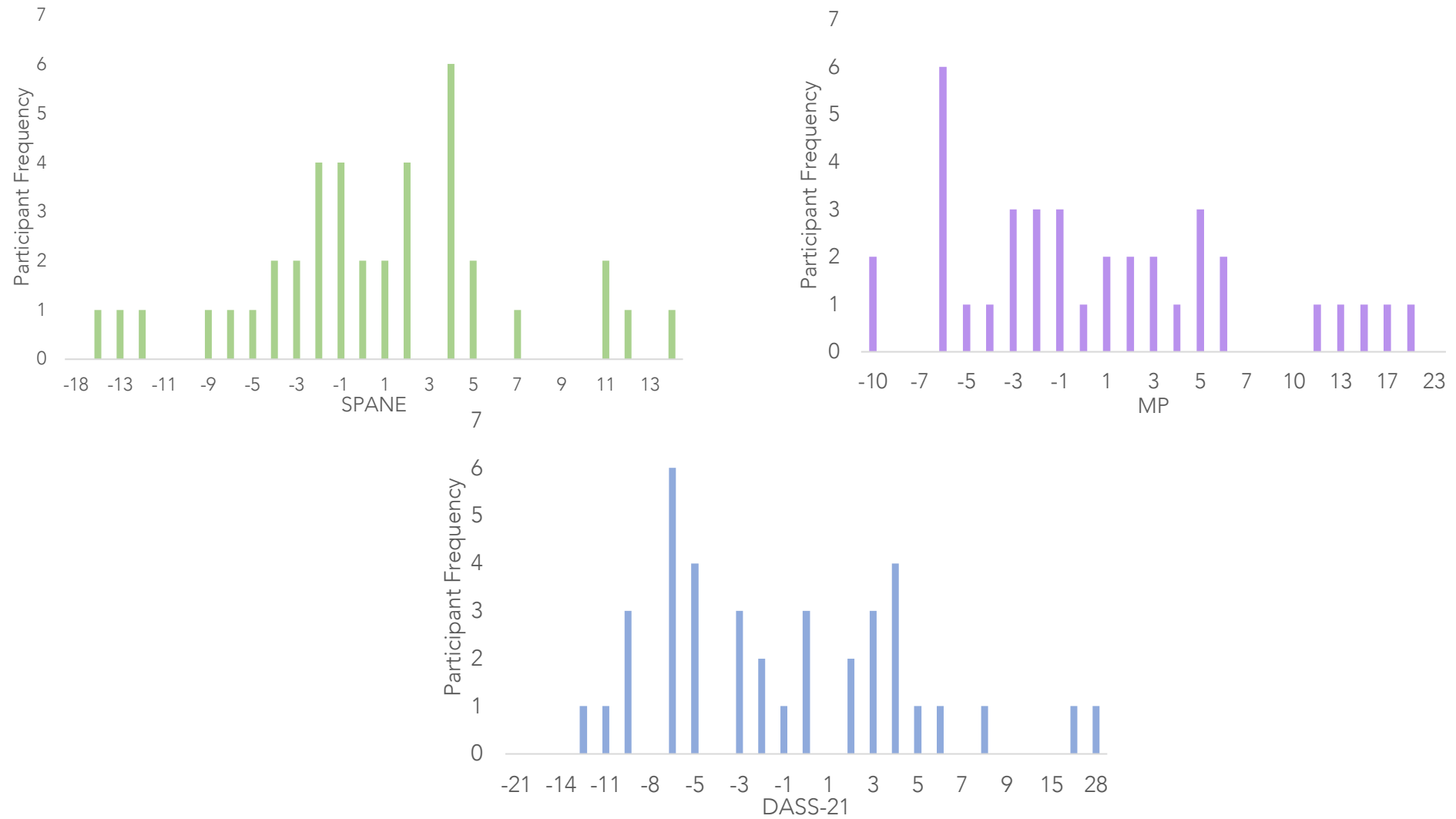


Figure 3.2a to 3.2f: Frequency plots for participants in the Anxiety Diary condition. Frequency plots depict participants change in resilience from pre-to post-test.

As displayed in Figure 3.2a to 3.2f, a polynomial distribution was found for the CD-RISC; a negatively skewed distribution was evidenced for the DASS-21 and the MP; and a continuous distribution for the IMI. The SWL and SPANE-B scale were found to be normally distributed.

As a polynomial distribution for the CD-RISC was displayed, it seemed evident that two self-regulatory strategies to cope with anxiety provoking events did exist; and this effects the resilience displayed as a consequence. Figure 3.2 shows a proportion of participants increased in resilience, whereas a proportion decreased. A median split was then performed on the CD-RISC measure (low resilience = change score  $\leq 6$ ; high resilience = change score  $\geq 7$ ). This variable was then used to conduct a further series of Mixed Measures ANOVAs between condition (high vs. low resilience) and across time (pre-, post-test and follow-up). Table 2.3 below displays the output and Means and Standard Deviations ( $\pm 1$  SD from the mean) for these analyses.

**Table 2.3. Means and Standard Deviations ( $\pm 1SD$  from the mean) and ANOVA output for a series of Mixed Measures ANOVAs conducted on participants assigned to the experimental condition who evidenced high vs. low resilience.**

	Low resilience	High resilience				
	M ( $\pm$ SD)	M ( $\pm$ SD)	F	df	p	d
<b>SWL †</b>			2.92	1.70, 62.98	.07	.56
Pre	21.72 ( $\pm$ 7.94)	22.07 ( $\pm$ 6.96)				
Post	20.64 ( $\pm$ 7.70)	25.14 ( $\pm$ 6.35)				
Follow-up	20.72 ( $\pm$ 8.55)	23.07 ( $\pm$ 6.79)				
<b>IMI †</b>			.80	1.59, 58.94	.45	.29
Pre	77.16 ( $\pm$ 13.47)	80.36 ( $\pm$ 12.86)				
Post	75.72 ( $\pm$ 13.64)	74.21 ( $\pm$ 13.60)				
Follow-up	69.16 ( $\pm$ 14.50)	67.00 ( $\pm$ 16.41)				
<b>SPANE-B</b>			2.60	2, 74	.08	.53
Pre	4.48 ( $\pm$ 9.11)	6.14 ( $\pm$ 7.24)				
Post	3.00 ( $\pm$ 9.19)	9.71 ( $\pm$ 8.32)				
Follow-up	3.28 ( $\pm$ 10.65)	8.64 ( $\pm$ 6.79)				
<b>MP</b>			17.64	2,74	<.001	1.37
Pre	50.60 ( $\pm$ 8.13)	44.50 ( $\pm$ 4.26)				
Post	48.64 ( $\pm$ 8.43)	50.57 ( $\pm$ 7.38)				
Follow-up	45.44 ( $\pm$ 8.14)	49.64 ( $\pm$ 6.07)				
<b>DASS-21 † ‡</b>			.95	1.62, 58.17	.38	.33
Pre	4.58 ( $\pm$ 1.38)	4.52 ( $\pm$ 1.67)				
Post	4.61 ( $\pm$ 1.39)	4.31 ( $\pm$ 1.42)				
Follow-up	5.07 ( $\pm$ 1.56)	5.25 ( $\pm$ 1.68)				

Table 2.3: Means and Standard Deviations ( $\pm 1$  SD from the mean) shown for a series of 2x3 Mixed Measures ANOVAs conducted to test the effect of an Anxiety Diary on those who evidence high and low resilience. † = Due to a violation of sphericity, the Greenhouse Geisser statistic reported (SWL,  $\epsilon$  = .031; DASS-21,  $\epsilon$  = .009; IMI =  $\epsilon$  = .005); ‡ = square-root data used in analyses.

Trend findings in the SPANE-B and SWL measure evidenced that those in the high resilience condition increased from pre-test to post-test (SPANE-B: Mean<sub>pre</sub> = 6.14, SE<sub>pre</sub> =

1.94;  $\text{Mean}_{\text{post}} = 9.71$ ,  $\text{SE}_{\text{post}} = 2.22$ ; SWL:  $\text{Mean}_{\text{pre}} = 22.07$ ,  $\text{SE}_{\text{pre}} = 1.86$ ;  $\text{Mean}_{\text{post}} = 25.14$ ,  $\text{SE}_{\text{post}} = 1.70$ ). However, this interaction was non-significant.

Analysis evidenced a significant interaction between condition (high vs. low resilience) and time (pre-, post-test and follow-up) for the MP scale ( $f(2,74) = 17.64$ ,  $p < .001$ ,  $d = 1.37$ ). Figure 3.3 below displays the Means and Standard Errors ( $\pm 1\text{SE}$  from the mean) for the MP scale, split by participant's resilience change scores.

**Figure 3.3. Means and Standard Errors ( $\pm 1\text{SE}$  from the mean) for the MP scale.**

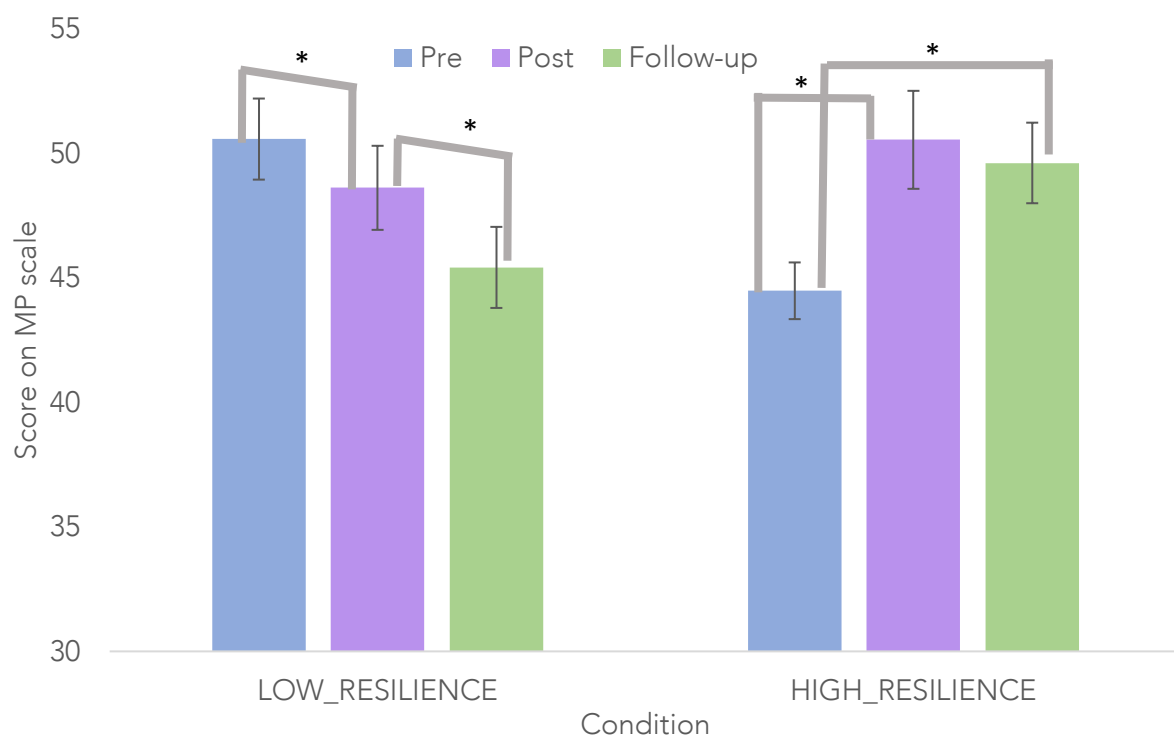


Figure 3.3: Means and Standard Errors ( $\pm 1\text{SE}$  from the mean) for the MP scale. Participants are split post-hoc by their change scores as evidenced in the previous analysis.

Paired Samples T-Tests identified a significant difference between pre ( $\text{Mean}_{\text{pre}} = 44.50$ ,  $\text{SE}_{\text{pre}} = 1.14$ ) and post-test ( $\text{Mean}_{\text{post}} = 50.57$ ,  $\text{SE}_{\text{post}} = 1.97$ ;  $t(13) = 2.95$ ,  $p = .011$ ,  $d = .88$ ) and pre-test ( $\text{Mean}_{\text{pre}} = 44.50$ ,  $\text{SE}_{\text{pre}} = 1.14$ ) and follow-up ( $\text{Mean}_{\text{follow-up}} = 49.64$ ,  $\text{SE}_{\text{follow-up}} = 1.62$ ;  $t(13) = 2.85$ ,  $p = .014$ ,  $d = .83$ ) in the high resilience condition. This evidenced that participants' in the high resilience condition significantly increased in their levels of MP over time. Moreover, Paired Samples T-Tests revealed a significant difference between pre- ( $\text{Mean}_{\text{pre}} = 50.60$ ,  $\text{SE}_{\text{pre}} = 1.63$ ) and post-test ( $\text{Mean}_{\text{post}} = 48.64$ ,  $\text{SE}_{\text{post}} = 1.69$ ;  $t(24) = -2.20$ ,  $p =$

.037,  $d = .34$ ), pre-test ( $\text{Mean}_{\text{pre}} = 50.60$ ,  $\text{SE}_{\text{pre}} = 1.63$ ) and follow-up ( $\text{Mean}_{\text{follow-up}} = 45.44$ ,  $\text{SE}_{\text{follow-up}} = 1.63$ ;  $t(24) = -4.81$ ,  $p = <.001$ ,  $d = 1.13$ ) and post-test ( $\text{Mean}_{\text{post}} = 48.64$ ,  $\text{SE}_{\text{post}} = 1.69$ ) and follow-up ( $\text{Mean}_{\text{follow-up}} = 45.44$ ,  $\text{SE}_{\text{follow-up}} = 1.63$ ;  $t(24) = -3.73$ ,  $p = .003$ ,  $d = .79$ ) in the low resilience condition. Independent Samples T-Tests also revealed a significant difference between conditions at baseline ( $\text{Low}_{\text{mean}} = 50.60$ ,  $\text{Low}_{\text{SE}} = 1.63$ ;  $\text{High}_{\text{mean}} = 44.50$ ,  $\text{High}_{\text{SE}} = 1.14$ ;  $t(36.92) = 3.07$ ,  $p = .004$ ,  $d = .42$ ). This indicates that those who evidenced the most significant change in their resilience (as evidenced by the High Resilience median split variable), were those with the least motivational persistence at baseline.

### Study 2a: Brief Discussion.

The current investigation explored the effect of a negatively valenced daily journaling intervention on wellbeing, motivational persistence, intrinsic motivation and depressive symptomology. Analysis evidenced no significant population-wide beneficial effects of an Anxiety Diary compared to a placebo control. This finding is in-line with Emmons and McCullough (2003) who report null effects for a Daily Hassles diary. Due to previously presented evidence which highlights the value of harnessing negative emotions, this substantiates that implementing a negatively valenced diary population-wide needs to be optimised for study.

One potential reason for these null effects is proposed by the Self-Judgement Hypothesis (Rude et al., 2004; Gortner et al., 2006). As the EWP outlines that individuals should “let go” and “explore their deepest thoughts and feelings” this inhibits self-judgement. Specifically this lack of self-judgement provided by the EWP is pivotal in facilitating emotional processing and leads to the beneficial wellbeing gains evidenced in previous research. The Anxiety Diary designed in Study 2a did not allow for participant’s full cathartic expression of their negative experiences as the diary was too structured and therefore self-judgement continued to occur. Given the need highlighted in Chapter 1 for a light-touch version of this intervention, future research should endeavour to develop a light-touch diary that allows for cathartic expression of one’s negative experiences.

Nevertheless, as evidenced by the frequency plots, a binomial distribution was evidenced for the CD-RISC measure. This variable was then median split and a series of 3x2



Mixed Measures ANOVAs were conducted, using high versus low change scores in resilience as the between-groups variable. This revealed that those who displayed high positive resilience change also significantly increased in their motivational persistence over time. However, those who evidenced minimal or negative changes in resilience over time exhibited significant decreases in their motivational persistence. Furthermore, those who displayed the highest motivational persistence at baseline then evidenced the greatest decrease over time. Beneficial trend findings were also displayed for positive affect and satisfaction with life. This is a particularly important finding in relation to utilising and harnessing negative emotion, as the underuse of one's Signature Strength to self-regulate negative emotion is linked to Social Anxiety Disorder and Obsessive-Compulsive Disorder (Friedlin, Littman-Ovadia, & Niemic, 2017). This also confirms that there are individual differences in the self-regulatory mechanisms utilised to cope with anxiety provoking events. Therefore, development of an intervention is required to allow individuals to self-regulate their negative emotion, however a nuanced approach which accounts for idiosyncratic self-regulation strategies is needed when implementing PPIs, particularly those which focus on negative emotion.

### **Study 2b: Redesign of the Anxiety Diary as an Excitement Diary and implementation into a student populous.**

#### **3.4. Introduction to The Excitement Diary**

Study 2b aimed to continue the investigation into the value of reflection of daily specific emotions. More akin to previous journaling intervention studies which aim to improve wellbeing (e.g. Seligman et al., 2005; Emmons & McCullough, 2003) and research into the Misattribution of Arousal Theory (Schachter and Singer, 1962), Study 2b aimed to test the efficacy of a positive reflection diary. Specifically, this diary focussed on the effect of reflection on daily exciting events on motivation, wellbeing and depressive symptomology. Moreover, it was of interest whether the same self-regulatory mechanisms exist for an emotion that is arousal congruent, but valence incongruent to anxiety.

### 3.4.1 Rationale for The Excitement Diary

Generally, upon anticipation of an anxiety provoking event, around 90% of individuals tend to regulate their anxiety by attempting to calm down (Wood Brooks, 2013). However, this is often ineffective, as these states are arousal incongruent (Hoffmann, Heering, Sawyer & Asnaani, 2009). To mitigate the negative effects of anxiety, instead a more effective coping strategy is required. One such approach is to reappraise these anxieties as excitement, which tends to lead to more positive outcomes (Gross & John, 2003; Schnall, Roper, & Fessler, 2010; Brown & Curhan, 2013). Where anxiety is an aversive emotion that tends to harm performance, excitement is characterised by positive appraisal and optimism, which tends to improve performance (McConnell, Bill, Dember, & Grasha, 1993; Raghunathan & Pham, 1999; Jamieson, Mendes, Blackstock & Schmadar, 2010). Unlike calmness, excitement is arousal congruent with anxiety. However, the fundamental difference is the appraisal of the event (i.e. positive or negative). This is explained by Misattribution of Arousal Theory, which suggests that underlying any emotion is affect, characterised by two dimensions (arousal and pleasure versus displeasure; Schachter and Singer, 1962). Unlike reappraising anxiety as calmness, which requires both a physiological shift (i.e. high to low arousal), and a cognitive shift (i.e. positive to negative), reappraisal from anxiety to excitement requires only a cognitive shift. Previous research has evidenced the value of doing this; before an anxiety provoking performance, publicly declaring "I am excited" versus "I am anxious" improves task-accuracy, perceived self-efficacy and excitement to complete the task (Wood Brooks, 2013). However, instead of using such strategies in an anticipatory fashion, it was of interest whether daily reflection on such exciting events and attributing these to a goal achieved that day would evidence the same beneficial effects.

### 3.4.2. Gamification of The Excitement Diary

It was of interest whether positive effects would occur when using more positive language in reference to struggles to goal achievement. Gamification provides such an opportunity, which is defined as the use of game design elements

in non-game contexts (Deterding, Sicart, Nacke, O'Hara, & Dixon, 2011). Intervention developers have previously incorporated a variety of game features into their design in an effort to encourage engagement and increase adherence to health interventions (Brown, O'Neill, van Woerden, Eslambolchilar, Jones, & John, 2016) and to improve student motivation (Buckley & Doyle, 2014), which have evidenced positive effects. It is hypothesised that gamification improves engagement to such interventions as increasing enjoyment when competing these interventions improves intrinsic motivation (Buckley & Doyle, 2014).

SuperBetter (McGonigal, 2014), is one example from the gamification literature. This is a self-help tool which has previously evidenced significant effects to reduce depressive symptomology (Roepke et al., 2015). Importantly, SuperBetter refers to struggles as Bad Guys. A Bad Guy is defined as a small struggle, or anything that impedes goal progress or causes anxiety, pain or distress, similar to those referred to in Study 2a (McGonigal, 2014). These Bad Guys can be mental (i.e. counterproductive thoughts), emotional (i.e. energy reducing), physical (i.e. pain inducing) or social (i.e. negative social interactions; McGonigal, 2014; Roepke et al., 2015). According to SuperBetter, players are encouraged to "battle" their Bad Guys to experiment with different strategies to overcome them, improving creativity, optimism and decreasing anxiety (McGonigal, 2014; Roepke et al., 2015). As Bad Guys is a more positive way to refer to struggles, consequently, in Study 2b, these were referred to as "Bad Guys" (for diary see Appendix 2.10).

### 3.5. Track-card and paper diary

Lastly, like Study 1b, as participants failed to complete the diary beyond the post-test session, in Study 2b the diary was distributed via a paper diary. To record engagement, participants were also provided with a track-card (see Figure 3.4). The diary dosage was also altered from five to seven-days.

Figure 3.4. The track-card distributed to participants at pre- and post-test to evidence their compliance to the diary intervention.

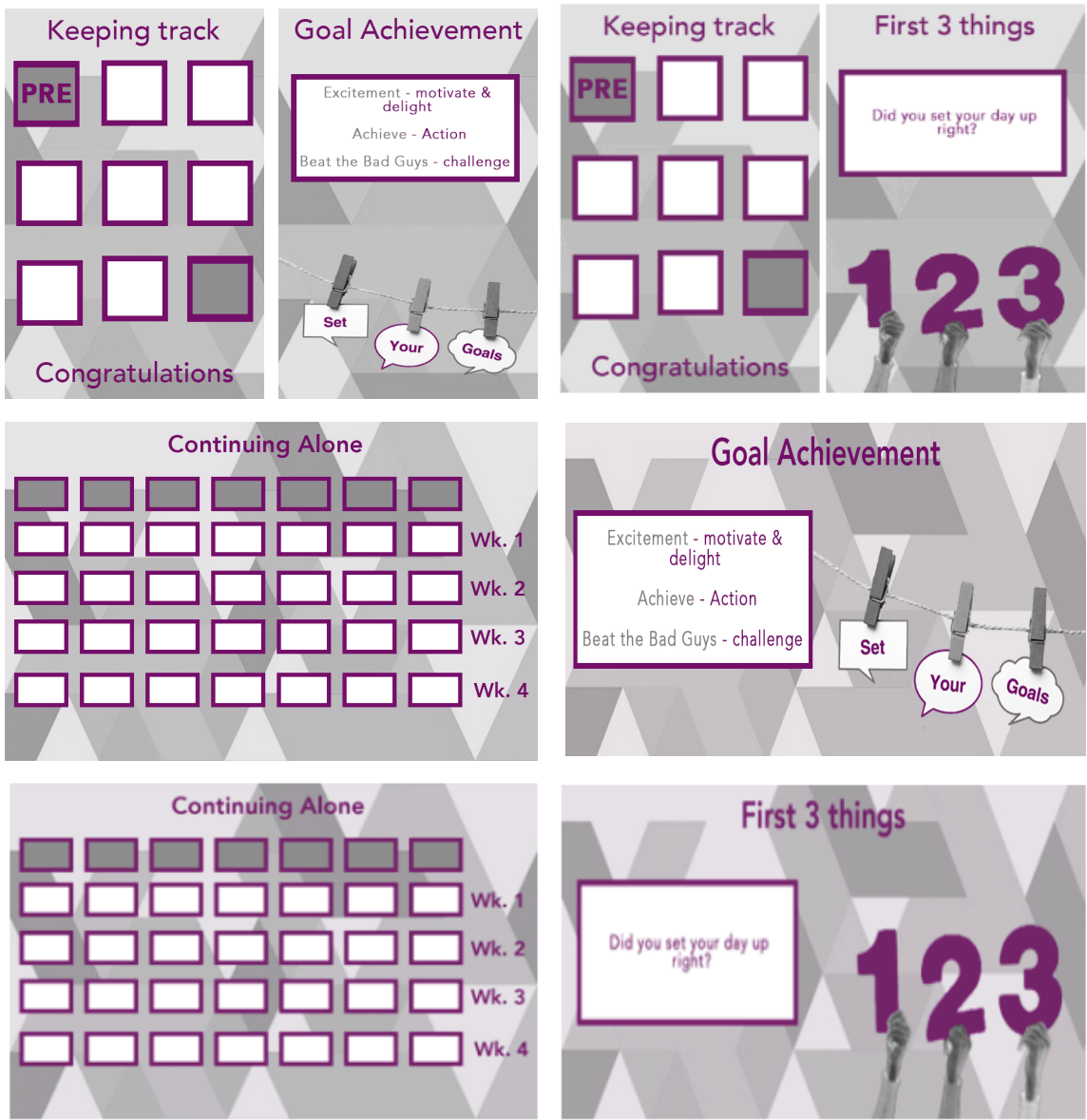


Figure 3.4: Depicts the seven-day and four-week track-card issued to participants. The top image depicts the experimental and control seven-day track-cards issued at pre-test; the bottom two images display the experimental and control three-week track-cards issued at post-test. Both front and back orientations are displayed.

## Study 2b: Methods

### Participants

An a-priori power analysis using G\*power (Faul, Erdfelder, Lang, & Buchner, 2007; Faul, Erdfelder, Buchner, & Lang, 2009) was conducted (for assumptions and outcome refer to Study 1a; pg. 43). A total of 93 participants were recruited to take part in the study, with 56 participants included in the final analysis. For full description of the recruitment method and incentives distributed in exchange for participant participation, please refer to Study 2a.

### Ethical Considerations

For full description of ethics please refer to Study 1a (pg. 43; Bangor University School of Psychology Ethics Board, ethics code: 2016-15820).

### Materials

**Excitement diary.** For the experimental diary, participants were asked to reflect on a daily exciting event and asked if the event had represented action towards a goal. Everyday, they were also required to identify a 'Bad Guy' which they felt they had defeated that day (see Appendix 2.10).

**First Three Things Diary.** This placebo control diary required participants to document the first three things they achieved in the morning (*i.e. walking the dog, brushing teeth*). In the study, this was framed to participants as a 'Morning Routine Diary' (see Appendix 1.19). Participants were asked to complete each page of the diary booklet once a day for 7 days. To track engagement, participants were issued with a track-card (see Figure 3.4), where they were required to tick off each day they completed. The time of day and the time taken to complete the diary was not recorded by research.

### Design

A 2x3 Mixed Measures design was employed (see Figure 3.5 for schematic of study design). Participants were randomly assigned into one of two conditions (Excitement Diary or First Three Things Diary) and were measured at three time points (pre-, post-test, & 1-month follow-up). All participants were given the same measures (detailed below) but were

exposed to different diaries dependant on their condition allocation (for full description see pg. 44).

### Measures

For full description of measures used please refer to Study 1a and 2a (pg. 44 & 77). The Cronbach's- $\alpha$  noted in this population were as follows: IMI,  $\alpha = .84$ ; SWL,  $\alpha = .81$ ; SPANE-B,  $\alpha = .86$ ; MP,  $\alpha = .74$ ; CD-RISC,  $\alpha = .89$  & DASS-21  $\alpha = .93$ . The pre-test demographic questionnaire distributed in Study 1b was implemented (see Appendix 1.20). At post-test and follow-up, participants also reported their engagement with the diary (*i.e.* / completed \_\_\_\_/7 diaries), which was verified by their track-card, and whether they found the diary helpful or difficult (see Appendix 1.21 & 1.22).

### Procedure

Methods used were similar to those detailed in study 1b (for a full description refer to pg. 60; for schematic see Figure 3.5). Participants were given a booklet containing 7-diaries (either Excitement Diary or the First Three Things), alongside a track-card to evidence engagement. At one-week post-test participants returned to the lab to complete questionnaires. At one-month follow-up, participants received an on-line link via email to the Sensemaker platform containing the same questionnaires and the online debrief (see Appendix 2.11).

### Data Analysis

Data analysis technique is outlined in Study 1a (please refer to pg. 48). It is of note that no outliers were found, 8 data points were removed for incomplete measure completion ( $MP = 3$ ;  $CD-RISC = 3$ ;  $IMI = 1$ ;  $DASS-21 = 1$ ) and 37 participants were excluded for failing to complete all measures at pre-, post-test and follow-up.

Figure 3.5. Schematic of the study design

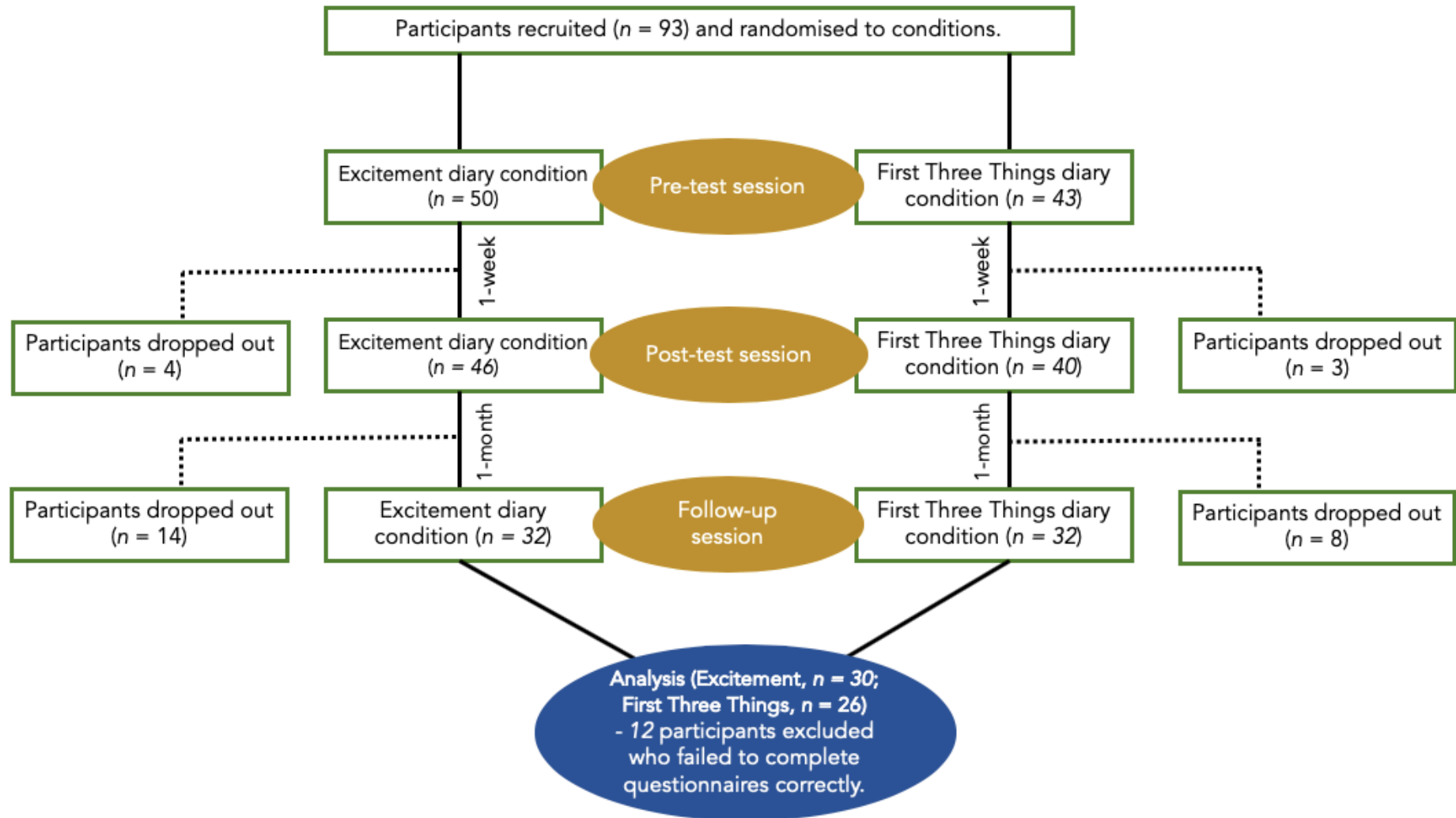


Figure 3.5: Schematic of the study design. Image depicts the three testing sessions and participants random allocation to the diary conditions.

### Study 2b: Results

#### Demographic information and notable baseline differences.

Investigations examined 56 participants (*Female* = 43, *Male* = 12, *not specified* = 1) who completed questionnaires at 3-time points (*pre-*, *1-week post-test*, & *1-month follow-up*). Participants were randomly allocated into one of two conditions (Excitement Diary, *n* = 30, First Three Things Diary, *n* = 26), all of whom were given a diary to complete for seven consecutive days (Excitement<sub>mean</sub> = 6.27, Excitement<sub>SD</sub> = .91; FirstThreeThings<sub>mean</sub> = 6.00, FirstThreeThings<sub>SD</sub> = 1.55). An Independent Samples T-Test revealed no significant difference between groups for the number of diaries completed over the seven days ( $t(54) = -.80$ ,  $p = .43$ ) and no significant difference between groups on any measure at baseline (see Appendix 2.15). No significant differences were also found for any measure between individuals who completed the study (*n* = 56) compared to those who dropped out (*n* = 37; see Appendix 2.13). All variables were found to be normally distributed (i.e.  $z = \leq \pm 3.29$ ; see Appendix 2.14). It is of note, that all participants completed over the required number of diaries (i.e. 3; *n* = 3; Frattaroli, 2006; see Table 2.3). Therefore, all participants were retained in the final analyses to maintain statistical power. Pre-test demographic information for each group is shown in Appendix 2.12.

#### Participant's engagement with the diary

Table 2.4 below represents the number of diaries participants engaged with between pre- to post-test, split by condition

**Table 2.4. Participant's compliance with the diary pre- to post-test.**

No. of diaries	Excitement	First 3 Things
4	1	2
5	6	3
6	7	7
7	16	13

Table 2.4: A frequency table representing the number of diaries participants completed, split by condition.



As displayed in Table 2.4, all participants ( $n = 56$ ) completed over 3 diaries, with 52% ( $n = 29$ ) of participants achieving the full 7 diaries. Furthermore, Table 2.5 below shows the number of participants who completed the diary from post-test to follow-up.

**Table 2.5. Participant's compliance with the diary post-test to follow-up.**

No. of weeks continued	Excitement	First 3 Things
None	19	18
1-week	2	5
2-weeks	4	2
3-weeks	5	-
4-weeks	-	1

Table 2.5: A frequency table representing the number of diaries participants completed, split by condition.

As Table 2.5 displays, 66% of participants did not continue the diary beyond the post-test session, with 33% ( $n = 19$ ) of participants choosing to continue the diary, one up until the four-week follow-up session.

#### **Participant's subjective experience of the diary.**

To help to understand why some participants chose to engage with the diary beyond the post-test session, participants were required to report on their perceived helpfulness/difficulty completing the diary. Table 2.6 below displays the number of participants, who at post-test, reported the diaries to either be helpful/ difficult, split by condition.

**Table 2.6. Participants subjective experience of the diary.**

	Helpful			Difficult		
	Yes	No	Not Specified	Yes	No	Not Specified
Excitement	24	5	1	13	16	1
First 3 Things	6	19	1	7	18	1

Table 2.6: Frequency table displaying the number of ratings per condition for the helpfulness or difficulty of the diaries.

As shown by Table 2.6, post-test questionnaires further revealed that 72% ( $n = 24$ ) of participants found the Excitement Diary helpful, compared to only 39% ( $n = 13$ ) who found the same diary difficult. Furthermore, 61% ( $n = 34$ ) of participants did not find the overall diary experience (either Excitement Diary or First Three Things Diary) difficult. Most interestingly, 76% ( $n = 19$ ) of participants perceived the 'First Three Things' diary to be unhelpful, increasing its efficacy as a placebo control diary.

#### **Time x Condition effects for all measures.**

A series of 2x3 Mixed Measures ANOVAs were conducted to establish significant differences across time (pre-, post-test, & follow-up) and between conditions (Excitement Diary & "First Three Things") for all measures. Table 2.7 below shows the ANOVA output for these interactions.

**Table 2.7. Output from a series of Mixed Measures ANOVAs conducted to detect differences across time and between conditions.**

	Excitement	First 3 Things	<i>F</i>	<i>df</i>	<i>p</i>	<i>d</i>
	M (±SD)	M (±SD)				
<b>SWL †</b>			2.06	1.61, 86.68	.14	.39
<i>Pre</i>	23.70 (±6.28)	22.04 (±5.85)				
<i>Post</i>	25.83 (±6.05)	23.72 (±5.52)				
<i>Follow-up</i>	25.47 (±6.67)	21.38 (±6.68)				
<b>SPANE-B †</b>			.44	1.38, 74.29	.57	.18
<i>Pre</i>	7.47 (±6.69)	6.38 (±7.42)				
<i>Post</i>	11.30 (±6.73)	8.27 (±8.09)				
<i>Follow-up</i>	7.90 (±8.36)	5.12 (±10.08)				
<b>IMI †</b>			4.54	1.73, 91.88	.02	.59
<i>Pre</i>	85.10 (±11.44)	80.00 (±15.24)				
<i>Post</i>	88.47 (±10.40)	77.08 (±15.51)				
<i>Follow-up</i>	81.80 (±11.62)	76.84 (±15.49)				
<b>MP †</b>			5.22	1.62, 82.77	.01	.64
<i>Pre</i>	52.17 (±6.99)	50.29 (±7.25)				
<i>Post</i>	54.86 (±5.69)	58.38 (±12.91)				
<i>Follow-up</i>	52.00 (±7.86)	49.79 (±8.76)				
<b>DASS-21</b>			.024	1.66, 87.74	.98	.06
<i>Pre</i>	18.53 (±13.51)	18.68 (±11.90)				
<i>Post</i>	14.67 (±12.19)	14.28 (±9.17)				
<i>Follow-up</i>	19.90 (±13.20)	19.40 (±13.20)				
<b>CD-RISC</b>			.92	2, 102	.40	.27
<i>Pre</i>	60.76 (±13.11)	61.13 (±12.71)				
<i>Post</i>	65.03 (±10.48)	61.92 (±14.18)				
<i>Follow-up</i>	59.46 (±17.01)	62.07 (±14.65)				

Table 2.7: Means (and Standard Deviations) displayed for a series of 3x2 Mixed Measures ANOVAs to test the effectiveness of an Excitement Diary. † = due to a violation of sphericity, the Greenhouse Geisser statistic is reported (IMI,  $\epsilon = .013$ ; DASS,  $\epsilon = .002$ ; MP,  $\epsilon = .001$ ; SPANE,  $\epsilon = <.001$ ; SWL,  $\epsilon = .001$ ).

As shown in Table 2.7, a significant time by condition interaction was found for the IMI ( $f(1.73, 91.88) = 4.54, p = .02, d = .59$ ). Further analyses in the form of Paired Samples and Independent Samples T-tests were conducted to detect differences across time or between conditions.

**Figure 3.6.** Means and Standard Errors ( $\pm 1SE$  from the mean) displayed for the IMI.

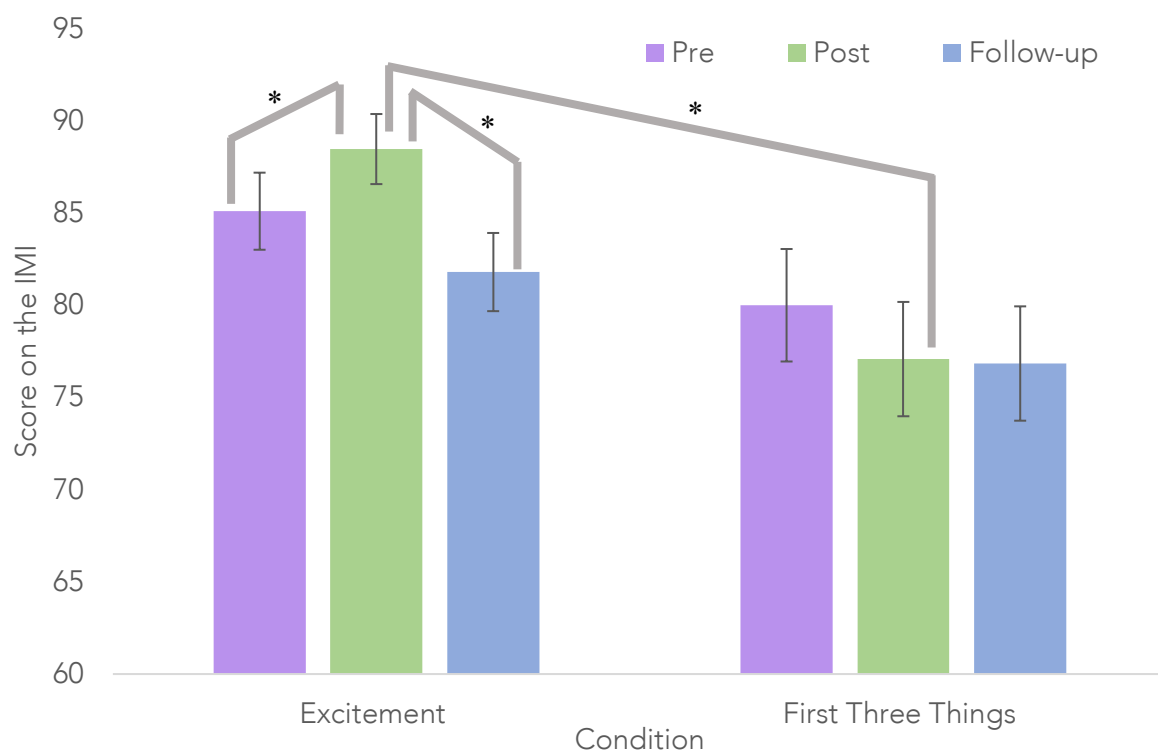


Figure 3.6: Means and Standard Errors ( $\pm 1 SE$  from the mean) displayed for significant time by condition interaction found in the IMI. \*  $p = <.05$ .

As shown in Figure 3.6, an Independent Samples T-Test revealed a significant difference between conditions ( $\text{Excitement}_{\text{Mean}} = 88.47, \text{Excitement}_{\text{SD}} = 10.40$ ;  $\text{FirstThreeThings}_{\text{Mean}} = 77.08, \text{FirstThreeThings}_{\text{SD}} = 15.51$ ) at post-test ( $t(53) = 3.24, p = .002$ ). Paired Samples T-Tests also evidenced a significant increase from pre- ( $M = 85.10, SD = 11.43$ ) to post-test ( $M = 88.47, SD = 10.40$ ) in the experimental condition ( $t(29) = 2.93, p = .007$ ). However, analyses also revealed that this positive effect of the Excitement diary was not endured and findings indicated a significant decrease from post-test ( $M = 88.47, SD =$

10.40) to follow-up ( $M = 81.80$ ,  $SD = 11.62$ ;  $t(29) = -3.85$ ,  $p = .001$ ) in the experimental condition. No similar effects were found in the placebo control condition.

**Figure 3.7.** Means and Standard Errors ( $\pm 1SE$  from the mean) displayed for the MP scale.

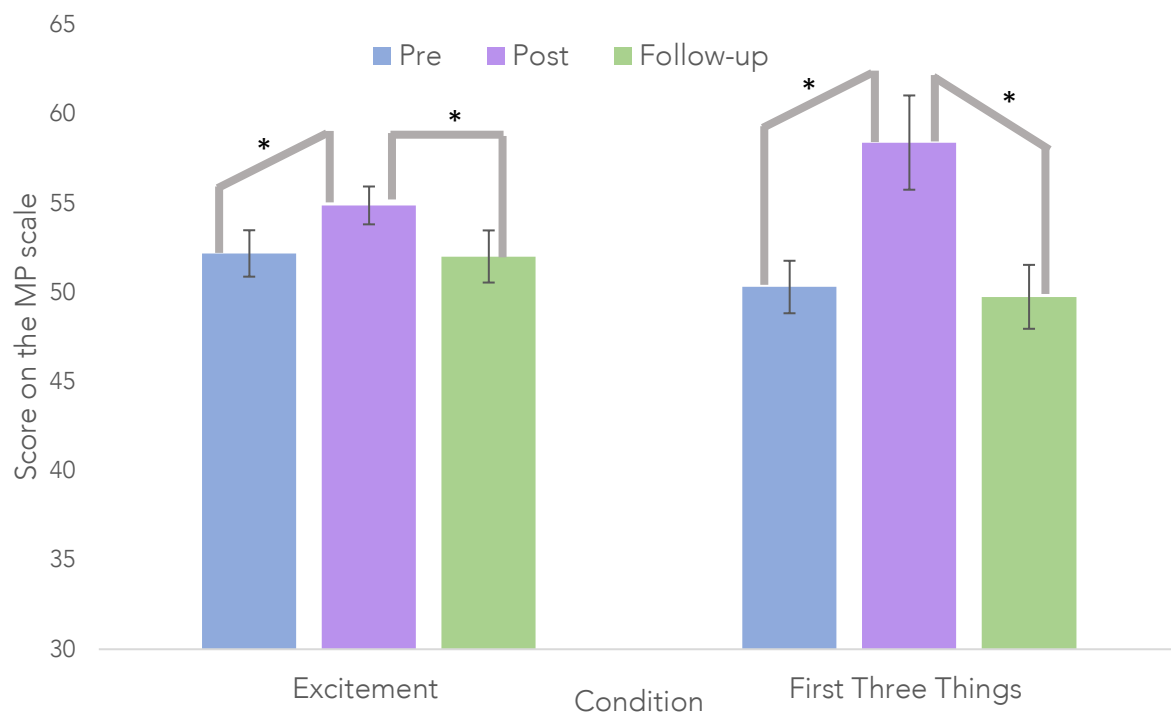


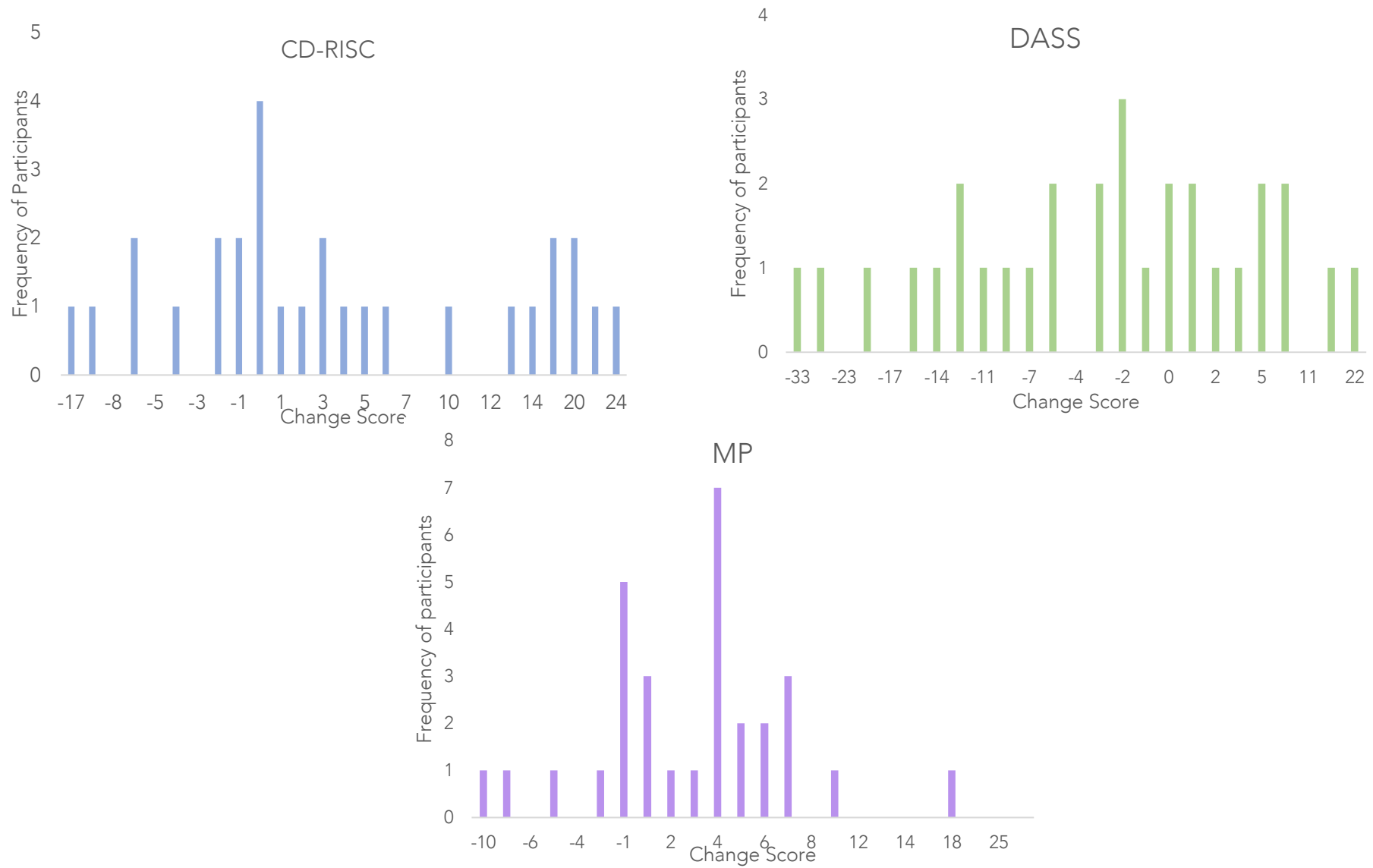
Figure 3.7: Means and Standard Errors ( $\pm 1$  SE from the mean) displayed for significant time by condition interaction found in the MP scale. \*  $p < .05$ .

Furthermore, a significant time by condition interaction was noted in MP ( $f(1.62, 82.77) = 5.22$ ,  $p = .012$ ,  $d = .64$ ). As displayed in Figure 3.4, Paired Samples T-Tests revealed a significant increase between the pre- ( $Mean_{pre} = 52.17$ ,  $SD_{pre} = 6.99$ ) and post-test ( $Mean_{post} = 54.86$ ,  $SD_{post} = 5.69$ ) in the experimental condition ( $t(28) = 2.76$ ,  $p = .01$ ) and placebo control condition ( $Mean_{pre} = 50.29$ ,  $SD_{pre} = 7.25$ ;  $Mean_{post} = 58.38$ ,  $SD_{post} = 2.64$ ). However, again, this effect was not endured, as a significant decrease between post-test ( $Mean_{post} = 54.86$ ,  $SD_{post} = 5.69$ ) to follow-up ( $Mean_{follow-up} = 52.00$ ,  $SD_{follow-up} = 7.68$ ) was noted in the experimental condition ( $t(28) = -2.98$ ,  $p = .006$ ). Notwithstanding, a significant decrease between post-test ( $Mean_{post} = 58.38$ ,  $SD_{post} = 2.64$ ) to follow-up ( $Mean_{follow-up} = 49.79$ ,  $SD_{follow-up} = 8.76$ ) in the placebo control condition ( $t(23) = -3.73$ ,  $p = .001$ ) was also noted, evidencing that over time all participants reduced in motivational persistence across time.

**Tests for individual differences**

As the anxiety diary had previously evidenced the presence of individual differences, again it was of interest whether individual differences existed when participants were required to focus on an emotion that was arousal congruent, but cognitively incongruent to anxiety. Like Study 2a, frequency plots were derived for each participant's pre- to post-test change score on every measure. Figures 3.8a to 3.8f displays the frequency plots for each measure.

Figure 3.8a to 3.8f. Frequency plot for individual change scores pre-to post-test in the Excitement Diary condition.



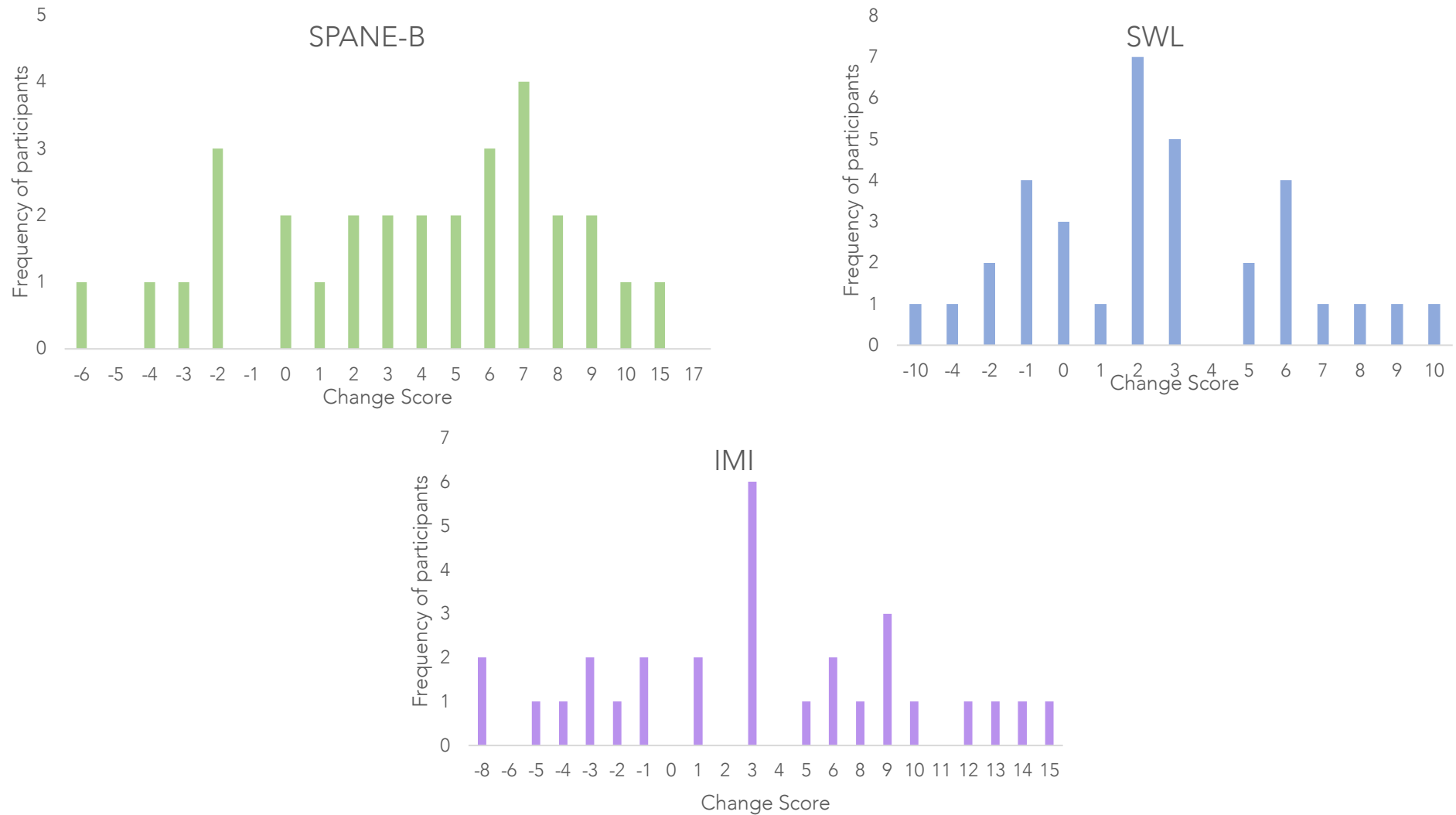


Figure 3.8a and 3.8f: Frequency plot representing change scores from pre- to post-test for participant's scores on each measure. Negative change score is indicative of a decrease from pre-to post-test.



As displayed in Figure 3.8a to 3.8f, again a polynomial distribution was found for the CD-RISC; a slight positive skew for DASS; and a continuous distribution for SPANE. All other measures were found to be normally distributed.

As the polynomial distribution for the CD-RISC was recurrent between Study 2a and 2b, it seemed evident that two self-regulatory strategies existed. Figure 3.8 displays a proportion of participants increased in resilience, whereas a proportion decreased. A median split was then performed on the CD-RISC measure (low resilience = change score  $\leq 6$ ; high resilience = change score  $> 6$ ). This variable was then used to conduct a further series of Mixed Measures ANOVAs between condition (high vs. low resilience) and across time (pre-, post-test and follow-up). Table 2.7 below displays the output and Means and Standard Deviations ( $\pm 1$  SD from the mean) for these analyses.

**Table 2.8. Means and Standard Deviations ( $\pm 1SD$  from the mean) and ANOVA output for a series of Mixed Measures ANOVAs conducted on participants assigned to the experimental condition who evidenced high vs. low resilience.**

	Low resilience	High resilience				
	M ( $\pm$ SD)	M ( $\pm$ SD)	<i>F</i>	<i>df</i>	<i>p</i>	<i>d</i>
<b>SWL</b>			.70	2, 56	.50	.32
<i>Pre</i>	25.19 ( $\pm$ 6.14)	20.22 ( $\pm$ 5.43)				
<i>Post</i>	26.90 ( $\pm$ 5.35)	23.33 ( $\pm$ 7.14)				
<i>Follow-up</i>	26.38 ( $\pm$ 6.69)	23.33 ( $\pm$ 6.48)				
<b>IMI †</b>			1.05	1.60, 44.65	.34	.57
<i>Pre</i>	85.52 ( $\pm$ 11.60)	84.11 ( $\pm$ 11.68)				
<i>Post</i>	87.95 ( $\pm$ 11.29)	89.67 ( $\pm$ 8.41)				
<i>Follow-up</i>	80.71 ( $\pm$ 10.54)	84.33 ( $\pm$ 14.20)				
<b>SPANE-B †</b>			.45	1.52, 42.51	.59	.26
<i>Pre</i>	8.19 ( $\pm$ 5.52)	5.78 ( $\pm$ 9.02)				
<i>Post</i>	12.10 ( $\pm$ 6.82)	9.44 ( $\pm$ 6.50)				
<i>Follow-up</i>	7.78 ( $\pm$ 8.17)	7.78 ( $\pm$ 8.17)				
<b>MP</b>			6.00	2, 54	.004	.94
<i>Pre</i>	53.90 ( $\pm$ 5.16)	48.33 ( $\pm$ 9.15)				
<i>Post</i>	54.50 ( $\pm$ 4.83)	55.67 ( $\pm$ 7.55)				
<i>Follow-up</i>	52.45 ( $\pm$ 6.08)	51.00 ( $\pm$ 11.25)				
<b>DASS-21</b>			2.08	2, 56	.97	.06
<i>Pre</i>	16.33 ( $\pm$ 11.44)	23.67 ( $\pm$ 17.09)				
<i>Post</i>	12.81 ( $\pm$ 10.95)	19.00 ( $\pm$ 14.45)				
<i>Follow-up</i>	17.90 ( $\pm$ 12.17)	24.56 ( $\pm$ 15.73)				

Table 2.8: Means and Standard Deviations ( $\pm 1$  SD from the mean) shown for a series of 2x3 Mixed Measures ANOVAs conducted to test the effect of an Excitement Diary on those who evidence high and low resilience. † = Due to a violation of sphericity, the Greenhouse Geisser statistic reported (SPANE-B,  $\epsilon = .006$ ; DASS-21,  $\epsilon = .009$ ; IMI =  $\epsilon = .019$ ).

Like Study 1a, analysis evidenced a significant interaction between condition (high vs. low resilience) and time (pre-, post-test and follow-up) for the MP scale ( $f(2,54) = 6.00, p =$

$<.004$ ,  $d = .94$ ). Figure 3.9 below displays the Means and Standard Errors ( $\pm 1$ SE from the mean) for the MP scale, split by participant's resilience change scores.

**Figure 3.9. Means and Standard Errors ( $\pm 1$ SE from the mean) for the MP scale.**

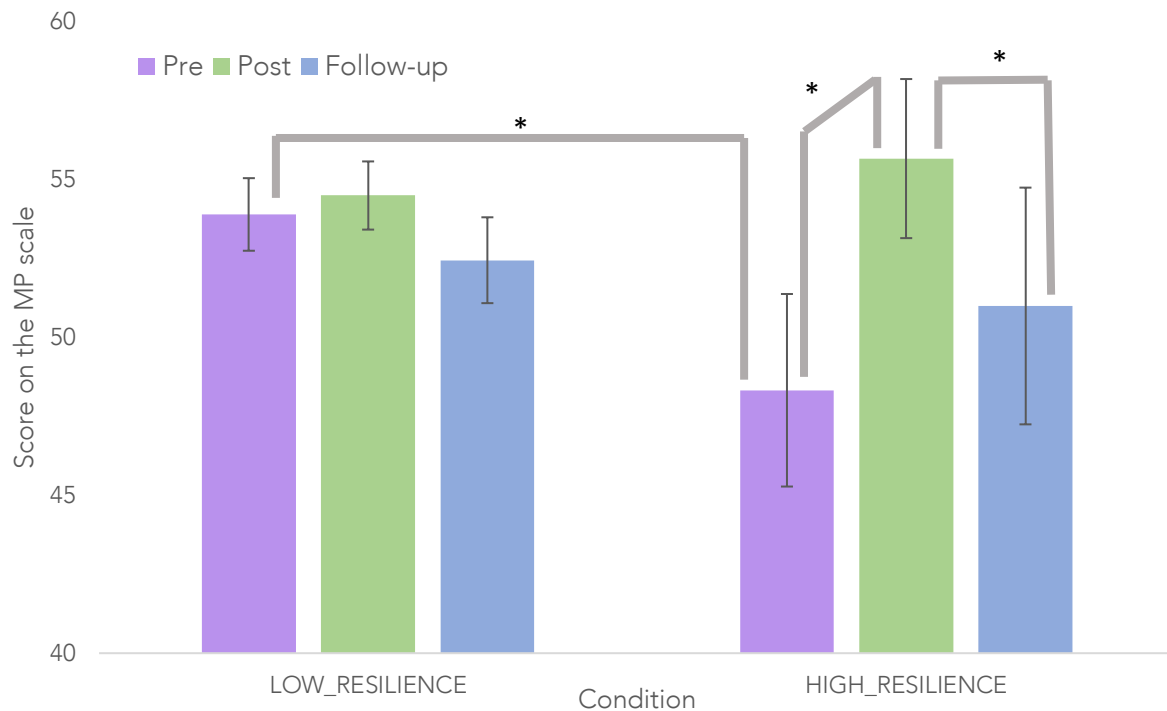


Figure 3.9: Means and Standard Errors ( $\pm 1$ SE from the mean) for the MP scale. Participants are split post-hoc by their change scores evidenced in the previous analysis.

Paired Samples T-Tests conducted evidenced a significant difference between pre ( $\text{Mean}_{\text{pre}} = 48.33$ ,  $\text{SE}_{\text{pre}} = 3.05$ ) and post-test ( $\text{Mean}_{\text{post}} = 55.67$ ,  $\text{SE}_{\text{post}} = 2.52$ ) in the high resilience condition ( $t(8) = 5.05$ ,  $p = .001$ ,  $d = .76$ ). Like Study 2a, this evidenced that participants' in the high resilience condition significantly increased in their levels of motivational persistence over time. However, unlike Study 2a, this effect was not endured and a significant decrease from post-test ( $\text{Mean}_{\text{post}} = 55.67$ ,  $\text{SE}_{\text{post}} = 2.52$ ) to follow-up ( $\text{Mean}_{\text{follow-up}} = 51.00$ ,  $\text{SE}_{\text{follow-up}} = 3.75$ ) was evidenced ( $t(8) = -2.33$ ,  $p = .048$ ,  $d = .88$ ). Independent Samples T-Tests also revealed a significant difference between conditions at baseline ( $\text{Low}_{\text{mean}} = 53.90$ ,  $\text{Low}_{\text{SE}} = 1.15$ ;  $\text{High}_{\text{mean}} = 48.33$ ,  $\text{High}_{\text{SE}} = 3.05$ ;  $t(27) = 3.07$ ,  $p = .045$ ,  $d = .54$ ). This indicated that those who displayed the most significant change in their

resilience (as evidenced by the High Resilience median split variable), were those with the least motivational persistence at baseline.

### **Study 2b: Brief Discussion**

In a large student cohort, beneficial effects of the “Excitement Diary” were found, evidencing significant increases on motivational persistence and intrinsic motivation, in the short-term. Furthermore, like Study 1a, individual differences in the self-regulatory strategies utilised when reflecting on exciting events was evidenced. Specifically, these strategies seem to have significant effects on displayed resilience, which leads to significant differences in motivational persistence. These differences are discussed further in the General Discussion of this chapter.

The Excitement Diary evidenced population-wide beneficial effects on motivational persistence and intrinsic motivation. Therefore, in the subsequent study, the Excitement Diary was piloted in a small cohort of employees in North Wales.

### **Study 2c – Implementation of the Excitement diary in a small cohort of employees in North Wales.**

#### **Study 2c: Methods**

##### **Participants**

Seven businesses ( $n = 47$  employees) were recruited across North Wales. Companies were recruited by Rhyl City Strategy (the named company sponsor for this PhD) and included housing associations, local social enterprises and local charities. To incentivise individuals for their time, a short presentation was conducted at follow-up, which introduced them to techniques to improve their workplace wellbeing based on the findings from the study. This presentation also formed the debrief for the study.

##### **Measures**

For full description of measures used please refer to Study 1a & 2a. The only change made was that the general IMI was employed, to replace the more specific academic version implemented in Studies 1 and 2. Here participants were required to select an activity they

had engaged with over the last week and rate how each statement had applied to them over the last week (see Appendix 2.16). The Cronbach's-  $\alpha$  noted in this population were as follows: IMI,  $\alpha = .80$ , CD-RISC,  $\alpha = .86$ , SWL,  $\alpha = .88$ , SPANE-B,  $\alpha = .89$ , MP,  $\alpha = .86$ , & DASS-21  $\alpha = .88$ .

### Procedure

For full description of method please refer to Study 1a (pg. 43). In each company, the population were randomly allocated to each condition, half completed the placebo control diary First Three Things Diary and half the experimental Excitement Diary. All sessions were conducted in a group setting, where groups of individuals completed measures and were introduced to their diary simultaneously. Like Study 2b, all participants were given a booklet which contained 7 of their allocated diaries (i.e. Excitement or First Three Things) and a track-card to measure their engagement over the week. All participants completed questionnaires at pre-, 1-week post-test, & 1-month follow-up (for full description of measures please refer to Study 1a & 2a; pg. 44 & 77).

### Data Analysis

Data analysis technique utilised is outlined in Study 1a (please refer to pg. 48). It is of note that 2 outliers were found, 11 data points were removed for incomplete data ( $SPANE = 3$ ;  $SWL = 2$ ;  $IMI = 2$ ;  $CD-RISC = 2$ ;  $DASS-21 = 2$ ) and 21 participants were excluded for failing to complete all measures at pre-, post-test and follow-up. Further of note, due to the smaller sample size in this study (i.e.  $<50$ ), z-scores  $\geq \pm 1.96$  indicate that data violated parametric assumptions, instead of  $\geq \pm 3.29$  previously utilised in the previous studies in this investigation. At this occurrence, data was transformed.

### Study 2c: Results

#### Demographic Information & notable baseline differences.

Enquiry investigated 26 employees (Male = 3, Female = 23; Age  $M = 42.12 (\pm 2.26)$ ) from North Wales. All were randomly allocated into one of two conditions (Excitement Diary,  $n = 14$ ; First Three Things,  $n = 12$ ), were measured at three different time points (*pre-*, *post-test*, & *1-month follow-up*) and completed a diary over the course of seven consecutive days (Excitement<sub>mean</sub> = 5.71, Excitement<sub>SD</sub> = 1.14; FirstThreeThings<sub>mean</sub> = 4.42, FirstThreeThings<sub>SD</sub> = 2.97).

#### Baseline Differences.

An Independent Samples T-Test revealed no significant differences between groups for the number of diaries completed over the course of the week ( $t(13.77) = 1.43, p = .18$ )<sup>1</sup>. Furthermore, no baseline differences were found for any measure at pre-test (see Appendix 2.17). However, pre-test calculations revealed that the SWL measure was negatively skewed (see Appendix 2.18). The data was therefore reflected and square-root transformation was applied which brought data back within a normal range (Skewness: SWL<sub>pre</sub>  $z = -.65$ , SWL<sub>post</sub>  $z = .32$ , SWL<sub>follow-up</sub>  $z = 1.21$ ; Kurtosis: SWL<sub>pre</sub>  $z = -.91$ , SWL<sub>post</sub>  $z = -.73$ , SWL<sub>follow-up</sub>  $z = .22$ ). The transformed data was then used in all subsequent analyses.

**Time x Condition effects for all measures.** A series of 2x3 Mixed Measures ANOVAs were conducted to establish significant differences across time and between condition for all measures. Table 2.8 below displays the ANOVA output for these interactions.

**Table 2.9. Output from a series of Mixed Measures ANOVAs conducted to detect differences across time and between condition.**

	Excitement	First 3 Things				
	M ( $\pm$ SD)	M ( $\pm$ SD)	<i>F</i>	<i>df</i>	<i>p</i>	<i>d</i>
<b>SWL ¥</b>			1.13	2, 46	.33	.44
<i>Pre</i>	3.36 ( $\pm$ 1.11)	3.35 ( $\pm$ 1.07)				
<i>Post</i>	2.94 ( $\pm$ 1.14)	2.87 ( $\pm$ 1.02)				
<i>Follow-up</i>	2.65 ( $\pm$ 1.07)	3.04 ( $\pm$ .99)				
<b>SPANE</b>			.75	2, 40	.48	.39
<i>Pre</i>	6.71 ( $\pm$ 8.87)	6.00 ( $\pm$ 6.63)				
<i>Post</i>	8.14 ( $\pm$ 8.17)	10.38 ( $\pm$ 6.00)				
<i>Follow-up</i>	10.21 ( $\pm$ 6.49)	12.88 ( $\pm$ 6.13)				
<b>IMI</b>			.43	2, 44	.65	.28
<i>Pre</i>	80.86 ( $\pm$ 14.35)	80.10 ( $\pm$ 8.94)				
<i>Post</i>	87.21 ( $\pm$ 7.73)	82.00 ( $\pm$ 11.17)				
<i>Follow-up</i>	85.29 ( $\pm$ 12.16)	84.70 ( $\pm$ 7.83)				
<b>MP †</b>			1.00	1.53, 36.83	.36	.41
<i>Pre</i>	49.71 ( $\pm$ 8.46)	56.75 ( $\pm$ 10.56)				
<i>Post</i>	54.14 ( $\pm$ 7.67)	58.08 ( $\pm$ 10.81)				
<i>Follow-up</i>	54.79 ( $\pm$ 7.50)	58.17 ( $\pm$ 10.98)				
<b>DASS-21</b>			1.47	2,44	.24	.52
<i>Pre</i>	14.50 ( $\pm$ 10.85)	18.50 ( $\pm$ 8.80)				
<i>Post</i>	12.00 ( $\pm$ 9.29)	13.00 ( $\pm$ 8.93)				
<i>Follow-up</i>	8.86 ( $\pm$ 7.78)	8.90 ( $\pm$ 4.68)				
<b>CD-RISC</b>			3.30	2, 42	.047	.81
<i>Pre</i>	69.46 ( $\pm$ 9.91)	77.10 ( $\pm$ 11.38)				
<i>Post</i>	74.92 ( $\pm$ 12.21)	79.80 ( $\pm$ 12.65)				
<i>Follow-up</i>	77.46 ( $\pm$ 11.54)	77.20 ( $\pm$ 14.85)				

Table 2.9: Means (and Standard Deviations) displayed for a series of 3x2 Mixed Measures ANOVAs conducted. † = due to a violation of sphericity, the Greenhouse Geisser statistic is reported (MP,  $\epsilon$  = .016); ¥ = data violated the normality assumptions, therefore reflected square-root transformed data was used in analyses.

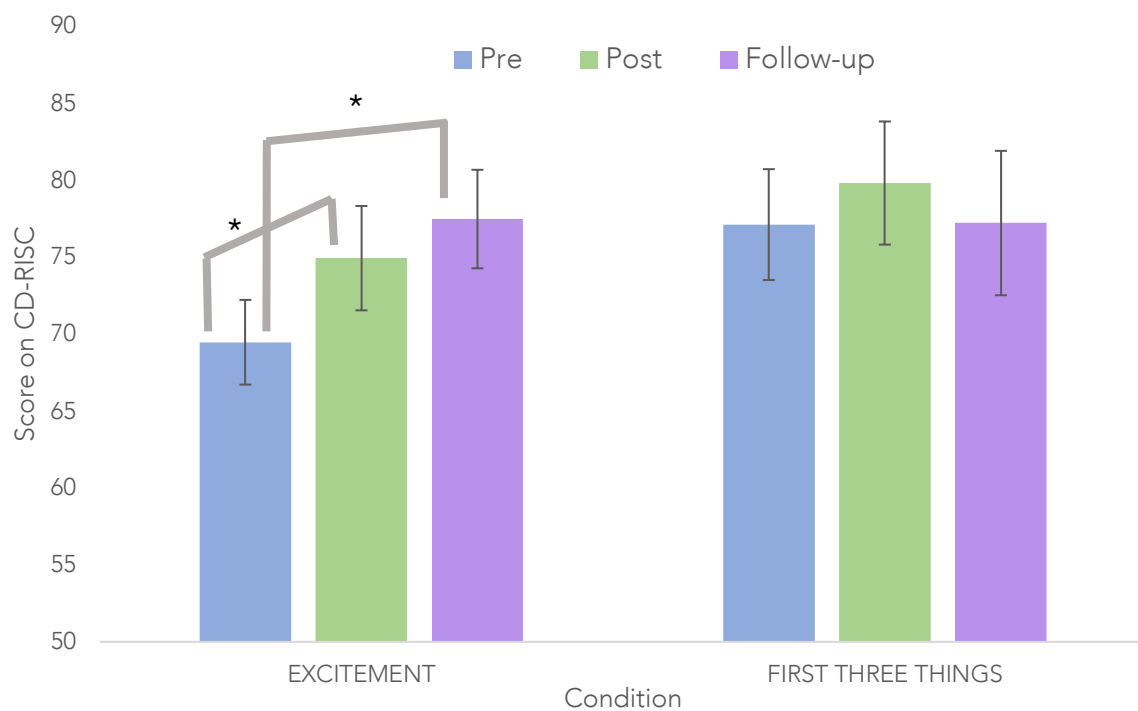
**Figure 3.10. Means and Standard Errors displayed for the CD-RISC.**

Figure 3.10: Means and Standard Errors ( $\pm 1$  SE from the mean) shown for the significant time by condition interaction in the CD-RISC. \*  $p < .05$ .

As shown in Table 2.8, a significant time (pre-, post-test, & follow-up) by condition (First Three Things and Excitement Diary) interaction was found for the CD-RISC ( $F(2, 42) = 3.30, p = .047, d = .81$ ). As illustrated in Figure 3.10, further analyses in the form of Paired Samples and Independent Samples T-Tests were therefore conducted to decipher differences across time and between condition. Paired Samples T-Tests revealed significant differences between pre- ( $\text{Mean}_{\text{pre}} = 69.46, \text{SE}_{\text{pre}} = 2.75$ ) and post-test ( $\text{Mean}_{\text{post}} = 74.92, \text{SE}_{\text{post}} = 3.39; t(12) = -2.36, p = .036, d = .66$ ) and pre-test ( $\text{Mean}_{\text{pre}} = 69.46, \text{SE}_{\text{pre}} = 2.75$ ) to follow-up ( $\text{Mean}_{\text{follow-up}} = 77.46, \text{SD}_{\text{follow-up}} = 3.20$ ) for the Excitement Diary ( $t(12) = -3.36, p = .006, d = 1.11$ ). No similar effects were found in the placebo control condition. Independent Samples T-Tests also revealed no differences between condition at any time-point. This evidences that the Excitement Diary had beneficial effects, increasing resilience in a small cohort of employees, which endured over time.

Furthermore, non-significant trend findings showed that the diary had beneficial effects from pre- to post-test in the experimental condition for motivational persistence



(Mean<sub>pre</sub> = 49.71, SE<sub>pre</sub> = 2.26; Mean<sub>post</sub> = 54.14, SE<sub>post</sub> = 2.05) and intrinsic motivation (Mean<sub>pre</sub> = 80.86, SE<sub>pre</sub> = 3.83; Mean<sub>post</sub> = 87.21, SE<sub>post</sub> = 2.07). This reflects findings obtained in the large student cohort, evidencing short-term effects of motivational persistence and intrinsic motivation in an employed population.

### **Study 2c: Brief Discussion**

Results showed that a daily journaling intervention, where participants were encouraged to reflect on exciting events throughout the day had beneficial effects on resilience, which endured over time. Trend findings, although non-significant, were also found for motivational persistence and intrinsic motivation. These findings are not consistent with results from Study 2b which found significant helpful effects of the same diary on motivational persistence and intrinsic motivation in a large student cohort. However, caution should be placed on these findings as due to logistical constraints in the recruitment of companies, the study is underpowered.

### **General discussion**

This series of studies aimed to design and implement a novel Anxiety and Excitement diary on a cohort of students, alongside piloting these interventions in a smaller cohort of employees. Research concluded that in a large cohort of students, reflecting on one's anxieties has no population-wide beneficial effects on motivation, resilience or wellbeing. However, considering one's goals from the perspective of excitement does have significant population-wide short-term effects on intrinsic motivation and motivational persistence, in a large cohort of students. Of interest, however, is that reflecting on exciting events displays beneficial effects on resilience in employees, endured over time. Alongside this, the short-term effects on intrinsic motivation and motivational persistence are displayed, but as trend findings and are non-significant.

### **3.6. The Two Factor of Theory of Emotion**

The current study is in line with previous research which indicates the value of positively appraising emotions and their beneficial effects on performance (Schachter &

Singer, 1962; Wood Brooks, 2013). Over three studies, participants were required to reflect on anxiety-provoking and exciting events. Population-wide null effects of the Anxiety Diary were evidenced. However, beneficial effects on population-wide intrinsic motivation, motivational persistence and resilience were found, in a large cohort of students, alongside a smaller cohort of employees for those who reflected on exciting events. These two reflections were arousal congruent (e.g. high arousal) but appraisal incongruent (i.e. negative to positive), in-line with previous seminal work into the Two Factor Theory of Emotion (Schachter & Singer, 1962). These findings are relevant when discussed in relation to more recent literature which aims to encompass negative emotions within a more nuanced definition of Flourishing (i.e. "The Second Wave of Positive Psychology"; Ivtzan et al., 2016).

However, unlike Wood Brooks (2013), task performance was not measured in either experiment. This is due to a lack of control over the task completed by participants over the course of the study. In spite of this, as a consequence of increasing short-term intrinsic motivation and motivational persistence, it can be inferred that, if measured, task performance may also increase, in-line with previous research. This substantiates findings which suggest that reappraisal of negative emotions is the most effective strategy for future performance (Hoffmann et al., 2009). This conclusion is critical as evaluation of the significance of everyday events both positive and negative, through a daily journaling intervention, is vital in an unpredictable world (Oatley & Johnson-Laird, 2013).

### 3.7. The EWP

In Study 2a, participants were required to reflect on an anxiety provoking event from their day, in the absence of the cathartic exploration of negative emotions, as characterised by the EWP. As a consequence, full exploration of participant's traumatic memories did not occur, resulting in non-specific, disorganised and non-structured reformation of memories. Therefore, the current diary investigation was not a direct comparison of the broader emotion exploration produced by the EWP. Consequently, it is speculated that negative self-judgement and rumination continued to occur in participants, resulting in a lack of remunerative changes in brooding and wellbeing, that have previously been observed in

research (Swinkels & Giuliano, 1995; Esterling, et al. 1999; Gortner, et al., 2006). Currently, there are inconsistencies in research and a lack of consensus amongst researchers as to the most effective strategies that generate the beneficial effects found in the EWP (Gortner et al., 2006). However, it seems that reflection specifically on anxiety provoking events in such a structured manner is disadvantageous. This corroborates that the expressiveness of the EWP mediates the observed beneficial effects (Swinkels & Giuliano, 1995; Esterling, et al., 1999; Gortner et al., 2006).

### 3.8. Individual differences

This research did evidence individual differences in resilience, which significantly effected the motivational persistence displayed by participants. The individualistic beneficial increases in motivational persistence found when the appraisal is modified can be explained by previous work which classifies motivation into two systems: The Behavioural Inhibition System (BIS) and Behavioural Activation System (BAS; Elliot & Thrash, 2002). Specifically, BIS or behavioural avoidance, is known to regulate and preclude behaviour towards aversive motives. Conversely, the BAS, or approach motivation, tends to direct behaviour towards appetitive stimuli (Scholten, Honk, Aleman, & Kahn, 2006). In particular, the BAS responds to signals of reward and upon recognition increases impetus towards goal achievement, whereas upon detection of an aversive signal, the BIS activates, increasing goal avoidance (Elliot & Thrash, 2002). These were originally conceptualised as part of Gray's (1982 as cited in Corr, 2008) Reinforcement Sensitivity Theory. Specifically, individuals who respond to signals of reward are said to be approach motivated and those controlled away from punishment contingencies are said to be motivated by the BIS (Gray, 1987). Importantly, individuals who are approach motivated are typically more extraverted, whereas the BIS is negatively associated with extraversion (Torrubia, Avila, & Caseras, 2008). Consistent with this, measures of BIS and negative emotionality are also correlated and similarly are measures of BAS and positive emotionality (Carver & White, 1994). This is consistent with the findings of the current investigation, where beneficial trend findings were evidenced in Study 2a for SPANE and SWL. It can be inferred that reflection on negative emotions in the Anxiety

Diary initiated avoidance motivation, whereas the Excitement diary activated approach motivation.

Secondarily, in Studies 2a and 2b it was of interest whether individual differences were driving the null effects evidenced by the Anxiety Diary. Therefore, frequency plots were derived. These evidenced a polymodal distribution for resilience displayed by participants, which led to significant differences in motivational persistence exhibited by participants. Therefore, research is equivocal regarding the value of a population-wide approach to attending to and writing about traumatic events. As a consequence of the findings of these experiments, it seems that, within the constraints of the current manipulation, there are individual differences evidenced when individuals are required to focus on specific emotions. In this case, the specific emotions were excitement and anxiety.

This is in-line with past research which has evidenced the value of anticipatory fault finding and problem solving to overcome potential hurdles to a goal (Ivtzan et al., 2016). This is Defensive Pessimism and is a cognitive self-regulation strategy, which utilises pre-factual thinking to overcome potential hurdles to a goal (Norem, 2008). In particular, negative reflections aid defensive pessimists to determine action towards a goal (Norem, 2008). Conversely, Strategic Optimists practice prefactual thinking, envisioning alternative outcomes when their performance is disappointing (Norem & Chang, 2002). Specifically, Defensive Pessimists set low expectations to self-regulate their anxieties and to avoid failure and Strategic Optimists focus on the glory or excitement of completing the goal (Norem, 2008). Importantly, any attempt to reduce or alter this strategy in either population leads to poorer performance and increased anxiety (Norem & Illingsworth, 2004; Sanna, Chang, Carter & Small, 2006). As these two self-regulation strategies alter the way that individuals react to anxiety provoking and exciting events, it seems that this may have driven the population-wide null effects. This is further reinforced by the evidence of a binomial distribution evident for the resilience and motivational persistence measure.

In current research, individual's trait self-regulation strategies were not measured and therefore the cohorts studied may have comprised of a combination of both Defensive Pessimists and Strategic Optimists. Specifically, Defensive Pessimists were requested to

reflect on their anxieties post-performance, in Study 2a, and to dismiss their anxieties in Study 2b, which altered their optimum self-regulation strategy in both cases.

One or both of these principles may explain the polynomial distributions evidenced in this Chapter, as it seems that there are contrasting effects on resilience based on the self-regulatory coping mechanism utilised. In particular, as individual's optimum self-regulation strategy was not utilised, this led to a proportion of individuals who increased in resilience as a consequence of the intervention and a proportion who decreased. This disputes current investigations which aim to develop population-wide PPIs, as this suggests the presence of idiosyncratic self-regulation strategies, which consequentially affects displayed levels of resilience and motivational persistence.

### 3.9. Strengths and Limitations

One strength of the current study is that findings for the Excitement Diary were implemented in both a large cohort of students, alongside a smaller cohort of employees. Nonetheless, one limitation of the current research is the small sample and effect sizes noted in Study 2c. As a result, the significant increases in motivational persistence and intrinsic motivation observed in Study 2b, are non-significant in employees. However, given the significant finding in a large student cohort, corroborated with medium effect sizes and the trend findings in employees, this substantiates that a large cohort study in employees is required to further understand the intricacies of this diary intervention. However, this was not possible within the current PhD due to high attrition (~50%) and a lack of companies enlisted into research.

### Conclusion.

Identification of obstacles towards a goal, as evidenced by the Mental Contrasting Paradigm (Oettingen, 2000; Oettingen & Mayer, 2002; Oettingen, 2014), seems crucial to future goal achievement. Nevertheless, the framing of these struggles and the future goal is imperative to goal achievement, as displayed comparatively between Study 2a and 2b. The current research evidenced no population-wide advantageous effects of negative appraisal on goal achievement or motivation; however, appraisal modification evidenced beneficial

effects on motivational persistence, intrinsic motivation and resilience across two populations. Furthermore, individual differences were also displayed between the two studies. Here, a proportion of individuals increased in resilience as a consequence of reflection on specific emotions and a proportion decreased. This response difference then led to differences in evidenced motivational persistence. Therefore, this chapter calls into question the population-wide approach to PPI development currently utilised in positive psychology. Findings specifically suggest that there are different self-regulation strategies utilised when coping with events that elicit a specific emotion. Future research should consider an idiosyncratic approach to intervention development.

## Chapter 4: A diary study investigating the effect of focusing on positive events and perceptions of control on wellbeing.

### Abstract

**Objective:** In an inaugural study, Seligman and colleagues (Seligman et al., 2005) evidenced the value of a 3 Good Things Diary. In the diary, participants reflected on three good things that had happened that day, alongside their causal attributions. In this study, participants displayed significant increases in wellbeing and decreases in depressive symptomology, which endured up to six-months post-intervention. These effects are profound given the simplicity of the diary. However, such endured beneficial effects of positive reflection has not been replicated thus far in this thesis. Therefore, it was of interest to disentangle the mechanisms of the original Seligman diary to decipher the underlying mechanism driving these profound effects, alongside test the effectiveness of a unique Locus of Control Diary.

**Design:** A 3x3 Mixed Measures Design was employed. Participants were randomly assigned to either a Positive Events Diary, Locus of Control Diary condition or placebo control Sleep Diary condition. Participants were measured at pre-, post-test and one-month follow-up.

**Participants:** 81 Higher Education Students.

**Measures:** Measures of intrinsic motivation, resilience, depression and perceived locus of control were employed.

**Results:** Mixed Measures ANOVAs revealed no significant time by condition interactions.

**Conclusion:** Results suggest that it is the unique combination of positive reflection and focus on causal attributions that leads to endured beneficial effects on wellbeing and depressive symptomology. This substantiates previous research into Explanatory Style. However, due to the intense nature of these interventions traditionally utilised to optimise Explanatory Style, it does call for a more light-touch intervention to be developed.

## Introduction

Diary interventions have previously shown to increase positive thinking and have profound effects on wellbeing (see Chapter 1, Section 1.6 of this thesis for review). Such interventions require individuals to document their experiences (either positive or negative) over a number of days. This type of intervention has also been shown to be effective when implemented in the workplace (Meier, et al., 2016), where substantial positive effects on job performance and work engagement (Fritz & Sonnetag, 2005; Daniel & Sonnetag, 2014) are observed.

One of the most compelling findings from the journaling literature is evidenced in the '3 Good Things' intervention, where after participants had reflected on '3 Good Things' and their causal attributions for 5-days, significant improvements in wellbeing and decreases in depressive symptomology at 6-month follow-up were observed (Seligman, et al., 2005). However, caution must be placed on these findings as a placebo effect could have occurred. The population from this inaugural study were self-selected from the 'Action from Happiness' website and were recruited for a Positive Psychology Study designed to have beneficial effects on depression and happiness. As these individuals self-selected to take part, it is possible that the effects gained were due to placebo effects. However, this effect has further been replicated in both adults (Mongrain & Anselmo-Matthews, 2012; Tagalidou, et al., 2019) and primary school aged children (Carter, et al., 2016) and therefore some confidence can be placed on findings. In comparison to other more labour-intensive interventions designed to improve wellbeing (e.g. CBT; Cartwright-Hatton, Robert, Chitsabesan, Fothergill, & Harrington, 2004; Kaltenthaler, Parry, Beverley, & Ferriter, 2008; Richards & Richardson, 2012; Fitzsimmons-Craft & Wilfley, 2017), the long-term improvements observed by Seligman are particularly profound given the simplicity of the diary (i.e. identifying three positive events alongside their causal attributions). However, these profound effects of a diary intervention have not been replicated thus far in this body of work. Therefore, it was of interest what the underlying mechanism driving these effects were.

It can be inferred that the two mechanisms at play which contribute to this finding are positive thinking (i.e. focusing on positive events that have happened in the recent past) and



a focus on the causal nature of that event (i.e. development of an internal Locus of Control (LOC)). However, as focusing on positive events and LOC have independently been shown to improve wellbeing (Benassi Sweeney & Dufour, 1988; Lyubomirsky, King, et al., 2005), it is unclear whether it is the one mechanism alone, or the two in combination that drives the greatest gains in wellbeing. The current study aimed to disentangle these mechanisms to address this question, alongside testing the efficacy of a novel 'Locus of Control' diary.

#### **4.1. The beneficial effects of focusing on positive events (PE).**

Findings from Positive Psychology have concluded that focusing on positive events (Seligman, et al., 2005) or on favourable attributes about ourselves or others (Emmons & McCullough, 2003; Layous, Nelson, Schonert-Reichl, & Lyubomirsky, 2012) has significant effects on wellbeing (see Chapter 1, section 1.5.2 & 1.8.2 for full review). A meta-analysis of 225 studies showed that happiness and focusing on positive experiences is associated with positive outcomes in work, relationships and physical health (Lyubomirsky, King, et al., 2005). This ability to think positively has not only been shown to have immediate benefits, but can also improve adaptive thinking. One explanation for this is Frederickson's 'Broaden and Build Theory' (Frederickson, 1998; 2001; 2004). This proposes that positive thinking momentarily broadens an individual's attention, improves cognitive flexibility, one's openness to new experiences (Frederickson & Branigan, 2005) and coping strategies (Tugade, Frederickson, & Barrett, 2004; Tugade & Frederickson, 2004). Individuals who engage in positive activities are also less likely to engage in rumination behaviours (Frederickson, 2004; Lyubomirsky, Boehm, Kasri & Zehm, 2011) and are more likely to interpret stressful situations as a challenge rather than a threat (McGonigal, 2014; Folkman, 2008). Moreover, positive emotions are frequently associated with personal growth after distress, termed post-traumatic growth (McGonigal, 2014).

#### **4.2. The beneficial effects of the development of an internal LOC**

Focusing on one's personal control over the outcome of an event has also evidenced unique effects on wellbeing and motivation, which buffers against the negative effects of mental ill-health (Taylor, et al., 2000). LOC refers to the degree to which an individual believes that they have influence over the outcomes of an event, versus external forces

beyond their control (e.g. believing exam performance is contingent on teacher's marking ability not individual effort; Levenson, 1974; Rotter, 1966; Cotlar Graffeo & Silvestri, 2006; Zampier & Pedroso deSouza, 2011). It was originally proposed as part of Rotter's Social Learning Theory (1954 as cited in Wallaston, 1992), an expectancy-value paradigm, where behaviour is dependent on the value of an outcome (reinforcer) to an individual and the probability of that reinforcer occurring (Wallaston, 1992; Holloway & Watson, 2002). This control is conceptualised as an individual either displaying an external locus (i.e. a belief that life is controlled by factors outside of personal control) or an internal locus (i.e. a belief that life outcomes are ultimately at the control of the individual; Rotter, 1966; Wallaston, 1992; Zampier & Pedroso deSouza, 2011). LOC can be described as fundamental (where one will display generalised beliefs about the controllability of the environment) and broad in scope (where beliefs differ dependant on the specific context or behaviour; Johnson, Rosen, & Levy, 2008; e.g. the workplace; Spector, 1982; 1986).

An internal LOC has been associated with increased self-esteem, positive health behaviours (Mirowsky & Ross, 2003 as cited in Wolinsky, Vander Weg, Martin, Unverzagt, Marsiske, Rebok, Morris et al., 2009) and decreased likelihood of depression (Yu & Fan, 2016). Whereas an external LOC is related to helplessness (Seligman, 1972; Hiroto & Seligman, 1975; Abramson, Seligman & Teasdale, 1978), depression (Benassi, et al., 1988; Mirowsky & Ross, 1990) and low self-esteem (Yu & Fan, 2016). Individuals with an internal LOC are also more intrinsically and achievement motivated at work (Renn & Vandenberg, 1991), which moderates the relationship between work stressors and felt stress (Roberts, Lapidus, & Chonko, 1997). However, individuals with an external LOC are more likely to believe that attempts to control their environment are futile, leading to passivity and low workplace motivation (Baumeister & Scher, 1988). LOC has also been implicated in research into Explanatory Style (Abramson, et al., 1978) and Core Self Evaluations (Judge & Bono, 2001; Judge, Bono, Erez & Locke, 2005), where internalising one's successes is beneficial to mental health (Kamen & Seligman, 1987). LOC was also identified as a personal resource which enables individuals to deal with life's setbacks (Judge & Hurst, 2007; Buddelmeyer & Powdthavee, 2016). Consequentially, this leads to beneficial workplace outcomes including job satisfaction, performance and career success (Judge, et al., 1998; Ng, Sorenson, & Eby, 2006; Chang, Ferris, Johnson, Rosen & Tan, 2011).

### 4.3. The current investigation

The LOC literature has shown promise in the development of interventions to enhance one's control in particular domains (e.g. to buffer against the effects of depression; Carver, Scheier, & Segerstrom, 2010) and in specific populations (e.g. the aging population; Wolinsky et al., 2009). However, there is a question over whether an intervention could be developed which enhances one's fundamental LOC more generally. One potential for this is a diary intervention, where participants focus on events where they controlled the outcome, thus aiming to increase one's internal LOC. Drawing from Seligman et al., 2005 and previous research into the benefits of an internal LOC, current investigations aimed to: (1) develop a 'Locus of Control' diary; (2) to disentangle the mechanisms (positive thinking & LOC) evident in the original Seligman et al., (2005) '3 Good things' intervention.

As it has been previously noted that previous investigation by Seligman evidenced sampling errors, precautions were made in the sampling of the following study. Although participants self-selected to partake in the study, the SONA advert used to recruit participants was non-descript and did not mention any beneficial effects in depression and happiness that may occur as a result of the investigation.

It was predicted that:

**H<sub>1</sub>** - Individuals exposed to either a Positive Events or Locus of Control diary for a week will evidence significantly increased intrinsic motivation and persistence at post-test and long-term follow-up. Participants in a placebo Sleep diary condition would evidence none of these changes.

**H<sub>2</sub>** - Participants exposed to either a Positive Events or Locus of Control Diary will evidence significantly increased positive affect, life satisfaction and decreased depressive symptomology at post-test and long-term follow-up. Participants in a placebo Sleep diary condition would evidence none of these changes.

**H<sub>3</sub>** - Individuals exposed to the LOC diary would also show adaptive changes in their perceived locus of control, which endure long-term. Participants in the positive events and placebo Sleep diary condition would not evidence adaptive changes in their perceived locus of control.

## Methods

### Participants

Previous meta-analyses have identified that PPIs evidence small to medium effect sizes (Sin & Lyubomirsky, 2009; Boiler et al., 2013; White et al., 2019). Utilising this small expected effect size (0.2; Cohen 1992), an a-priori power analysis using G\*Power (Faul, et al., 2007; Faul et al., 2009) was conducted. Specifically, this was conducted for a Mixed Measures ANOVA with three groups, to determine significance at 95% power and an alpha of .05. This suggested that a sample size of 66 participants was needed to gain enough power, across the three conditions. Given the potential for attrition across the multiple-stage study, a total of 102 participants were recruited to take part in the study. These were undergraduate psychology students (18+ years), recruited via an on-line participation panel or through word of mouth, compensated with course credits. The final sample totalled 81 students.

### Ethical Considerations

All participants were aged over 18 years of age, given detailed information about the study and told they could withdraw without penalty at any time. Each participant then gave informed consent to research. All data was treated confidentially; for all outcome measures participants received a unique ID and there were no identifiers on diaries. The study was guided and approved by Bangor University School of Psychology Ethics Board (ethics code: 2018-16249).

### Materials

**LOC diary.** Participants were asked to focus on events where they felt they had controlled the outcome, how in control they felt on a 10-point Likert-type scale (0 = *no control*; 10 = *completely in control*), how they felt in this situation and the lessons they could learn from this experience. Participants were asked to fill this in once a day for seven consecutive days (see Appendix 3.1).

**PE diary.** Participants were asked to think of a positive event that happened that day, as well as documenting the specific emotions that the event elicited and the behavioural consequences of the positive event, once a day for seven consecutive days (see Appendix 3.2).

**Sleep diary.** The placebo control diary asked participants to document their sleep pattern every day for seven consecutive days. Participants were asked to document the number of hours slept (i.e. "how many hours sleep did you get last night?"), as well as how rested they felt and their sleep quality on a 10-point Likert-type scale, (*0 = not rested, 10 = fully rested; 0 = terrible quality, 10 = great quality*; see Appendix 3.3). Participants could also refer to health trackers (e.g. FitBit) to help them complete the diary should they use them. For all diaries, participants chose the time of the day in which it was completed. The time taken to complete and the time of day completed was also not recorded.

## Design

A 3x3 Mixed Measures design was employed. Participants were randomly assigned into one of three conditions (LOC, PE or Sleep) and were measured at three time points (pre-, post-test, & 1-month follow-up; see Figure 4.1 below). All participants were given the same measures (detailed below) but were exposed to different diaries depending on their condition allocation.

Figure 4.1 Schematic of the study design

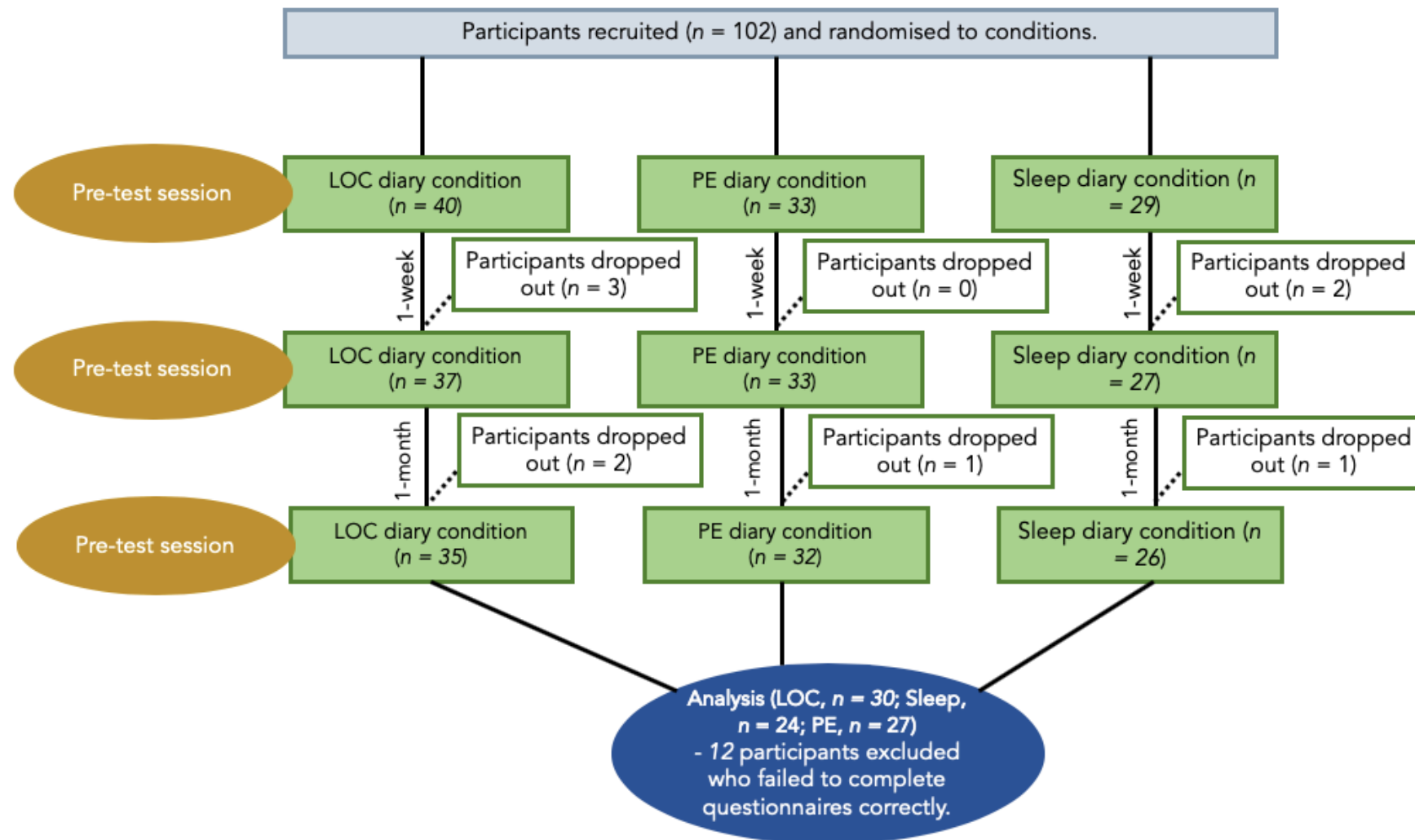


Figure 4.1: Schematic of the study design. This depicts participants randomly allocated to one of the three conditions, alongside the measurement sessions and length between these sessions.

## Measures

**Demographic questionnaire.** These were the same pre and post-test questionnaires distributed in Study 1b and 2b. Please refer to Study 1b for full description (see pg. 59 and Appendix 1.20 to 1.21). In addition to these measures, participants at follow-up were also asked for their perceived usefulness of the diary and the reason why they did or did not find the diary useful. Participants were also asked to report how long they continued engaging with the diary between post-test and follow-up and the reason for their continuation (see Appendix 3.4).

Alongside the demographic questionnaire completed at the three sessions and the measures outlined above, participants were also required to complete the CD-RISC, IMI and SPANE (see Chapter 1, Study 1a, [pg. 44] for full description). The Cronbach's- $\alpha$  noted for the measures in this population were as follows: IMI  $\alpha = .60$ , SPANE  $\alpha = .89$ , SWL  $\alpha = .87$ , CD-RISC  $\alpha = .91$ . The Spheres of Control (SOC-3) and the Center for Epidemiologic Studies-Depression (CES-D) scale was also administered to gather changes in LOC and depressive symptomology across time.

**CES-D** (Radloff, 1977). CES-D is a 20-item scale designed to measure depressive symptomology in the general population. Participants are asked to rate on each of the 20-items on a 4-point Likert scale (*1 = none of the time or rarely; 4 = most or all of the time*; see Appendix 3.5) how they have felt over the past week. A composite score (*minimum = 0; maximum = 60*) is gathered to indicate how participants have felt over the last week, with a score above 16 indicating that a person is at risk of clinical depression. Radloff (1977) and others (Yang, Jia, & Qin, 2015; Cosco, Prina, Stubbs, & Wu, 2017) have shown the scale to have good internal consistency with Cronbach's- $\alpha$  scores ranging from 0.85 – 0.94. This reliability was also reflected in the current population with a Cronbach's- $\alpha$  score of 0.83. Test-retest reliability is also moderate with Cronbach's- $\alpha$  scores between 0.45 and 0.70. Radloff (1977) further reports larger reliability for shorter intervals. The scale also evidences good convergent validity, as the scale is significantly correlated with the Beck Hopelessness Scale ( $r = 0.44$ ), the Trait Anxiety Scale ( $r = 0.46$ ; Yang, et al., 2015) and the Bradburn Balance Scale ( $r = .61$ ; Radloff, 1977).

**SOC-3** (Paulhus, 1983). The SOC-3 scale is a 30-item scale which measures judgements of one's level of control (see Appendix 3.6). The scale has 3 sub-scales (*interpersonal control*

(IPC), socio-political control (SPC) and personal control (PC)). Participants are asked to rate on a 7-point Likert scale (1 = *disagree*, 4 = *neutral*, 7 = *agree*) how each item has related to the over the last week. For the current investigation the PC subscale was used. This scale has previously been shown to have good reliability, with Cronbach's- $\alpha$  scores ranging between 0.75 and 0.80 in cross validation samples (Paulhus, 1983). This was also reflected in this population with a Cronbach's- $\alpha$  score of 0.76. The SOC-3 also evidences higher reliability than the SOC-2, with Cronbach's- $\alpha$  scores of 0.80 and 0.59, respectively (Paulhus & Selst, 1990). Furthermore, the scale also measures separate domains of perceived control from Rotter's original Locus of Control Scale, with Spearman's  $R$  correlations ranging from  $r = 0.06$  to 0.42 (Paulhus & Selst, 1990).

## Procedure

Methods used were similar to those implemented in Study 1b and 2b (refer to pg. 58 and 96 for full description). After completing measures in the pre-test session and providing consent to research, participants received a booklet of 7-diaries (either LOC, PE or Sleep), alongside a track-card to evidence their engagement (see Appendix 3.7 & 3.8 for Information Sheet and Consent Form; see Figure 4.2 for track-card). One-week later, in the post-test session, participants completed measures again and received a booklet containing further diaries and a 1-month track-card (see Figure 4.2 for track-card). In the 1-month follow-up session, participants completed the follow-up demographic questionnaire and measures for a final time. Upon completion, participants were debriefed (see Appendix 3.9).

## Data Analysis

For data-analysis procedures see Study 1a (pg. 48). In the current study, 5 individuals were excluded for failing to complete specific questionnaires correctly (SOC-3  $n = 2$ ; CD-RISC  $n = 2$ ; CES-D  $n = 1$ ) and 21 were excluded for failing to complete the questionnaires at the three time-points (pre-, post-test and follow-up).



Figure 4.2. Track-card distributed to participants at pre and post-test to evidence their engagement with the diary.

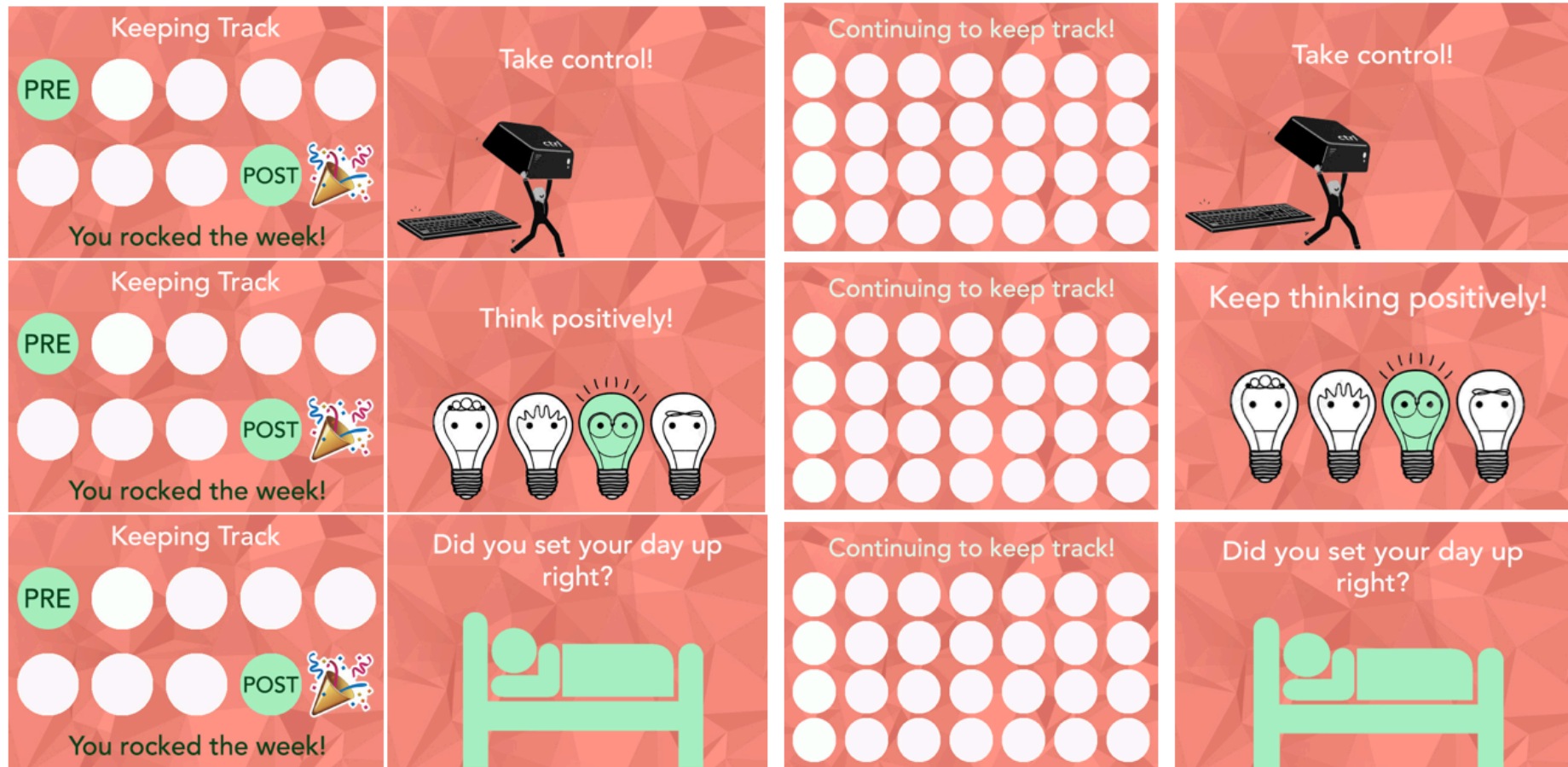


Figure 4.2: Track-card distributed at pre- and post-test. The front and back orientations of the card are depicted. The top image displays the track-card distributed to those in the LOC condition, the middle the PE condition and the bottom the sleep condition.

## Results

Analysis examined 81 participants (Male,  $n = 19$ , Female,  $n = 62$ ;  $Age_{mean} = 21.22$ ,  $Age_{SE} = .43$ ), all of whom completed all questionnaires at 3-time points (pre-, post-test & 1-month follow-up). Participants were randomly assigned to one of three conditions (LOC,  $n = 30$ ; Positive Events (PE),  $n = 27$ ; Sleep,  $n = 24$ ) and were given a diary to complete over seven consecutive days ( $Mean_{LOC} = 6.30$ ,  $SE_{LOC} = .22$ ;  $Mean_{PE} = 5.85$ ,  $SE_{PE} = .27$ ;  $Mean_{SLEEP} = 6.21$ ,  $SE_{SLEEP} = .31$  days). One-Way ANOVAs showed no significant differences between groups for age ( $F(2,80) = .14$ ,  $p = .87$ ) or the number of diaries completed over the seven days ( $F(2,80) = .84$ ,  $p = .44$ ; for full demographic information see Appendix 3.10). Independent Samples T-Tests were also conducted on all measures at baseline for those who completed all measures at all three time-points ( $n = 81$ ) and those that dropped out ( $n = 22$ ). This revealed no significant differences for any measure at baseline (see Appendix 3.11).

### Skewness and Kurtosis

A-priori data analysis showed that the CES-D and CD-RISC were non-normally distributed and were therefore transformed (see Appendix 3.12 for z-scores). Subsequent square-root transformation brought the CES-D back with normal range (*Skewness*: CES-D<sub>pre</sub>,  $z = .77$ , CES-D<sub>post</sub>,  $z = 1.52$ , CES-D<sub>follow-up</sub>,  $z = .28$ ; *Kurtosis*: CES-D<sub>pre</sub>,  $z = -.89$ , CES-D<sub>post</sub>,  $z = .04$ , CES-D<sub>follow-up</sub>,  $z = -1.25$ ). Log-10 transformation also brought the CD-RISC back with normal range (*Skewness*: CD-RISC<sub>pre</sub>,  $z = -.81$ , CD-RISC<sub>post</sub>,  $z = -2.11$ , CD-RISC<sub>follow-up</sub>,  $z = -1.19$ ; *Kurtosis*: CD-RISC<sub>pre</sub>,  $z = -.94$ , CD-RISC<sub>post</sub>,  $z = .35$ , CD-RISC<sub>follow-up</sub>,  $z = -.71$ ). This transformed data was then used in all subsequent analyses.

### Baseline Differences

A series of a-priori One-Way ANOVAs were also conducted to test for baseline differences between groups (LOC, Sleep & PE). Significant baseline differences were found for the IMI ( $t(80) = 8.56$ ,  $p < .001$ ); see Appendix 3.13 for all baseline differences). Change-score calculations were therefore derived for this scale and used in subsequent analyses.

### Participant's engagement with the diary

As shown in Table 3.1, demographic information further revealed that 79% of participants noted that the diary was helpful ( $n = 64$ ), and 74% ( $n = 60$ ) found the diaries useful. Only 8% ( $n = 7$ ) found the diaries difficult to complete after engaging with the diary for 7-days.

*Table 3.1. Helpfulness, difficulty and usefulness ratings for all participants, split by condition.*

	Helpful		Difficult		Useful	
	Yes	No	Yes	No	Yes	No
LOC	24	6	1	29	21	9
PE	22	5	5	22	21	6
Sleep	18	6	1	23	18	6

Table 3.1: Frequency table showing the number of ratings per condition for the helpfulness, usefulness or difficulty of the diaries.

As shown below in Table 3.2, demographics gathered at follow-up also showed that 45% ( $n = 37$ ) of participants continued with the diary between post-test and follow-up: 51% for 1-week ( $n = 19$ ), 14% for 2-weeks ( $n = 5$ ), 24% ( $n = 9$ ) for 3-weeks and 11% ( $n = 4$ ) for 4-weeks.

**Table 3.2. Continuation statistics for participants, split by condition.**

	Continued with diary					
	Yes (n = 37)			No (n = 44)		
	LOC	PE	SLEEP	LOC	PE	SLEEP
Total n (%)	13 (35%)	9 (24%)	15 (41%)	17 (39%)	18 (41%)	9 (20%)
1-week	6	5	8	-	-	-
2-weeks	0	4	1	-	-	-
3-weeks	6	0	3	-	-	-
4-weeks	1	0	3	-	-	-

Table 3.2: Frequency data to show the number (and %) of participants who continued with the diary beyond the 7-day testing period and the number of participants who carried on the diary per week preceding their follow-up session.

### Time x Condition Effects

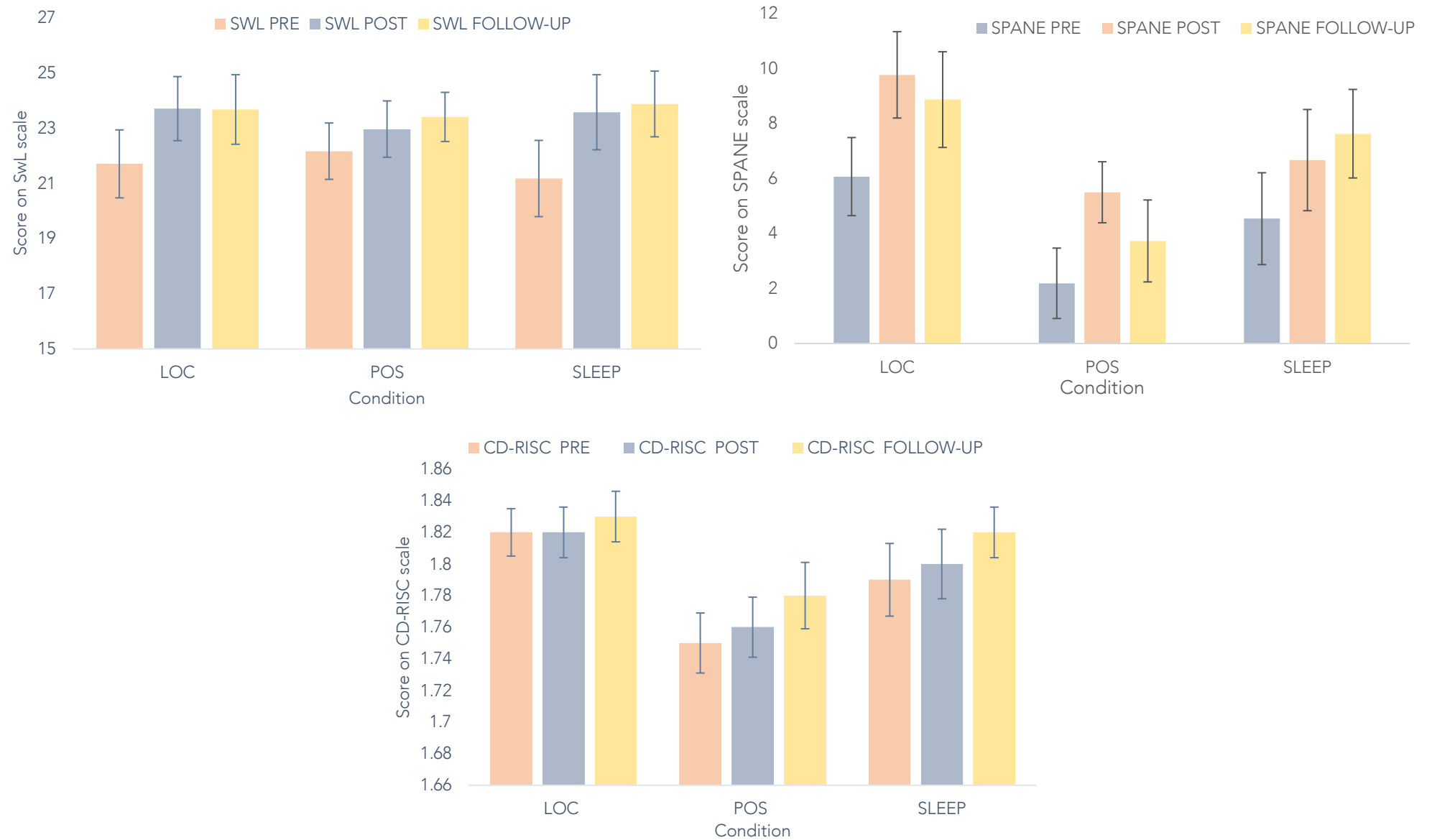
Figures 4.3a to 4.3f below displays a comparison graph of the mean scores and standard errors ( $\pm 1$  SE from the mean) for all scales. Change scores and transformed data are reported where applicable.

Descriptive statistics evidence that those in the LOC ( $\text{Mean}_{\text{pre}} = 6.07$ ,  $\text{SE}_{\text{pre}} = 1.42$ ;  $\text{Mean}_{\text{post}} = 9.77$ ,  $\text{SE}_{\text{post}} = 1.57$ ;  $\text{Mean}_{\text{follow-up}} = 8.87$ ,  $\text{SE}_{\text{follow-up}} = 1.74$ ) and PE condition ( $\text{Mean}_{\text{pre}} = 2.19$ ,  $\text{SE}_{\text{pre}} = 1.28$ ;  $\text{Mean}_{\text{post}} = 5.50$ ,  $\text{SE}_{\text{post}} = 1.11$ ;  $\text{Mean}_{\text{follow-up}} = 3.73$ ,  $\text{SE}_{\text{follow-up}} = 1.49$ ) increase in positive affect from pre- to post-test, whilst those in the Sleep condition remain relatively stable over time ( $\text{Mean}_{\text{pre}} = 4.54$ ,  $\text{SE}_{\text{pre}} = 1.67$ ;  $\text{Mean}_{\text{post}} = 6.67$ ,  $\text{SE}_{\text{post}} = 1.84$ ;  $\text{Mean}_{\text{follow-up}} = 7.63$ ,  $\text{SE}_{\text{follow-up}} = 1.61$ ). Also, descriptive statistics from those in the Sleep diary condition evidence endured trend findings on intrinsic motivation ( $\text{Mean}_{\text{prepost}} = .46$ ,  $\text{SE}_{\text{prepost}} = 1.84$ ;  $\text{Mean}_{\text{pretofollow-up}} = 4.17$ ,  $\text{SE}_{\text{pretofollow-up}} = 1.98$ ). However, no trend findings for those in the LOC condition were displayed ( $\text{Mean}_{\text{prepost}} = 4.37$ ,  $\text{SE}_{\text{prepost}} = 1.77$ ;  $\text{Mean}_{\text{pretofollow-up}} = 5.77$ ,  $\text{SE}_{\text{pretofollow-up}} = 2.48$ ) and detrimental effects were indicated in the PE condition ( $\text{Mean}_{\text{prepost}} = .33$ ,  $\text{SE}_{\text{prepost}} = 2.36$ ;  $\text{Mean}_{\text{pretofollow-up}} = -3.70$ ,  $\text{SE}_{\text{pretofollow-up}} = 2.99$ ).

Analysis focused on participant's change over time and between condition for all dependant variables. A series of 3x3 Mixed Measures ANOVAs were then conducted to establish significant differences across time and between conditions for all measures; for the

IMI where change score calculations were derived, a 2x3 ANOVA was conducted. Table 3.3 below shows the ANOVA output for these interactions.

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Figure 4.3a to 4.3f. Means and Standard Errors ( $\pm 1$  from the mean) for each measure.

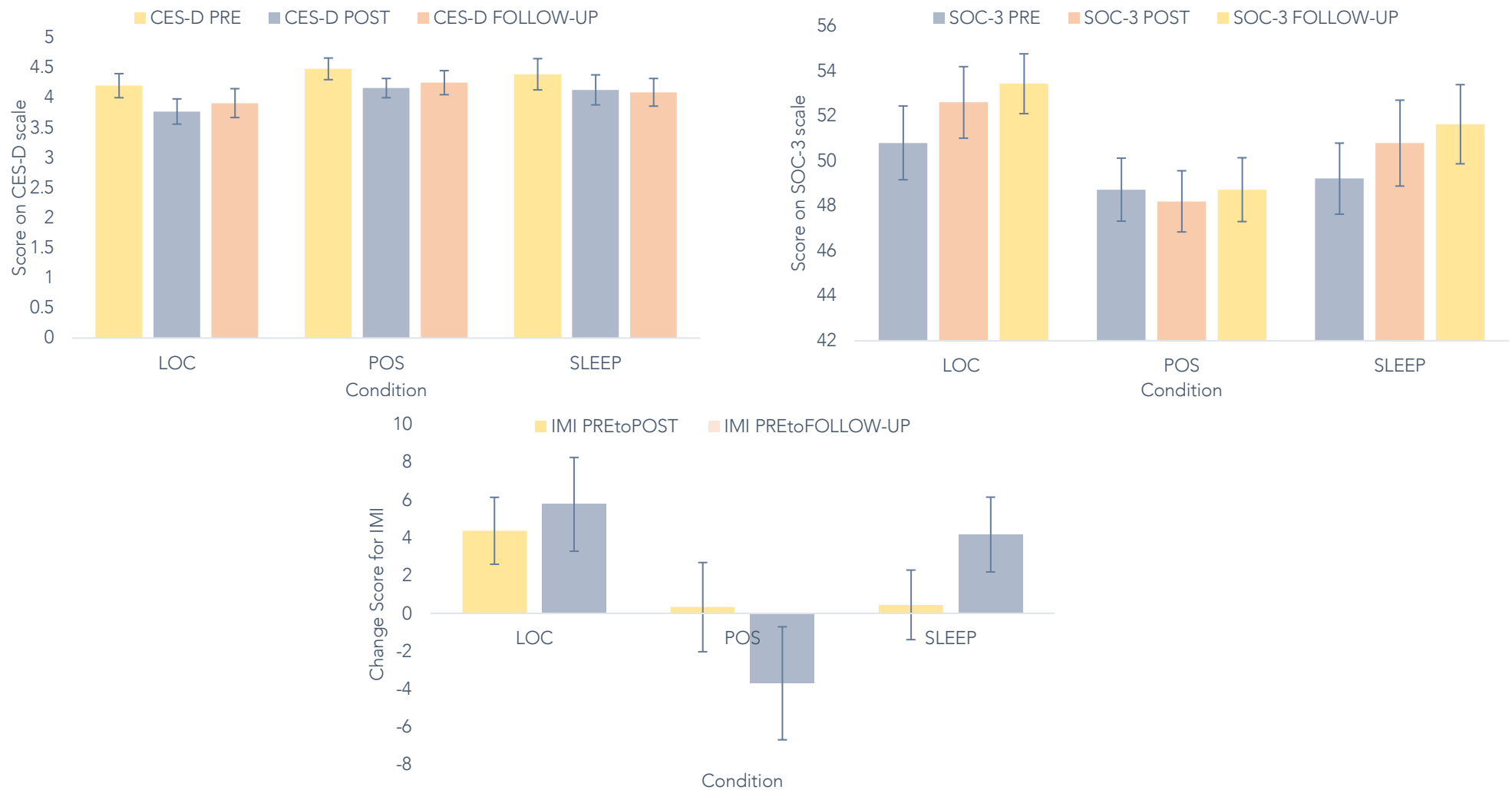


Figure 4.3a-1f: A comparison graph to show the mean scores (and standard errors) for all measures, split by condition. Where applicable, change scores (IMI) and transformed data (CES-D & CD-RISC) is represented. A negative change score is indicative of a decrease over time. The more negative this score, the larger the decrease in intrinsic motivation over time.

**Table 3.3. Means and Standard Deviations ( $\pm 1$  SD from the mean) and Mixed Measures ANOVAs outcome for all measures.**

	LOC	PE	Sleep				
	M ( $\pm$ SD)	M ( $\pm$ SD)	M ( $\pm$ SD)	<i>F</i>	<i>df</i>	<i>p</i>	<i>d</i>
<b>SWL †</b>				.62	3.66, 137.07	.63	.25
Pre	21.70 ( $\pm$ 6.71)	22.16 ( $\pm$ 5.10)	21.17 ( $\pm$ 6.61)				
Post	23.70 ( $\pm$ 6.34)	22.96 ( $\pm$ 5.11)	23.57 ( $\pm$ 6.51)				
Follow-up	23.67 ( $\pm$ 6.90)	23.40 ( $\pm$ 4.47)	23.87 ( $\pm$ 5.69)				
<b>SPANE-B</b>				.64	4, 154	.64	.25
Pre	6.07 ( $\pm$ 7.79)	2.19 ( $\pm$ 6.51)	4.54 ( $\pm$ 8.20)				
Post	9.77 ( $\pm$ 8.59)	5.50 ( $\pm$ 5.68)	6.67 ( $\pm$ 9.02)				
Follow-up	8.87 ( $\pm$ 9.53)	3.73 ( $\pm$ 7.59)	7.63 ( $\pm$ 7.89)				
<b>IMI ¥</b>				2.28	2,78	.11	.48
PretoPost	4.37 ( $\pm$ 9.68)	.33 ( $\pm$ 12.25)	.46 ( $\pm$ 9.01)				
PretoFollow-up	5.77 ( $\pm$ 13.60)	-3.70 ( $\pm$ 15.54)	4.17 ( $\pm$ 9.72)				
<b>CD-RISC ‡</b>				.51	4, 150	.73	.23
Pre	1.82 ( $\pm$ .08)	1.76 ( $\pm$ .10)	1.79 ( $\pm$ .11)				
Post	1.82 ( $\pm$ .09)	1.76 ( $\pm$ .10)	1.80 ( $\pm$ .11)				
Follow-up	1.83 ( $\pm$ .09)	1.78 ( $\pm$ .10)	1.82 ( $\pm$ .08)				
<b>SOC-3</b>				1.17	4,152	.33	.36
Pre	50.80 ( $\pm$ 8.98)	48.72 ( $\pm$ 7.00)	49.21 ( $\pm$ 7.73)				
Post	52.60 ( $\pm$ 8.74)	48.20 ( $\pm$ 6.79)	50.79 ( $\pm$ 9.37)				
Follow-up	53.43 ( $\pm$ 7.30)	48.72 ( $\pm$ 7.10)	51.63 ( $\pm$ 8.60)				
<b>CES-D † ‡</b>				.18	3.71, 142.96	.94	.16
Pre	4.20 ( $\pm$ 1.09)	4.48 ( $\pm$ .91)	4.39 ( $\pm$ 1.24)				
Post	3.77 ( $\pm$ 1.12)	4.16 ( $\pm$ .82)	4.13 ( $\pm$ 1.22)				
Follow-up	3.91 ( $\pm$ 1.31)	4.25 ( $\pm$ 1.01)	4.09 ( $\pm$ 1.08)				

Table 3.3: Output from a series of 3x3 Mixed Measures ANOVAs conducted to test for time x condition effects for each measure. ¥ = due to significant baseline differences (as noted in Appendix 3.13), change score calculations were derived; † = due to a violation of sphericity (SWL,  $\epsilon = .026$ ; CES-D,  $\epsilon = .047$ ) the Greenhouse Geisser Statistic is reported; ‡ = transformed data reported (either square-root or log-10; see Appendix 3.12 for z-scores).



As shown in Table 3.3, no significant interactions between time and condition were observed for any measure. Therefore, no further analyses were performed.

### Discussion

This is the first experiment of its kind that aimed to disentangle the mechanisms of the '3 Good Things' intervention and to test the effectiveness of a novel LOC diary simultaneously. Findings indicated no significant interactions for any measure. Therefore, investigations failed to evidence the efficacy of a novel LOC diary in its current form.

#### 4.4. Strengths

Although this study failed to evidence beneficial effects for the LOC or PE diary, there are several strengths that can be taken forward to future research. All measures evidence high internal reliability and the expected small effect sizes. This suggests that the sample size is adequate to ensure that findings are accurate. Further, the high internal reliability, consistent with previous research utilising these measures, suggests that all measures are valid for use in this population. This also adds substance that all conclusions gained are valid.

#### 4.5. Limitations

In accordance with Social Learning Theory (Bandura & Walters, 1977), Rotter's (1966) original conception of LOC, conceptualised individual beliefs about control or reinforcement as part of the scientific model. Specifically, Rotter suggested that an individual develops and acquires experiences throughout their lifetime that leads to an internal or external LOC belief. This research led to the development of the internal-external scale, to assess individual differences in this trait. However, in this study, the Spheres of Control, specifically the Personal Axis scale, was implemented. This is due to this scale being the most appropriate to evidence change due to an intervention. Nevertheless, this meant that individual differences were not taken into account at baseline. The null effects evidenced therefore, may be due to a population which either: (a) possess a high internal LOC prior to intervention and therefore ceiling effects are observed, or (b) maintain a high external LOC

and therefore a light-touch intervention is ineffective to alter this due to an extensive past learning history. These should have been taken into account for this investigation. However, tests for baseline differences between conditions were carried out, which evidenced null effects. This suggests that between conditions, there were no group of individuals who evidence a significantly higher or lower LOC than other conditions.

#### **4.6. Possible directions for future research**

To explore the intricacies of the LOC diary further, some alterations to the diary can be made. In the current study, participants were asked to reflect on ways that they could improve their performance for future events, which aimed to increase their feelings of competence when an unsuccessful negative event occurred, as Njus and Brockway (1999) found that feelings of generalised incompetence contribute to ameliorating depressive symptomology. Furthermore, research into workplace Core Self-Evaluations (Judge, Erez, Bono & Thoresen, 2002), has shown that generalised self-efficacy and self-esteem are important for job and life satisfaction (Judge, et al., 2005) and workplace performance (Joo, Jeung & Yoon, 2010). However, because the valence of the event documented in the diary was rightly not stipulated in this study, it is impossible to conclude whether this question had an effect on outcome measures. Future research should aim to include a competency element in the '3 Good Things' intervention, which potentially could have further beneficial effects on wellbeing. Competence, as discussed in the introduction, is also domain specific (Johnson et al., 2008; Spector, 1982;1986), therefore future research should aim to develop a LOC intervention designed to improve one's competence and control in specific domains (e.g. the workplace), which could have beneficial and cross-over effects on general self-esteem.

However, although this study failed to singularly display beneficial findings for either the PE or the LOC diary, inferences regarding the underlying successful mechanisms of the '3 Good Things' diary can be gained. Findings from this investigation suggest that it is the combination of placing a focus on causal attributions and positive events that is the integral factor in the inaugural '3 Good Things' diary. This is particularly consistent with interventions designed to improve an individual's Explanatory Style, which includes one's LOC.

Specifically, Explanatory Style research suggests that it is the attribution and classification of events that increases the risk of clinical depression (Peterson & Seligman, 1984). A Pessimistic Explanatory Style is described when one attributes negative events to internal, stable and global causes and positive events to external, unstable and specific causes; an Optimistic Explanatory Style is observed when the opposite is reported. An Optimistic Explanatory Style has been found to moderate the relationship between hopelessness and suicidal ideation (Hirsch & Conner, 2006), and is associated with higher levels of wellbeing, better health (Foregaurd & Seligman, 2012) and workplace success (Yousseff & Luthans, 2007). To improve or change one's Explanatory Style from a pessimistic to optimistic one, traditionally CBT is used on clients with a clinical diagnosis (i.e. depression, anxiety; Cartwright-Hatton, et al., 2004; Kaltenthaler, et al., 2008; Richards & Richardson, 2012; or an eating disorder; Fitzsimmons-Craft & Wilfley, 2017), but has also been shown to improve workplace turnover, employee wellbeing and job-satisfaction in a "healthy" working population (Proudfoot, et al., 2009). These findings substantiate this previous research, suggesting that the valence of the event, alongside the causal attribution is the integral factor to predict depression development likelihood.

In addition, current investigations into improving internal LOC are large study Randomised Controlled Trials (RCT's) which require weekly sessions, delivered by experienced trainers (see: Wolinsky et al., 2009). This is particularly evident in interventions developed to improve an individual's Explanatory Style, which implicates one's LOC. However, one problem with CBT is that it requires one-to-one intensive weekly sessions with a trainer (Donker, et al., 2015). One alternative, therefore is to promote the use of more light-touch interventions to improve one's Explanatory Style (e.g. a *diary intervention*). Although current investigations failed to evidence significant effects of the LOC diary as one example of this, the current study was the first of its kind to develop such an intervention. Therefore, the need to utilise a more light-touch intervention remains.

## Conclusion

This study further evidences that focusing on positive events, alongside their causal attributions has the most profound effects on wellbeing, a finding originally investigated by

Seligman et al (2005). Although the current study failed to evidence beneficial effects for the LOC diary, this does provide interesting and valuable avenues for further exploration of the intricacies of the diary methodology.

### **Chapter 5: PCBI: A Positive Cognitive Behavioural Intervention implemented into unemployed individuals who reside in four counties in North Wales.**

The following study was a collaborative project between Bangor University's School of Psychology and RCS (see section 1.1) and funded by the Welsh Innovation Fund. The named participators and their respective contributions are listed below:

Professor John Parkinson (JP)<sup>1</sup> is Head of School of Psychology, Bangor University and Chair of the Board for RCS.

Kate Isherwood (KI)<sup>1</sup>, Rhi Willmot (RW)<sup>1</sup> and Brianne Nicholls (BN)<sup>1</sup> are PhD student researchers, School of Psychology, Bangor University.

Alison Thomas (AT)<sup>2</sup> is the Operational Director, RCS.

Sioned Hughes (SH)<sup>2</sup> and Hayley Romain (HR)<sup>2</sup> are case co-ordinators, RCS.

Joanne Bartlett-Jones (JBJ)<sup>2</sup> is the Operational Manager, RCS.

#### **Named contributions:**

JP, AT, KI, & RW collectively designed the course content.

KI & RW were responsible for the gamification element of the course, design of all course materials and led day one each week of the first course.

BN led one day on the first course.

SH & HR were participants on the first course in Rhyl, led day two of the first course and led the proceeding five courses.

JBJ collated all the data and forwarded onto KI.

KI determined the effectiveness of the course, was on-hand to provide support when required, analysed all data and is primary author of this chapter

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### Abstract

**Objective:** A wealth of previous research has evidenced the value of improving resilience, goal-setting, motivation and attributional style in a population of unemployed individuals. However, research is yet to incorporate these into a multi-component intervention to improve re-employment prospects in North Wales. Study 4 aimed to develop and test the effectiveness of a multi-component PPI (BOOST!) in a population of long-term unemployed individuals in North Wales. A novel self-care element and skills traditionally taught on job acquisition courses (i.e. CV writing), were also integrated into the course.

**Design:** Within-Subjects Design was employed; participants were measured at pre- and 6-week post-test.

**Participants:** 40 unemployed individuals who resided in North Wales and evidenced complex barriers to employment (e.g. a lack of formal education or substance abuse disorders).

**Measures:** Scales to assess depression, anxiety and stress, resilience, intrinsic motivation and satisfaction with life were implemented.

**Results:** A series of Paired Samples T-Tests revealed significant helpful effects for depression, anxiety and stress over time. Alongside this, beneficial trend findings were evidenced for all other measures. Qualitative feedback from participant's case-workers evidenced that 40% of individuals gained successful employment post-intervention, the success of which the participants attribute to the course.

**Conclusion:** The disparity from BOOST! and previously evidenced post-intervention employment rates from UK Government courses, highlights the need for a focus to be placed on improving psychological wellbeing in future course development.

## Introduction

Thus far in this thesis, satisfaction of one's self-determined needs, the value of both positive and negative emotional disclosure and improving one's locus of control have been separately presented and experimentally explored. These constructs have been separately investigated in diary intervention studies and implemented into populations of Higher Education students and a smaller cohort of employees. Although the diary interventions developed have evidenced mixed effects, a wealth of previous research has indicated their separate and collective contribution to improve wellbeing, resilience and intrinsic motivation (as described in the previous four chapters). The following investigation aimed to advance previous enquiry by integrating these constructs into a novel multi-component intervention (BOOST!). This intervention focused on group-based study and individual at-home tasks, two-days a week for six-weeks. Specifically, this was developed to improve re-employment prospects and wellbeing in a population of long-term unemployed individuals, who resided in four counties in North Wales.

### 5.1. The definition of a multi-component intervention

Firstly, a distinction needs to be made when defining the single component intervention previously implemented in this thesis and the multi-component intervention investigated in the following chapter. In contrast to single component PPIs previously defined in Chapter 1, Multi-component PPIs (MPPIs) are considered to be a programme of tools which consist of evidence-based individual exercises (Hendriks, Schotanus-Dijkstra, Hassankhan, de Jong, & Bohlmeijer, 2019). Although MPPIs are the least studied to date, previous findings have shown promise; prior research has compared these interventions to CBT. Specifically, in women with major depression or dysthymia, no significant differences were found between groups for depression, psychological wellbeing or positive affect (Lopez-Gomez et al., 2017). This finding broadens the possible treatment plans and provides efficacy for MPPIs, similar to that conducted in this investigation. In fact, a recent meta-analysis evidenced small to medium effects on subjective wellbeing ( $g = .34$ ), psychological wellbeing ( $g = .31$ ), depression ( $g = .32$ ), anxiety and stress ( $g = .35$ ). However, this meta-analysis also found cultural differences and mixed follow-up effects (Hendriks, et al., 2019).

This necessitates research in diverse populations to strengthen claims. Therefore, the purpose of this investigation was to implement a MPPI into a population of unemployed individuals. PPIs implemented as part of the intervention were evidence-based and previously studied in isolation throughout this thesis.

## **5.2. UK statistics for unemployment and its effects.**

Within the context of this thesis, to be classified as unemployed an individual must be seeking employment. This is in contrast to those who are “out of the labourforce” who do not actively seek employment opportunities (Insititute for Work and Health, 2009). Currently in the UK, 2.6 million adults claim health-related unemployment benefits; of these, 42% claim these benefits due to a mental health condition (HM Government, 2009). Over recent years, this figure has increased (Government Office for Science, 2008). Particularly in 2017 in Wales, 9,135 individuals had claimed Job-seekers Allowance for more than 12 months and 5,480 of these had claimed for more than 24 months (Statistics Wales, 2019b).

Long-term unemployment (i.e. longer than 12 months) is associated with a plethora of psychological ill-effects (for full review see section 1.3). For example, those who are long-term unemployed show between four- and ten-times increased prevalence of depression and anxiety (Waddell & Burton, 2006; Lelliot et al., 2008), and unemployed individuals are four-times more likely to consult their GP than the general population (Lelliot, et al., 2008). In fact, unemployment accounts for 20% of all suicides worldwide (Nordt, et al., 2015). Moreover, the more prolonged an individuals’ unemployment, the more complex their re-employment becomes, leading to a decreased likelihood of re-employment (Waddell & Burton, 2006; Seymour & Grove, 2005; Department of Work and Pensions, 2009). This is due in-part to increased psychological distress (Department of Work and Pensions, 2009) and deteriorating mental health exacerbated by the job-search experience (Waddell & Burton, 2006; Seymour & Grove, 2005). In fact, previous research has indicated a significant negative relationship between job-search effort and mental health (McKee-Ryan, Song, Wanberg & Kinick, 2005). As job-searching is often an emotional experience, abundant with set-backs, rejection (Song, et al., 2009; Wanberg, Basburg, et al., 2012; Wanberg, et al., 2010), a lack of feedback (Kreemers, van Hooft, & van Vianen, 2018) and no predetermined steps to success



(Wanberg, et al., 2012), this lack of uncertainty often challenges one's self-worth and mental wellbeing (Wanberg, 2012; Wanberg et al., 2012).

### **5.3. Interventions currently available in the UK to combat unemployment.**

Currently in the UK, after 12-months of unemployment, government approved training programmes become mandatory to allow individuals to continue to claim their necessary benefits (van Stolk, Hofmann, Hafner, & Janta, 2014). Primarily, the goal for these programmes is for individuals to successfully re-enter employment by assisting clients to gain job-seeking or job-related skills (Proudfoot, et al., 1997; van Stolk, et al., 2014). Alongside this, an expectation is placed upon individuals to search flexibly for future employment, whether that be in pay grade (i.e. taking a lower wage than a previous employment) or job content (i.e. job-seeking in more varied roles than their previous post; Vansteenkiste, Verbruggen, & Sels, 2016), presumed to positively influence job-search effort and re-employment outcomes (Venn, 2012).

Currently, individuals who are unemployed in the UK who claim Employment and Support Allowance (ESA) are enrolled onto The Work Programme or similar Job Centre Plus courses (Hale, 2014; Newton, Meager, Bertram et al., 2012; Mind, 2015). To date, around 150,000 individuals with mental health issues have completed The Work Programme; of these only 6.7% have gained successful employment (Mind, 2015). However, these courses often infer psychological wellbeing gains (van Stolk et al., 2014) and research shows that this inference is ineffective. In fact, paradoxically, 83% of individuals enrolled onto The Work Programme reported deteriorated health symptoms and decreased self-esteem as a consequence (Mind, 2015). One of the reasons noted for these paradoxical findings is inadequate support systems implemented to remedy the symptoms associated with their mental health condition and ineffective support and insufficient understanding from course leaders of the barriers faced to gaining employment (Mind, 2015). Furthermore, in reality, as individuals are encouraged to search flexibly (i.e. outside of their skill-set or below their previous pay grade) for new employment opportunities whilst on employment benefit, this increases obstacles to employment. As employers typically match individuals' attributes to the job specification, which long-term unemployed individuals would not meet if encouraged to job-search flexibly, this increases the quantity of job rejections (Kristof-Brown,

Zimmerman, & Johnson, 2005). Searching flexibly can also lead to individuals' gaining lower quality jobs, as they have accepted a job that requires less expertise than they possess (Vansteenkiste et al., 2016), thus, further diminishing job-seekers' self-esteem, psychological wellbeing and mental ill-health. Overall, as these programmes often infer psychological wellbeing gains and the low re-employment rate noted as a consequence, it can be concluded that these courses are ineffective.

Group intervention and psychotherapies, via the Return-to-Work scheme, are alternative approaches for individuals exhibiting symptoms of psychological distress and mental-ill health (Hamberg van-Reenen et al., 2012). Specifically, when a 7-week CBT intervention was implemented into a population of unemployed individuals, significant increases in professional self-esteem, job-seeking self-efficacy, motivation for work, life satisfaction and attributional style were evidenced (Proudfoot et al., 1997). Furthermore, Expressive Writing, an intervention previously described in this thesis (see section 1.9 for review), has also indicated beneficial effects on psychological wellbeing (Smyth, 1988; Frisina et al., 2004) and improved adaptive coping mechanisms in response to job-loss (Spera, et al., 1994). However, to the best of our knowledge, currently no intervention has measured re-employment as a consequence of these interventions. Nonetheless, the beneficial psychological effects noted are a stark contrast to the interventions currently proposed by the UK Government to combat unemployment, where psychological wellbeing is inferred as a secondary outcome. Furthermore, the increasing figures for long-term unemployment and the negative psychological effects noted due to the job-search process, highlights a need to place a primary focus on improving psychological wellbeing as a pathway to re-employment. Moreover, policy initiatives that support the integration of evidence-based positive mental health promotion activities into community settings are warranted to improve population health (Friedli, 2009). Therefore, there is a need to develop an intervention which supports psychological wellbeing as a primary outcome, alongside imparting knowledge regarding job-skill development and job-seeking behaviours. Specifically, one future focus for intervention development should aim to increase resilience in this population, providing individuals with the tools to cope with job-search adversity.

#### 5.4. The proposed intervention

A need to provide further mental health support for those who are long-term unemployed has been identified. Therefore, the current investigation aimed to design a MPPI which aimed to embed tools to equip individuals with resilience and goal-setting skills and tools to improve strength finding and attributional style. A focus was placed on positive mental health, as per the definition outlined by the WHO in Chapter 1 (pg. 11). The aim of the MPPI was to equip individuals with the tools to be resilient in the face of adversity and gain adaptive future goal achievement skills, to aid in their job-seeking endeavours.

The current investigation aimed to pilot a Positive Cognitive Behavioural Intervention (PCBI), called “BOOST!”, which aimed to collectively incorporate theories identified and explored in the previous chapters. The aim of this intervention was to provide a tool-kit for life-skills, particularly focused around supporting positive mental health, wellbeing and resilience. BOOST! was implemented into a population of unemployed individuals in four Local Authorities (i.e. Denbighshire, Conwy, Gwynedd and Isle of Anglesey) in North Wales. The course commenced in 2017. The specific Local Authorities were chosen as they administer the Communities for Work (CfW) service, which operate in some of the most disadvantaged areas of Wales. For an individual to be eligible for CfW services they must be: (a) over the age of 25, (b) live in a CfW cluster, and either: (1) be long-term unemployed (defined by CfW as being unemployed for 12 months or more), or (2) not in education or training (NEET). Individuals must also evidence that they have one or more complex barriers to employment. These are: (a) low or non-skilled (not qualified above the Credit and Qualifications Framework [CQFW] Level 2 [GCSE equivalent]), (b) have a work-limiting health condition or disability (this includes substance or alcohol misuse), (c) be from a black or minority ethnic group, (d) be from a jobless household, (e) have a child dependant, and (f) be over 54 years of age. The CfW service assigns each individual a mentor to support individuals through personal job-related planning (Welsh Government, 2017). These mentors then recruited participants for this particular intervention. Figure 5.1 illustrates the number of individuals (raw figures) who were unemployed in the four selected Local Authorities from 2010 to 2018. Around 1,200 individuals were unemployed in Gwynedd, Denbighshire and the Isle of Anglesey and 2,200 individuals were unemployed in Conwy, in 2017.

**Figure 5.1.** Current unemployment figures for individuals residing in the four counties in North Wales.

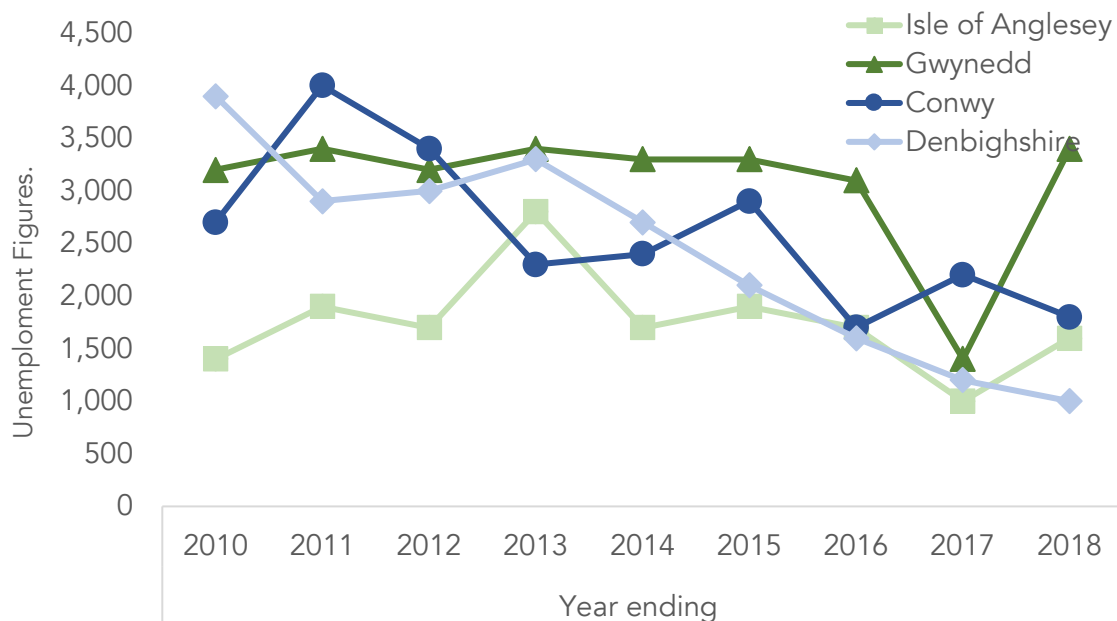


Figure 5.1: Current unemployment figures for individuals residing under the operation of the Local Authorities under investigation in this chapter for year ending 2010 to 2018. Data gathered from (Statistics Wales, 2019c).

*BOOST!* was a 6-week intervention delivered two days a week. The aim was to not only provide knowledge and skills that individuals could deploy during job-seeking, but could also be generalised across contexts of their lives in support of goal achievement and quality of life. Each week a specific topic was focussed upon (see Table 5.1 for weekly structure). These topics aimed to improve motivation, resilience and wellbeing in a population of job-seeking unemployed individuals. It was previously identified in Chapter 1, that the psychosocial benefits of employment are explained by five latent functions: time structure, social contact, collective purpose, status and activity (Jahoda, 1982 as cited in Paul et al., 2009). It was hypothesised for the current intervention that *BOOST!* encapsulated all five of these; *BOOST!* was structured, implemented in a structured group setting and the weekly activity increased an individual's purpose. Participants were measured at pre- and post-test, in the initial and final session of the intervention.

It was predicted that, as a consequence of partaking the intervention, job-seekers would at post-test:

- H<sub>1</sub>– evidence decreased depression, anxiety and stress symptomology.
- H<sub>2</sub>– display increased intrinsic motivation.
- H<sub>3</sub>– exhibit significantly increased positive affect and life satisfaction at post-test.
- H<sub>4</sub>– demonstrate increased resilience.

**Table 4.1. Structure of the BOOST! intervention**

Week	Topic
Week 1	Improving Motivation
Week 2	Changing Thinking Styles
Week 3	Using Signature Strengths
Week 4	Improving Resilience
Week 5	Goal-Setting
Week 6	Self-Compassion

Table 4.1: Weekly structure of the BOOST! intervention.

#### 5.4.1. Theoretical underpinnings of BOOST!

**5.4.1.1 Week 1: Improving motivation.** Intrinsic motivation is the highest quality form of motivation, where an activity is completed because it is inherently enjoyable and interesting (Ryan & Deci, 2000b; Deci & Ryan, 2008a). Importantly, those who exhibit intrinsic motivation evidence higher wellbeing (Ryan & Deci, 2000a) and enhanced performance, persistence and creativity on a task (Sheldon, Ryan, Rawsthorne, & Illardi, 1997). This is in contrast to extrinsic motivation, where individuals can act with disinterest and resentment, striving only towards achieving an extrinsic reward (Ryan & Deci, 2000a). Importantly, unemployed individuals who display higher intrinsic motivation also demonstrated increased effort expenditure when job-searching compared to those who were more externally motivated (Vinokur & Schul, 1997). Self-Determination Theory (SDT; Ryan & Deci, 2000a), suggests that the fulfilment of one's

basic psychological needs for Autonomy, Competence and Relatedness is integral to continued psychological growth and wellbeing. Importantly these needs are recognised predictors of intrinsic motivation (Ryan & Lynch, 1989; Ryan & Deci, 2000a; Ryan & Deci, 2000b; Bartholomew et al., 2011; Vansteenkiste & Ryan, 2013). Given these apparent benefits of intrinsic motivation, both generally and specifically applied into job-seeking behaviours, it seems valuable to place an explicit focus on the fulfilment of these needs in a population of unemployed individuals. This consequentially should also lead to gains in intrinsic motivation and therefore seems a valuable avenue to explore as part of an intervention aimed to improve employment outcomes and wellbeing. Therefore, the aim of week 1 was to introduce SDT and allow individuals to focus on strategies to fulfil their psychological needs, alongside presenting individuals with an idiosyncratic perspective of their required need fulfilment.

**5.4.1.2 Week 2: Changing Thinking Styles.** An individual's attribution and classification of events as to their stability (i.e. temporary vs. stable), pervasiveness (i.e. global vs. local) and controllability (i.e. internal vs. external; Peterson & Seligman, 1984) can predict their susceptibility to clinical depression (Sweeney, et al., 1986; Peterson & Vaidya, 2001; Ball, et al., 2018), risk of relapse from depression (Teasdale, Scott, Moore, Hayhurst, Pope, & Paykel, 2001) and amotivation (Peterson, Maier, & Seligman, 1993). Specifically, individuals who attribute their failures to internal, stable and global factors, and their successes to external, temporary and specific causes are most vulnerable to depression (Peterson & Seligman, 1984). Importantly, this attribution of events further negatively influences future job-seeking behaviours (Prussia, Kinicki, & Bracker, 1993). To combat this and to change one's attributions of these events, CBT was developed, which has evidenced beneficial effects on clinical depression and psychiatric disorder (Joyce, Shand, Tighe, Laurent, Bryant, & Harvey, 2018). Previous interventions, similar to CBT, implemented in a population of long-term unemployed individuals evidenced significant beneficial effects on self-esteem, job-seeking behaviours, self-efficacy, motivation for work and life-satisfaction, which

maintained at 3-month follow-up (Proudfoot, et al., 1997). Furthermore, adaptive coping strategies gained from such training ameliorate the negative impacts of unemployment (Turner, Kessler & House, 1991), psychological distress (Creed, Machin & Hicks, 1999) and increases one's chances of finding employment (Drummond, 2006). In recent years, the UK Government has also increased access to talking therapies (e.g. CBT) for those seeking employment (*i.e. the Improving Access to Psychological Therapies (IAPT) programme*; Hogarth, et al., 2013). The inclusion of attributional style training, similar to that used in CBT, which highlights maladaptive thought patterns and promotes proactive coping therefore seems a valuable addition to this intervention. The objective of week 2, was to teach participants of the value in challenging negative thoughts and altering their attributional style where necessary.

**5.4.1.3. Week 3: Using Signature Strengths.** Signature Strengths are a battery of 24 strengths that are identified when an individual completes the VIA inventory. As outlined by the VIA Inventory, previously identified Signature Strengths include, but are not limited to: bravery, courage, humility and leadership (VIA institute, 2019). It has been well recognised that identifying and using one's Signature Strengths has valuable effects on wellbeing (Park, Peterson, & Seligman, 2004; Seligman, et al., 2005; Allan & Duffy, 2014; Schutte & Malouff, 2019), self-esteem (Douglass & Duffy, 2015) and coping strategies in face of hardship (Macaskill & Denovan, 2014). Specifically, individuals who can identify and use their Signature Strengths on a regular basis are 18-times more likely to flourish than those who report low strength use (Hone, Jarden, Duncan, & Schofield, 2014). Furthermore, there is a plethora of research which evidences the workplace benefits of using and identifying Signature Strengths. These include: work engagement (Stander, Mostert & de Beer, 2014), job performance (Peterson & Seligman, 2004; Littman-Ovadia, Lavy, & Boiman-Meshita, 2017), acquisition of job resources (Bakker & van Woerkom, 2018), and job satisfaction (Littman-Ovadia & Steger, 2010). The ability to recognise and utilise one's Signature Strengths has also been shown to reduce sickness absence (van Woerkom, Bakker, & Nishii, 2016) and work-related stress (Wood, Linley, Maltby, Kashdan, & Hurling,

2011), enabling workers to better cope with job demands (van Woerkom, Oerlemans & Bakker, 2016). In fact, when employees are asked to document their strengths use on a weekly basis, weekly work engagement increases (van Woerkom et al., 2016). One hypothesis for these beneficial changes is that the use of strengths generates feelings of autonomy and competence, where individuals can act in accordance with their true selves, engaging in activities that they do best (Peterson & Seligman, 2004). However, there has been little research which implements a strengths intervention in absentees or the long-term unemployed. One intervention compared Strength Based Career Counselling (SBCC) with non-modified Career Counselling, finding that at the 3-month follow-up, those in the SBCC group were significantly more successful at gaining employment or training than those in the comparison group. Individuals in the SBCC group also evidenced short-term boosts in self-esteem (Littman-Ovadia, Lazar-Butbul, & Benjamin, 2014). This is an important finding given that the self-esteem of unemployed job-seekers is typically low (Wanberg, 2012; Wanberg, Basbug et al., 2012). This highlights the potential value of implementing strengths exercises in the unemployed. Nevertheless, this study failed to measure or demonstrate beneficial effects on wellbeing and motivation. Given that beneficial effects on wellbeing have previously been evidenced in the employed, but not in the unemployed, this seems a valuable avenue of study. Therefore, it is important to integrate a strengths exercise into a multi-component intervention to: (a) substantiate evidence for a strengths-based intervention in the unemployed, and (b) to further test the effectiveness of an intervention in the unemployed which aims to improve wellbeing and motivation.

**5.4.1.4 Week 4: Improving Resilience.** In previous research, resilience has been conceptualised as a stable trait, which enhances or hinders an individual's adaptation to adversity (Connor, Davidson, & Lee, 2003; Chmitorz, et al., 2018). However, more recently, resilience is increasingly thought of as modifiable outcome or a trajectory of recovery (Chmitorz et al., 2018). Under this framework, the aim of an intervention development study is to maintain or regain mental and physical health to



homeostasis, despite adversity (Jackson, et al., 2007; Chmitorz et al., 2018). Further, post-traumatic growth (PTG) is seen as an outcome of resilience, which suggests, that beyond restoring homeostasis, one gains skills and functions and positively transforms as a result of adversity (Lofti-Kashani, Vaziri, Akburi, Kazemi-Zanjani, & Shankeyan, 2014; McGonigal, 2014). Although PTG is associated with several resilience factors including optimism and positive reappraisal (Zoellner & Maercker, 2006; McGonigal, 2014), these two concepts are distinct. Here, resilience is an attribute, referring to the ability to restore homeostasis, whereas PTG occurs when an individual low in resilience aims to understand the reasons why the event happened and ultimately finds personal growth from the traumatic experience (Tedeschi & Calhoun, 2006). Most importantly, for the purposes of intervention research, it is important to view resilience as modifiable and a teachable concept (Chmitorz et al., 2018). Further, to prepare individuals and to increase the likelihood that PTG will occur, it is vital to allow people to understand that PTG may be a possibility for themselves (Dunn et al., 2014). This ability to see experiences as modifiable and that PTG is possible is also critical in job-seeking and future career trajectories (Koen, et al., 2010). Dweck (2017) proposes that to teach resilience it is important to view one's abilities as rigid or malleable, termed a Fixed or Growth Mindset, respectively. Specifically, holding a fixed mindset leads to the avoidance of challenges, poor performance and negative evaluations of oneself (Bedford, 2017), and corrective feedback is largely ignored as it challenges self-worth (Mangels, Butterfield, Lamb, Good, & Dweck, 2006). Conversely, a growth mindset, where abilities are thought of as malleable, is conducive to establishing learning goals (Burnette, O'Boyle, VanEpps, Pollack, & Finkel, 2013), where potential setbacks are viewed as informative experiences (Hong, Chiu, Dwecj, Lin, & Wan, 1999) and effort is regarded as essential for development (Blackwell, Trzesniewski, & Dweck, 2007). Importantly, adopting a growth mindset is associated with increased perceptions of control over a situation and increased effort and persistence towards a goal, all necessary attributes when job-seeking (Heslin & Keating, 2016). Therefore, the aim of this session was to

introduce participants to Growth and Fixed Mindset theory, alongside techniques to practically apply the theory in their lives.

**5.4.1.5. Week 5: Goal-setting.** Job-seeking, like any other self-regulatory process, is a purposeful, volitional and self-managed pattern of activity (*i.e. job-search behaviour*) directed towards the goal of re-employment (Creed, King, Hood, McKenzie, 2009; Kreemers, et al., 2018). Goal-setting also provides a sense of agency, autonomy and meaning to daily life (Diener et al., 1999). As identified in Chapter 2, increases in wellbeing are the direct results of attaining self-concordant personally relevant goals and the quality of such goals influences potential increases in wellbeing (Hefferon & Boniwell, 2011). Positive affect also gives an indication of the progress towards this goal (Carver, 2001; Carver & Scheier, 2003). Mental Contrasting (or the WOOP method) is a well-recognised self-regulation model which requires participants to “wish” and critically plan to overcome future obstacles to their goal (Oettingen, 2000; Oettingen, 2012; for full review see Chapter 3). Furthermore, when Implementation Intentions (Gollwitzer & Sheeran, 2006) are incorporated within the Mental Contrasting paradigm (MCII), effects of the paradigm endure for up to two years (Stadler, et al., 2010). In addition, Implementation Intentions also seek to reduce the gap between values and actions, increasing persistence towards the future goal (Gollwitzer & Sheeran, 2006). The effectiveness of Implementation Intentions have also been evidenced in a population of job-seekers (McKee-Ryan, et al., 2005; van Hooft, Born, Taris, van der Flier, & Blonk, 2005; Paul & Moser, 2006). Therefore, the aim of session 5 was to introduce participants to MCII, alongside allowing them to decipher their values that align with this goal. However, it is important to note that the goal specified by participants was not necessarily related to job-seeking.

**5.4.1.6. Week 6: Self-Compassion.** Self-compassion is the ability to be kind to oneself in the face of hardship, pain or failure, rather than being harshly critical (Neff, Kirkpatrick, & Rude, 2007), and an ability to recognise that one’s experiences are part of common humanity (Neff, 2003a). However, the ability to be self-compassionate to

oneself does not ignore, avoid or amplify distressing experiences and emotions (Neff, 2003a). Instead, similar to mindfulness-based interventions, being self-compassionate enables the individual to “pause” and accept one’s limitations and imperfections, allowing for self-growth and a psychologically healthy self-attitude (Neff, 2004). In previous research, this type of thinking has been conceptualised as self-esteem, referring to one’s self-worth or perceived value (Tafarodi & Swann Jr., 2001; Mruk, 2013). However, critics are skeptical of self-improvement strategies, where the emphasis is solely placed on improving self-esteem (Neff, 2004). Unlike self-compassion, the central premise of self-esteem research focusses on the ways in which an individual is superior to another (Neff & Vonk, 2009). Therefore, attempts to maintain high self-esteem may lead to narcissism, self-absorption and a lack of empathy for others (Neff, 2003a). Conversely, individuals high in self-compassion report lower self-criticism, depression, anxiety and greater life-satisfaction (Neff, 2003b), evidence increased self-improvement motivation (Breines & Chen, 2012) and are able to utilise more adaptive coping strategies (Neff, et al., 2007). Self-compassion is also not fixed, and thus can be induced (Adams & Leary, 2007; Breines & Chen, 2012; Zhang & Chen, 2016) and is trainable (Leary, Tate, Adams, Allen, & Hancock, 2007; Shapira & Mongrain, 2010). In line with this, previous research has suggested that strategies to improve one’s self-compassion are an effective intervention for adolescents with a low self-esteem (Neff & McGehee, 2010). Also, when job-seekers are more self-compassionate, this improves the likelihood that an individual will adopt a challenge mindset (Kreemers, et al., 2018). This is of particular importance given the emotionality of the job-searching process, which impacts on a job-seekers self-esteem (Wanberg, 2012; Wanberg, Basbug, et al., 2012). Given that improving an individual’s self-compassion has previously evidenced comparable benefits to increasing one’s self-esteem, with fewer limitations (Neff, 2003b), an intervention that aims to improve job-seekers self-compassion is an important avenue for study.

## Methods

### Participants.

Fifty-four unemployed individuals (Male,  $n = 22$ ; Female,  $n = 32$ ) were recruited to take part in the study. Participants were eligible to partake in the intervention if they were currently managed by a CfW caseworker. CfW projects operate in Communities First areas of Local Authorities throughout Wales (for this intervention this was Denbighshire, Conwy, Gwynedd and Isle of Anglesey County Councils). Participants were recruited via their CfW caseworkers. BOOST! was offered alongside other job-skill development courses available through the service, and participants self-selected to complete the course. As BOOST! was offered as an alternative to traditional courses, participant's benefits were contingent on their attendance on the course. Therefore, attendance was recorded at each session by the RCS course leaders and reported to CfW case-workers.

### Ethical Considerations.

All participants were aged over 18 years of age, given detailed information about the study and provided informed consent to participate in the research (for the Information Sheet and Consent Form see Appendix 4.1 & 4.2). All data was treated confidentially; participants were issued with anonymous IDs and no identifiers were placed on any materials.

Due to the potentially low or non-skilled population who may also have additional needs, certain adjustments were made from the scientific literature to the course content. The primary aim of this was to reduce the scientific terminology used throughout the course. For example, throughout the intervention, all scientific terminology was removed (e.g. three fundamental needs as outlined by Self-Determination Theory were referred to as Control, Social and Skill) and content was simplified where possible (i.e. FAIS acronym used to explain Attributional Style; see week 2 presentation [Appendix 4.4B] for acronym in context). Sessions were also designed to be interactive, using visual representation of theory where possible.

BOOST! was also gamified (i.e. the application of game elements in a non-game context; Deterding et al., 2011), with the aim to improve engagement. Each week

participants received a small deck of cards ( $n = \sim 6$ ), which was designed to augment content from the session. In the final week, when participants had gained a full hand ( $n = \sim 36$ ), they were issued with a BOOST! board (see Figure 5.2), which they played in the session. The aim of the game was for participants to consolidate their own learning, alongside teaching others material from the course by progressing around the board.

To evaluate the effectiveness of the course through psychometric measures, the original validated measures (see Appendix 1.5, 1.7, 1.8 & 2.2) were implemented to ensure the reliability of the measure was maintained. However, the RCS staff were available to provide one-on-one support to each participant where required (*i.e. reading or writing support*).

The study was also guided and approved by Bangor University School of Psychology Ethics Board (ethics code: 2017-16045).

Figure 5.2: The BOOST! board game

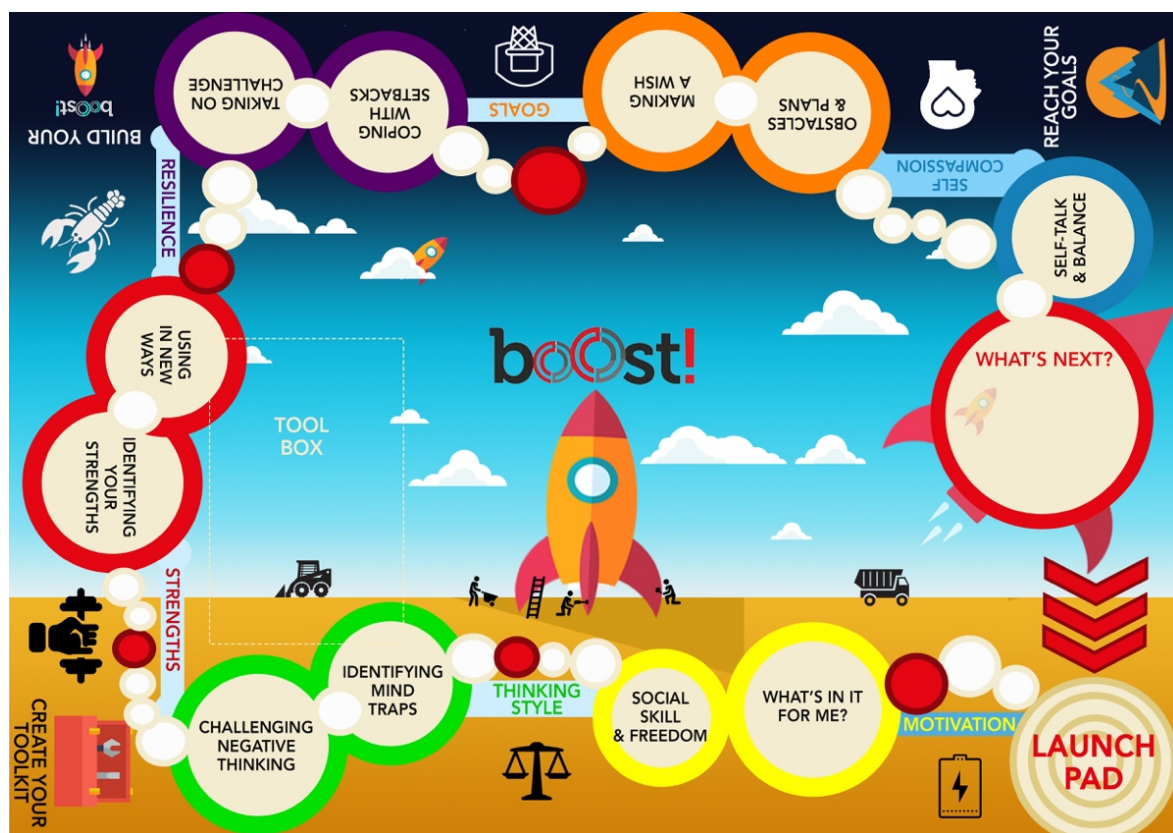


Figure 5.2: New designed BOOST! board game utilised in week 6 of the intervention.

## Materials

**Game cards.** Each week participants received a deck of up to six cards, applicable to each week's theme. In the deck, the majority were techniques for each participant to aim to fulfil throughout the week and one, framed as a "Bad Guy", was one to avoid. Each card explained a key theory from the week's content, alongside techniques learned in the session to combat the "Bad Guy" and to top up their key skills. This was framed to participants as a "Tool-kit" (for example see Figure 5.3; for full deck see Appendix 4.3D, 4.4E, 4.5E, 4.6F, 4.7F, & 4.8D).

**Introductory presentations.** Each week, participants were introduced to key theory via a short presentation. The presentation was aimed to be short and theory driven, which provided participants with the key messages to augment learning each week.

Figure 5.3: Example of the game cards from week 1.

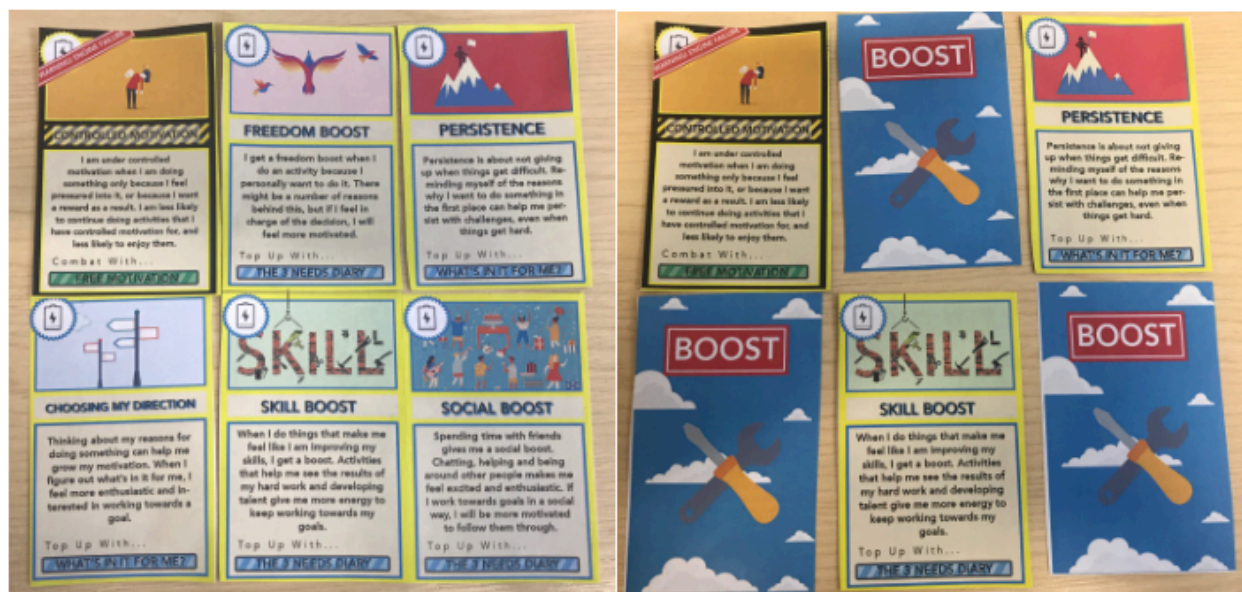


Figure 5.3: Images of the game cards (front and back). Example shown is from week 1 (Improving motivation) of the course.

**In-session exercises.** Each session was designed to be interactive. Exercises were either developed and adjusted from internet sources or designed by the development team (for full series of worksheets and activities see Appendices 4.1 to 4.6). In-session exercises included worksheets, diary entries, and group and individual tasks.

**At-home tasks.** These aimed to augment and solidify information from the weekly sessions. Principally, these were journaling interventions, which required participants to document and reflect on their experiences over the course of the week (for full set of homework tasks see Appendix 4.4D, 4.5D, & 4.6E).

## Design

The study employed a within-subjects design (see Figure 5.4). Here, participants were measured in the first session of the intervention (pre-test) and in the last session (post-test). An attempt was made to gather waiting-list control data (6-weeks prior to the course) but due to logistical constraints and high attrition, this was not possible through the CfW case workers and only  $n=9$  cases were gathered on an acceptable waiting-list control. Given that unbalanced samples reduce the power (to a low as 11%), increases the data variability and heightens the chance of making a Type-1 error (Rusticus & Lovato, 2014), the decision was made to not include this data in the analysis. BOOST! course leaders (either KI & RW in the first course or SH & HR in proceeding courses) distributed all questionnaires for these individuals at pre- and post-test. Data analysis focused on changes over time for individuals who engaged in the course. Brief qualitative feedback was also gathered from the CfW caseworkers, alongside post-intervention employment figures. The full design of the intervention is depicted in Figure 5.4.

Figure 5.4: Schematic of the course design.

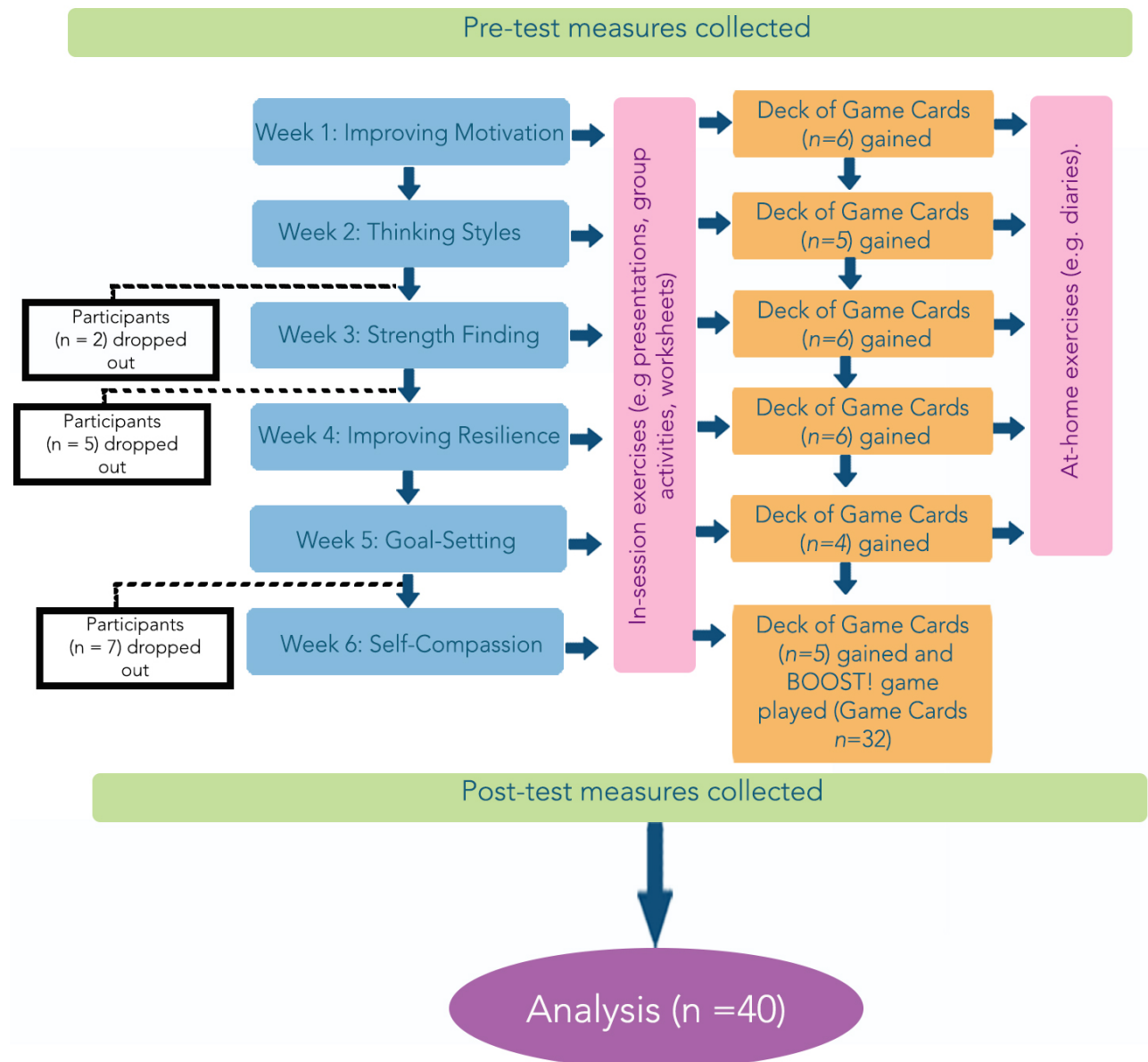


Figure 5.4: Schematic of the study design. The schematic depicts the weekly session topics, alongside the gamification element and in-session exercises and at-home tasks completed by participants.

### Procedure

BOOST! was a 2-day a week, 6-week PCBI. Each week, the first day introduced basic Positive Psychology theory aimed to improve motivation, wellbeing and resilience in the unemployed; the second day aimed to develop job-seeking skills (*e.g. qualification builders*), more akin to traditional courses offered through the Job Centre (Careers Wales, 2019).



BOOST! was implemented six times across North Wales (Rhyl (twice), Colwyn Bay, Holyhead, Bangor & Conwy). The first course was conducted in Rhyl in March 2017; and the final course was administered in Holyhead in January 2019. The one-day Positive Psychology session of the first 6-week course (Rhyl) was developed and delivered by two PhD researchers from Bangor University, who trained two RCS members of staff to deliver the other five courses (i.e. implementing a “Train the Trainer” model). To ensure that the intervention was standardised, the remaining five of the 6-week courses were delivered by the same course leaders from RCS. The RCS staff members were also instructed how to gather the psychometric measures. These measures were then returned to the PhD researcher (KI), who was on-hand to provide support where required. From course 1, the RCS staff members delivered day two, which focussed on the development of job-seeking related skills (e.g. *CV building, interview training*).

BOOST! was an 8 hour a week course, which was conducted over 2 days. Each session was 4-hours, divided into a morning session and afternoon session, by a 1-hour lunch break. In the morning sessions, participants were introduced to new theory topic (see Appendix 4.3B, 4.4B, 4.5B, 4.6B, 4.7B, & 4.8B for presentations), alongside a recap of the previous weeks content. They were then introduced to an in-session interactive activity, which continued into the afternoon session. Before the day ended, a brief interactive summary session was conducted. At-home tasks and game cards were then distributed (for example see Figures 5.2 & 5.3; for full set see Appendix 4.3 to 4.8).

### Structure of the course.

**Week 1. “Improving Motivation”.** Course leaders briefly explained the upcoming course. Baseline measures were then completed by participants. Measures were completed individually, but in a group setting. Participants were given an introduction to positive psychology and Icebreaker exercises were conducted. Following this, a brief theoretical introduction to Self-Determination Theory (Ryan & Deci, 2000a; see Appendix 4.3B) was given by the course leader. This presentation aimed to differentiate between intrinsic and extrinsic motivation, alongside the benefits and disadvantages of each. After lunch, participants were presented with

three plastic cups, each containing a drop of food colouring and a pint glass of water. The course leader then asked a series of questions (see Appendix 4.3C), where the answers to the questions were matched with a coloured cup (red = autonomy; blue = social; green = competence). In response to each question, participants filled their most applicable coloured cup (see Figure 5.5). The purpose of this exercise was to present participants with a visual representation of the three fundamental needs, driving their motivation. To conclude the day, participants were given an at-home task to focus on fulfilment of their fundamental needs throughout the week.

*Figure 5.5: Visual representation of the water exercise from Week 1.*

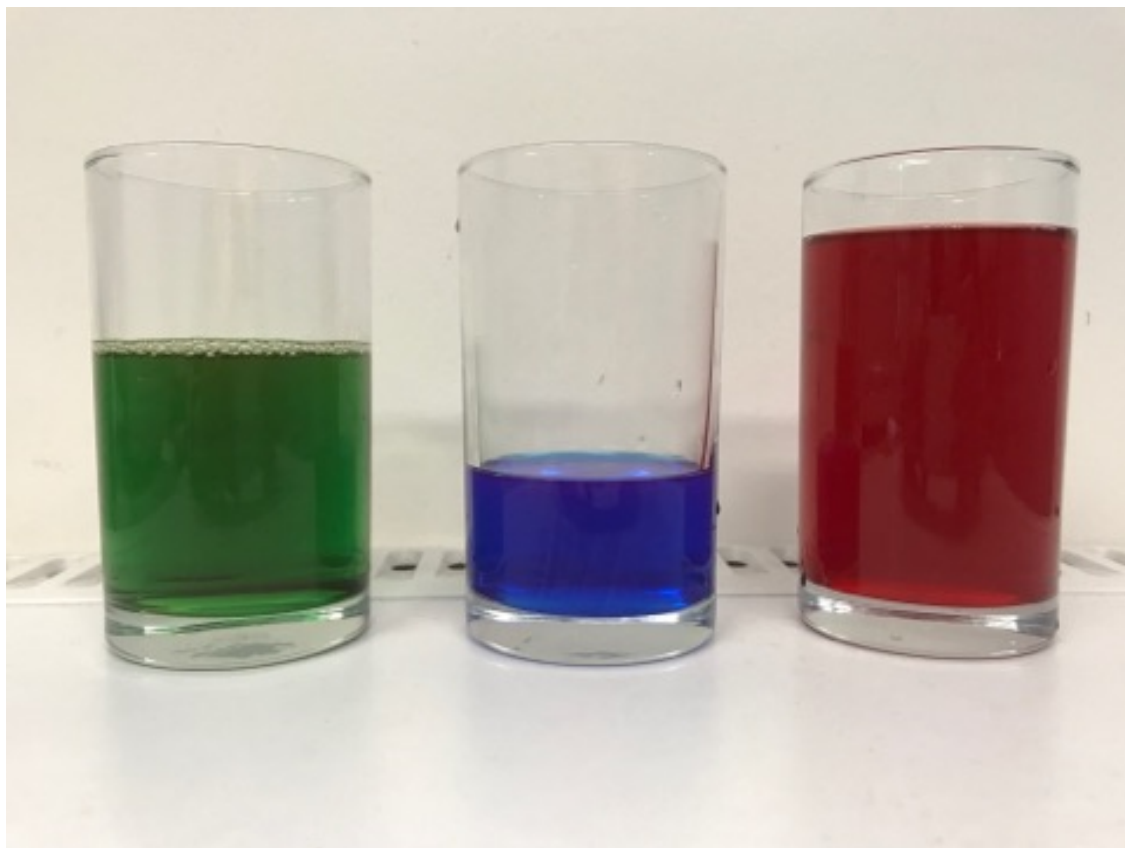


Figure 5.5: Visual representation of the exercise from Week 1. Participants were required to answer a series of questions and fill-up the cup that represented the answer that portrayed them most closely.

**Week 2. "Thinking Styles".** This session focused on altering thinking styles, according to the Attributional Style model proposed by Peterson & Seligman (1984). In this

session, participants were introduced to “Mind Traps” (see Appendix 4.4C for worksheet). These are characterised as thinking traps when one’s attributional style goes awry. Participants were then introduced to Attributional Style, which was defined to participants as: multi-component (i.e. three axes: permanent, pervasive and personal) and changeable (Peterson & Seligman, 1984). They were also introduced to the influences of negative self-talk and how this affects one’s sense of control. Learned Helplessness (Seligman, 1972) was then presented as a consequence of negative self-talk. To combat negative attributional style, the ABCDE (Activating event, Automatic Belief or Thought, Consequence for feelings or behaviour, Dispute with Evidence, Energise), similar to that used in CBT was introduced. Here participants are encouraged to identify an activating event for their negative event and the consequences of this. CBT then imparts strategies to dispute and rationalise these negative feelings with evidence. To simplify this for this audience a new acronym was created for the purposes of this intervention (FAIS: Facts – is it true?; Alternatives – what else could be a cause?; Implications – what does the cause really mean for me?; Service – is it helping me?). To finish the day, participants completed a worksheet to combat some of their negative self-talks (see Appendix 4.4D), which was then continued at-home in a diary every day for the next week.

**Week 3. “Strength Finding”.** Participants were introduced to “Signature Strengths” (Schutte & Malouff, 2019). Throughout the day, individuals were encouraged to recognise their own strengths, alongside another’s strengths, using a modified version of the VIA inventory. In the afternoon session, each participant identified five of their own strengths, alongside new ways to utilise these strengths in the week ahead. They then put into a “Strength box” (see Appendix 4.5C) and were given a diary (similar to the original Seligman et al. (2005) “using Signature Strengths in New Ways” intervention) and aimed to fulfil and document these in the week ahead (see Appendix 4.5D for diary).

**Week 4. "Improving resilience".** A short presentation in the morning session introduced resilience to participants and ways to ameliorate this. Content included: Growth vs. Fixed Mindset (Dweck, 2017) and ways to harness a Growth mindset. The first task prompted individuals to label a series of phrases as either "Fixed mindset" or "Growth mindset" phrases, using theory introduced in the morning presentation. In the second task, participants worked to build a fortress to protect an egg when dropped from a height. In the pair, one participant encouraged their counterpart using Growth Mindset phrases. Roles then swapped and one of the partners used fixed mindset phrases, whilst the other disputed these using some of the growth mindset phrases previously introduced. Task three, then required participants to aim for a goal achievable in the next week, and develop both a fixed and growth mindset approach to this goal (see Appendix 4.6C & 4.6D for worksheet). Participants were then encouraged to continue to document this throughout the week (see Appendix 4.6E for diary).

**Week 5. "Goal Setting".** Session five began with the "90<sup>th</sup> Birthday Wheel of Fortune". For this task, participants were encouraged to "imagine that they are at their 90<sup>th</sup> birthday party surrounded by their family and friends. These people are making speeches to celebrate your life. Think about what you would like them to say about how you have lived". This task aimed to establish each participants' long-term values, which were with those on the "Wheel of Fortune" (e.g. health, money, personal development; see Appendix 4.7C). These values were then converted into a goal they aimed to achieve in the next week (a "Within One Week" (WOW) goal; for worksheet see Appendix 4.7D). Participants were then introduced to the SMART framework (i.e. Specific, Measurable, Attainable, Relevant & Timely) and the WOOP method (see Chapter 3), which they were asked to mapped their goal onto a vision board to complete over the next week. To aid in this process and to avoid and overcome upcoming obstacles, Implementation Intentions (i.e. if-then plans) were also presented. At the end of the session, "Micro-resilience" was proposed and

participants were encouraged to document these Micro-resilience's every day for the next week (for worksheet see Appendix 4.7E).

**Week 6. "Self-Compassion".** Participants were introduced to Self-Compassion (i.e. showing the same kindness and understanding we would show to a friend and to ourselves). As part of this, course leaders introduced self-kindness, emotional balance and common humanity as the compounding factors to this. As a short task, participants were then encouraged to complete the worksheet (see Appendix 4.8C) in-session and to discuss this with a neighbour. As this was the final session, the content for this week was shorter than previous weeks. As, in the afternoon sessions, participants played the "BOOST! board game" (see Figure 5.2), which aimed to synthesise their knowledge gained through the course and encourage participants to apply the learned theory into their lives going forwards. Over the last 6-weeks participants had accumulated a deck of cards, 6 from each week (for example see Figure 5.3), which helped them to play the game. The course leaders guided participants around the board, where they discussed techniques to move forwards and apply techniques to their own lives. Once completed, participants received a BOOST! chocolate bar as a reward for completing the course. Measures were then completed on paper for a final time. All participants were then excused with all course materials to continue if they wish.

To train the RCS course-leaders, SH and HR participated in day one of the intervention and ran the proceeding courses. Upon completion of course 1, the course leaders were provided with a booklet of training materials formulated by the development team (JP, KI, & RW). The training materials contained all resources from course 1, detailed timings and structure of the sessions, alongside detailed supplementary information on the theoretical topics covered in the sessions. From course 2, the experimenter (KI) was then available when required for support and guidance.

## Measures

A full description of the measures used in this study is described in Study 1a (pg. 44). The DASS-21, SWL, IMI and CD-RISC were implemented to capture changes in wellbeing, intrinsic motivation and resilience over time. The Cronbach's-  $\alpha$  noted for measures in this population were as follows: DASS-21,  $\alpha = .97$ ; SWL,  $\alpha = .86$ ; IMI  $\alpha = .84$ ; and CD-RISC,  $\alpha = .92$ . Post-course employment figures and demographic information was gathered by the CfW case workers. They also reported case studies of participants who engaged with the course post-intervention.

## Data analysis

For a full description of data analysis techniques see Study 1a (pg. 48). Paired Samples T-Tests were conducted to detect differences across time for all measures. No outliers were found; however, 14 participants were excluded for failing to complete all measures at pre- and post-test. Of note, z-scores  $\geq +/ - 3.29$  indicated that data violated parametric assumptions. At this occurrence, data was transformed.

## Results

Investigations examined 40 individuals (Male,  $n = 16$ , Female,  $n = 24$ ) who completed the 6-week BOOST! intervention. For all measures the composite score was used to assess changes over time. A-priori data analysis indicated that the DASS-21 measure was non-normally distributed (for z-Scores see Appendix 4.9). This measure was therefore square-root transformed which normalised the distribution (*Skewness*: DASS<sub>pre</sub>,  $z = .24$ , DASS<sub>post</sub>,  $z = -.58$ ; *Kurtosis*: DASS<sub>pre</sub>,  $z = -.61$ , DASS<sub>post</sub>,  $z = .1.22$ ). The square-root transformed data was then used in all subsequent analyses.

Figures 6a to 6d below show visual representations of participant's changes across time for all measures. Descriptive statistics evidenced that participant's decreased in their depression, anxiety and stress from pre-test (Pre<sub>mean</sub> = 3.99, Pre<sub>SE</sub> = .31) to post-test (Post<sub>mean</sub> = 3.44, Post<sub>SE</sub> = .24). Descriptive statistics also displayed that participants increased in their resilience from pre-test (Pre<sub>mean</sub> = 56.00, Pre<sub>SE</sub> = 3.48) to post-test (Post<sub>mean</sub> = 60.97, Post<sub>SE</sub> = 3.59).

Figure 5.6a to 5.6d: Means and standard errors ( $\pm 1$  standard error from the mean) displayed for all measures.

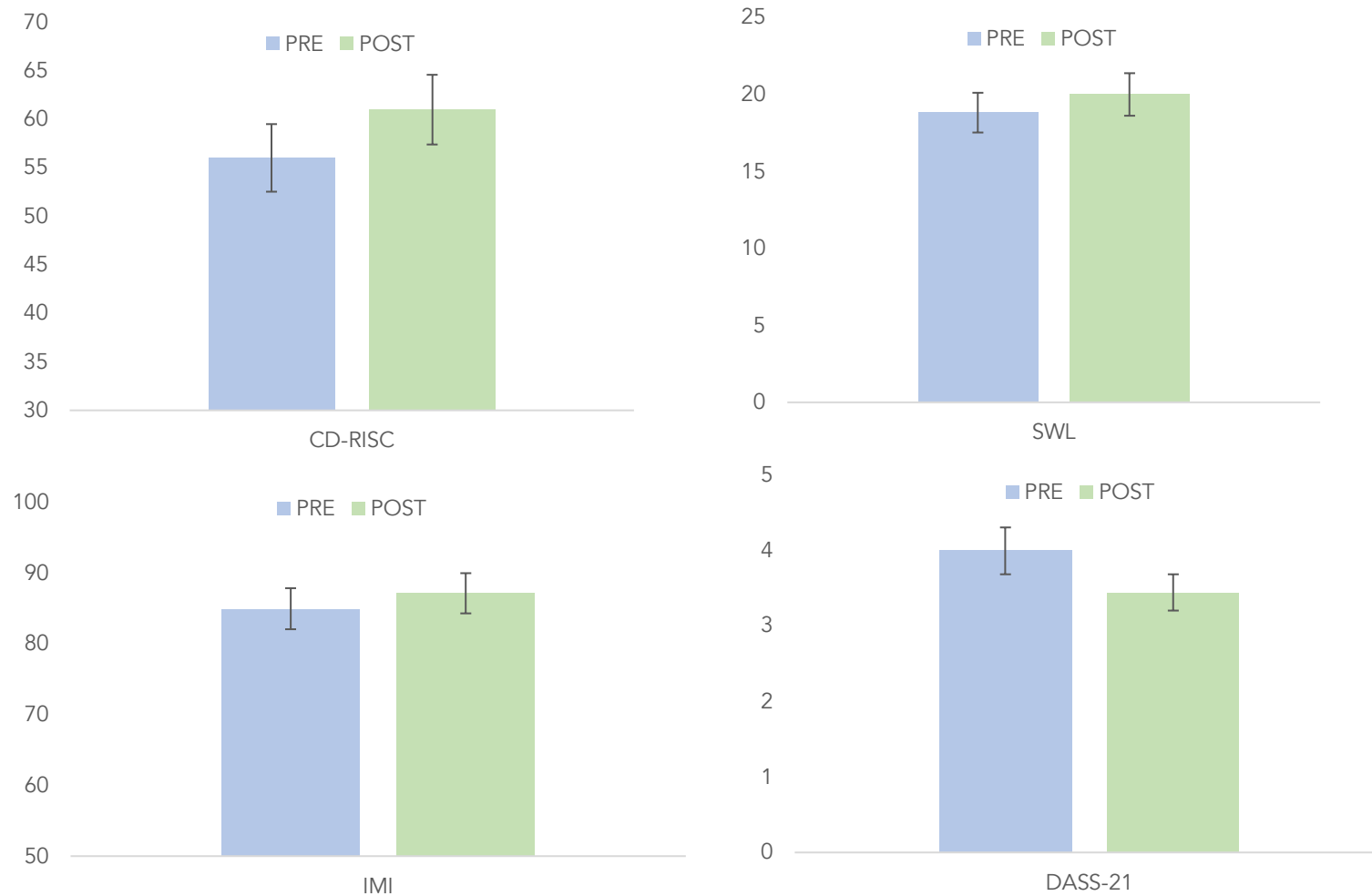


Figure 5.6a – 5.6d: Means displayed for all measures from pre- to post-test (error bars represent  $\pm 1$  standard error from the mean). DASS-21 measure displayed represents the square-root transformed data.

Paired Samples-T-Tests were conducted for all measures to gather effectiveness of the BOOST! intervention. Table 4.2 below displays this T-Test outcome. As shown in Table 4.2, a significant effect across time for the DASS-21 measure ( $t(36) = 2.30, p = .03, d = .26$ ) was observed. Furthermore, an approaching significant effect across time was found for the CD-RISC measure ( $t(28) = 1.83, p = .08, d = .22$ ).

**Table 4.2. Means and Standard Deviation ( $\pm 1$  from the mean) displayed alongside Paired Samples T-Tests output conducted to establish differences across time for each measure.**

	M ( $\pm$ SD)	<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
<b>SWL</b>		1.13	39	.27	.06
Pre	18.80 ( $\pm 8.16$ )				
Post	19.98 ( $\pm 8.72$ )				
<b>IMI</b>		0.85	27	.40	.05
Pre	84.96 ( $\pm 15.34$ )				
Post	87.14 ( $\pm 15.02$ )				
<b>DASS-21 ‡</b>		2.30	36	.03	.26
Pre	3.99 ( $\pm 1.87$ )				
Post	3.44 ( $\pm 1.47$ )				
<b>CD-RISC</b>		1.83	28	.08	.22
Pre	56.00 ( $\pm 18.75$ )				
Post	60.97 ( $\pm 19.31$ )				

Table 4.2: Output from a series of Paired Samples T-Tests conducted to detect differences across time. ‡ = transformed data used in analysis.

#### 5.4. Employment figures post-intervention and evaluation measures

Post-course employment and volunteering figures gathered by the CfW case-workers, found that 10 individuals (25%) had secured successful employment. Examples of employment gained by participants included: Admin Assistant at Gwynedd County Council, Play Group Assistant in a local nursery, Classroom Assistant in a local Primary School and a cleaner at a local hotel; 5 of these positions were full-time. A further 3 individuals (7.5%) were successful up to interview stage,



and 6 individuals (15%) had secured volunteering roles. All individuals attributed their employment or volunteering success to the course.

Below are two case studies (Client A and Client B), who both gained successful employment following the BOOST! course. These case studies were gained from qualitative feedback from the CfW case-workers:

1. Client A: *Client A felt that they were not getting anywhere in their previous searches for work and were despondent for not gaining interviews following applications. They attended the BOOST! course to meet new people and wanted to see where they were going wrong with their applications. They also wanted to gain more confidence in themselves and their abilities. Following their attendance on the course, they have learnt about motivation skills and how to overcome barriers by turning negatives into positives. The BOOST! course gave them the confidence to apply for a job, that previously they had discarded, as they assumed they would be unsuccessful. As they were completing the course, they received the news that the application had been successful. They were totally shocked as they had not worked for 10 years! Following the course, their confidence has increased, which they believe was the key to their success.*
2. Client B: *Client B had struggled for many years with substance addiction. The candidate was long-term unemployed, with a dependant. After working hard to beat their addiction, the individual was keen to explore further ways to improve their life. At the time, working didn't seem like a viable option as they had many complex barriers: childcare, lack of qualifications and experience and low self-esteem. They fully engaged with the BOOST! course, discussing both ways to improve motivation and Growth Mindset. Towards the end of the course, they received news that there was no funding to continue their childcare provisions. Using the tools taught on the course, they approached the nursery who mentioned an available position. Client B was not only successful in gaining the employment, but negotiated for their child to remain in day care. Client B is very proud of their achievements and is now considering completing an IT course to further their qualifications.*

### Discussion

The aforementioned study aimed to test the effect of a 6-week MPPI (BOOST!) on unemployed individuals residing in four Local Authorities in North Wales. The aim of the intervention was to create sustainable change in intrinsic motivation, resilience and wellbeing, increasing individual's re-employment prospects. To do this, a toolkit of interventions was provided which aimed to improve positive mental health behaviours and wellbeing. Results evidenced significant beneficial effects on depression, anxiety and stress, alongside an approaching significant effect on participant's resilience over time. Trend findings for the SWL and IMI measures suggest beneficial effects, but this was not statistically significant. Notwithstanding, 47.5% of individuals gained either employment, volunteering roles or were successful up to interview stage, the success of which all individuals attributed to the course. Case studies also highlight the complex barriers that participant's faced to employment, for example, childcare issues and substance abuse disorders. They also highlight the beneficial effects of particular sessions (i.e. Improving Motivation, Changing Thinking Styles) within the course. Both participants alluded to the benefits in their self-esteem, however, this is impossible to quantify as a measure was not included in this study.

#### 5.5. Possible future research directions

The disparity between the 40% post-course employment and volunteering rate from BOOST! and that evidenced from The Work Programme offered by the UK Government (6.7%), suggests that BOOST! is a viable alternative to traditional job centre courses. The reality for many individuals is that they do face complex barriers to employment and current UK Government courses do not provide sufficient provision to overcome these. In contrast to these courses, which focus solely on job-seeking skill-development, BOOST! provided individuals with a toolkit of interventions which could be implemented in different situations across the life-span. Specifically, these interventions focused on improving positive mental health behaviours, wellbeing, goal achievement and resilience. In contrast to courses provided by the UK Government, BOOST! evidenced some beneficial effects. This highlights the power of interventions which provide tools to increase positive mental health behaviours as a pathway to employment. These beneficial outcomes indicated by BOOST! corroborates

research by Spera et al. (1994) and Proudfoot et al. (1997), which highlights the importance of focusing on higher level skills as a pathway to re-employment. This is further in contrast to traditional courses which place a sole focus on job-skill-development. Future research should place a focus on improving psychological wellbeing, alongside job-skill development as a pathway to re-employment.

A question may arise as to the incorporation of the number of successful volunteering placements gained as a measure of success of the BOOST! course. This is due in-part as volunteering provides no economic benefit to participant's or their community, as they will continue to claim relevant unemployment benefits. However, volunteering improves one's sense of meaning and purpose in life, which are important indicators of psychological wellbeing (Meier & Stutzer, 2008; Ryff & Singer, 2003; Steger, 2012; Martela & Ryan, 2016). Furthermore, those who demonstrate pro-social behaviour are significantly more likely to flourish (Nelson, Layous, & Lyubomirsky, 2016). Also, one of the latent functions identified by Jahoda is a lack of purpose evoked by long-term unemployment, which leads to psychological distress (Paul et al., 2009). A sense of purpose in life is motivational, as one's activities align with one's sense of self, which stimulates further goal achievement and self-regulation (Scheier, Wrosch, & Baum, 2006; McKnight & Kashdan, 2009). This is in-line with the previous definition of intrinsic motivation outlined by SDT in Chapter 1 (see section 1.7), a major proposed outcome of this body of work. Therefore, to provide individuals with a sense of purpose through volunteering, may increase their intrinsic motivation and consequently impetus to job-seek (Vinokur & Schul, 1997) and thus is a valuable outcome measure of success.

Relatedness is described by Relationships Motivation Theory, a sub-theory of SDT, as a fundamental psychological need, and when this is fulfilled an individual will evidence beneficial gains in intrinsic motivation and psychological wellbeing (Deci & Ryan, 2014; for full description see Chapter 2). Furthermore, another factor highlighted by Jahoda as a latent function of employment is social contact (Paul et al., 2009). As BOOST! provided participants with a weekly supportive network, where activities were completed in groups and social bonds were formed, it is hypothesised that the creation of this social network led to the beneficial gains observed at post-test. However, this was not formally encapsulated by the

outcome measures or in qualitative feedback. Future research should include a qualitative component for this to be experimentally explored.

Although sufficient provision was provided by the RCS course leaders to aid participant's comprehension of the questionnaires, anecdotal evidence suggest that this was not sufficient. Due to a lack of self-confidence, some participants did not ask for help when required or when help was provided the participants did not understand the language used in the questionnaires. One of the unique characteristics of this population, and one of their complex barriers to employment, was their lack of formal education, also evidenced in the case studies noted above. These questionnaires were previously chosen as they are validated measures. However, these have previously been validated and implemented in a highly educated university student sample. This disparity between the two populations is therefore an issue for further research conducted in this area which aims to understand the effectiveness of interventions implemented into different populations. This may also be one of the reasons why the SWL and IMI did not evidence beneficial effects, with only approaching significant effects found for the CD-RISC. To the best of our knowledge, there are no tools which are specifically validated in this specific population (i.e. long-term unemployed or NEET), which measure intrinsic motivation, resilience or wellbeing. However, the development of such tools may be now possible due to more widely available, cost-effective methods that are able to quantify wellbeing and the effects of PPIs (Yetton, Revard, Margolis, Lyubomirsky, & Seitz, 2019). Future research should aim to validate a tool which uses simpler language to measure these constructs in this population.

## **5.6. Strengths of the current intervention**

The design of this study has several strengths. Firstly, the research has strong ecological validity as all measures and the course were conducted in a natural setting in participant's home town. The course was also implemented in a setting where a large proportion of the group were familiar, led by RCS staff members who had extensive experience in course leadership.

One strength of the developed intervention is that BOOST! was manualised for the purposes of training. Typically, manualised interventions occur in psychotherapeutic

treatments for mental health disorders, such as CBT (Fairburn, Marcus, & Wilson, 1993; Wells, 2013). In this case, this decision was made to train the course leaders from RCS to deliver future courses, with a PhD researcher available for support when required. This supported long-term impact and longevity of the intervention. Manualised treatments have previously allowed for therapists to make decisions based on large scale statistical data and follow a structured treatment plan which show increased effectiveness when compared to more flexible approaches. Manualised treatments also provide a more cost-effective method of conducting multicomponent interventions and show improved treatment fidelity and client outcomes (Goldstein, Kemp, Leff, & Lockman, 2012). Nonetheless, previous research has emphasised the importance of the generalisability of these programmes across different settings (Kazdin, 2001 as cited in Goldstein et al., 2012). To our knowledge, this is the first manualised MPPI to be implemented in a population of long-term unemployed individuals. As this intervention evidenced beneficial effects for the DASS and CD-RISC measure, it does substantiate research surrounding the possibilities of implementing manualised multicomponent interventions beyond the clinical setting.

### **5.7. Limitations of the current investigation**

Irrespective of the strengths of the intervention, limitations must also be acknowledged to improve intervention fidelity and the development of future iterations of the course. Firstly, this investigation implemented a skill-based MPPI into a population of long-term unemployed individuals to improve their employment prospects. Previous research has suggested that skills-based PPIs can remain enjoyable and effective long after formal training has ceased (Cohn & Frederickson, 2010). However, unfortunately, it was not possible to gain long-term follow-up data due to logistical constraints with the CfW case-workers. Thus, it would be of interest whether behaviours taught throughout the course continued long-term and evidenced endured effects.

As noted in the two case studies above, participants alluded to observed increases in their self-esteem as a consequence of the course. Unfortunately, it is impossible to conclude objectively whether self-esteem did increase over time, as no measure was included in the current study. However, anecdotal evidence and prior experience from the RCS staff who

conducted these courses, suggested that the participants had difficulty to complete the questionnaires currently included. As one of the complex barriers to unemployment and an eligibility criterion for CfW services is a lack of formal qualifications, a decision was made to not include any further measures.

Furthermore, as BOOST! was a multicomponent intervention where participants were measured at pre- and 6-week post-test, it is impossible to conclude which element of the intervention led to the effects observed. The two case studies reported, evidence the value of the 'Improving Motivation' and 'Changing Thinking Styles' sessions. It is of value in future research to gather further qualitative feedback and session by session quantitative feedback to gain a richer insight into course effectiveness. Thus, the decision was made as to not overwhelm participants who are not highly educated. Nonetheless, as the overall aim was to provide a toolkit to increase higher level skills and positive mental health behaviours, the decision to only measure participants at pre- and post-test seems a valuable one.

Moreover, due to logistical and funding constraints the study sample is underpowered. An a-priori power analysis was not conducted as the sample size was stipulated by the funders and the CfW case-workers. However, a post-hoc power analysis was conducted, using the average achieved effect size ( $d = 0.15$ ). To determine significance using an alpha of .05, a sample size of 99 participants was required to gain enough power. In the current investigation 40 individuals were analysed to establish intervention effectiveness, evidencing an underpowered sample. Given that a significant effect was found for the DASS-21 measure, with the other measures evidencing approaching significant or trend findings, it is worthwhile conducting the intervention with a larger group of individuals. This may also explain the very small effect sizes noted in the SWL and IMI measures.

Lastly, attempts were also made to gain a control group to compare the effectiveness of this intervention to standard job-centre practices. However, logistical constraints meant that an adequate control condition was not obtained. It is acknowledged that a matched control course, comparing the current intervention to individuals enrolled onto standard job centre courses, would have enabled tighter experimental control and provide an adequate comparison to BOOST!. However, gaining such rigorous control in organisational research is difficult (Proudfoot, 1996). An adequate placebo control group would resemble either

individuals in the intervention group compared to: (a) those enrolled on standard job centre courses; or (b) those measured on a waiting-list control (6-weeks prior to the intervention). A further alternative is to conduct a longitudinal analysis to capture comparison data when individuals enter the service.

## Conclusion

This investigation has highlighted the pitfalls and possibilities when designing a multicomponent intervention, implemented into a population of unemployed individuals. As previously discussed, this population evidence complex barriers to unemployment, with a lack of formal education being the biggest barrier when aiming to gather effectiveness of such interventions. Nonetheless, BOOST! evidenced beneficial effects on depression, anxiety and stress, an approaching significant effect on resilience and non-significant beneficial trend findings for wellbeing and intrinsic motivation. This highlights the potential benefits of implementing positive psychology interventions in this population. The aim of future research should be to conduct a larger, controlled trial of similar interventions to establish a true image of the possibilities of multicomponent positive psychology intervention into unemployed individuals.

## Chapter 6: General Discussion

The psychological ill-effects associated with presenteeism and unemployment present significant challenges. Primarily, these ill-effects come at inordinate cost to the individuals concerned, their family and friends, to their communities, and also to employers and the UK Government. However, the reported costs associated are often an underestimation. This is due in-part to the non-disclosure of a mental health disorder to an employer, attributable to the associated negative stigma. Moreover, unique measurement challenges are presented when aiming to evaluate the effects of non-productivity in the workplace. Therefore, organisation-wide evidence-based prevention strategies are required to combat the associated psychological ill-effects. Consequently, this thesis was an investigation into the possibilities of using PPIs to combat mental ill-health in the workplace and in a population of long-term unemployed individuals. Specifically, a series of novel positive psychology diary interventions were developed. These were first implemented in Higher Education Students before being administered in a smaller cohort of employees. Lastly, a novel six-week MPPI was implemented in a population of long-term unemployed individuals who resided in four counties in North Wales. Specific implications of each study have been discussed in the relevant chapters (Chapter 2 to 5). Thus, this chapter will summarise the thesis and the wider implications of the work and consider its contribution to relevant literature.

### 6.1. Thesis Summary

A gap in the literature was described in Chapter 1. Firstly, it was noted that findings from the Stay Well in Wales Survey (Sharp et al., 2018) and other public health policies (Public Health Wales, 2015; Welsh Government, 2015), suggest that intervention development which focuses on early-intervention strategies and to improve employee wellbeing is of public interest. In line with this, a need to develop a series of evidence-based early intervention strategies to combat the psychological ill-effects associated with presenteeism and long-term unemployment was identified. PPIs were hypothesised to be the ideal conceptualisation of these strategies, as they are self-administered, allow for population-wide change and require little to no financial input (Chancellor et al., 2015).



Specifically, this thesis focused on the effect of population-wide, manualised and self-administered reflective diary interventions to improve intrinsic motivation, wellbeing and resilience. This approach was selected as it provides a cost-effective method of conducting treatment interventions (Goldstein et al., 2012; Chancellor et al., 2015). In previous research, both positive and negative emotional disclosure has evidenced beneficial effects on wellbeing and depressive symptomology, which endured long-term (Pennebaker & Francis, 1996; Emmons & McCullough, 2003; Seligman et al., 2005). Importantly, the self-administration of these interventions increases the likelihood that individuals will attribute the success to themselves, improving one's internal locus of control, psychological need for autonomy and attributional style. All of which have previously been linked to improvements in wellbeing and decreased depressive symptomology (Ryan & Deci, 2000a; Klonowicz, 2001; MacLeod & Moore, 2002).

Based on the research presented in Chapter 1, Chapter 2 designed and implemented an SDT diary intervention. Specifically, this intervention highlighted daily satisfaction of one's psychological needs for autonomy, competence and relatedness. A particular focus was placed on the improvement of intrinsic motivation and wellbeing as an outcome. This is due to the superior psychological health in the workplace and increased persistence when job-searching, associated with intrinsic motivation gains (Vinokur & Schul, 1997; Trépanier et al., 2013). One of the unique facets of SDT was a suggested organismic dialectical approach. Here, the environment, alongside an individual's proactive requirement to fulfil psychological needs, influences need satisfaction and the amount and the quality of intrinsic motivation gained as a consequence (Deci, et al., 1994). It was hypothesised in Chapter 2, that reflection on psychological need fulfilment via a daily journaling intervention would create the ideal environment to allow for need satisfaction. Consequently, it was hypothesised that this should lead to beneficial effects on intrinsic motivation and wellbeing. However, over two studies, no beneficial effects were observed. This suggests that an explicit focus on satisfaction of these needs does not create the necessary social context to facilitate need fulfilment and therefore its associated benefits.

A primary focus of Chapter 2 was a positive reflection journaling intervention, which evidenced no significant beneficial findings. In contrast to this, negative emotional

disclosure has also shown paradoxical effects on wellbeing and resilience. One method to do this is the EWP, where individuals are encouraged to “let go” and describe an emotionally traumatic event for 90 minutes over a number of days (Pennebaker & Francis, 1996). In Chapter 3, Study 2a, it was of interest whether this time-intensive and emotionally draining practice could be implemented into a light-touch diary, which focused on overcoming daily negative events. Therefore, this study developed a journaling intervention which focused on anxiety provoking instances that occurred throughout the day. However, no significant beneficial effects were found. This is contradictory to previous findings which have displayed the value of the EWP to reduce psychological distress and improve wellbeing (Mackenzie, Wiprzycka, Hasher, & Goldstein, 2007; Sbarra, Boals, Mason, Larson, & Mehl, 2013). One hypothesis for these null findings was that the diary intervention was too restrictive and did not allow for a cathartic expression of the negative emotions associated with the traumatic event. This is pivotal, as this has previously been evidenced as a mediator of the EWP (Rude, et al., 2004; Gortner, et al., 2006).

Previous research has found that anxiety and excitement are arousal congruent (i.e. high arousal), but are cognitively incongruent states (positive & negative; Schachter & Singer, 1962). However, ordinarily an anxiety reduction strategy is to improve calmness, which are both arousal and cognitively incongruent. This means that this strategy is often ineffective and in-fact may increase anxiety (Schachter & Singer, 1962; Wood Brooks, 2013). Unlike reappraising anxiety as calmness, which requires both a physiological shift (i.e. high arousal to low arousal) and a cognitive shift (i.e. positive to negative), reappraising anxiety as excitement requires only a cognitive alteration (Schachter & Singer, 1962; Brooks Wood 2014). As Study 2a had evidenced some detrimental and non-significant findings on wellbeing, Study 2b aimed to alter the emphasis of the Anxiety Diary onto exciting events. After participants had engaged with this diary for one-week, beneficial short-term effects on intrinsic motivation and motivational persistence were evidenced. This successful diary was then implemented into a small cohort of employees in North Wales (Study 2c), which evidenced a significant effect on resilience. This study highlighted the possibilities of positive reflective practice in the workplace.

As no significant beneficial population-wide effects were found in Study 2a and beneficial effects were not enduring in Study 2b, which was contradictory to previous research, it was of interest post-hoc whether individual differences could be masking any real effects. Frequency plots revealed a bimodal distribution for participant's resilience in both studies. This resilience then significantly affected motivational persistence displayed by participants. Specifically, those who evidenced higher resilience also displayed significantly increased motivational persistence and vice versa. This substantiates previous research that individual differences exist between cognitive regulation strategies to manage goal expectations (Norem & Chang, 2002; Norem & Illingsworth, 2004; Sanna, et al., 2006; Norem, 2008).

The previous inaugural investigation, presented in Chapter 1, which evidenced the value of the 3 Good Things Diary, displayed significant beneficial enduring effects on wellbeing and depressive symptomology. However, these enduring effects have not been duplicated thus far in this body of work. Furthermore, some beneficial placebo control effects have been evidenced throughout this thesis. Therefore, it was of interest in Study 3 to disentangle the mechanisms of the 3 Good Things Diary. In the inaugural investigation, the two mechanisms at play which contributed to the beneficial effects were positive thinking (*i.e. focusing on positive events*) and the causal nature of the event (*i.e. development of an internal locus of control*). Thus, Study 3, separated these underlying mechanisms and participants were encouraged to focus on either positive events or the causal nature of the event for one-week. Analysis for this study revealed no significant time by condition interactions. As null effects were noted, this suggests that it is the unique combination of the two mechanisms that causes the beneficial effects, which previous research has evidenced endure long-term (Seligman et al., 2005).

In the previous chapters, the value of both positive and negative emotional disclosure, improving one's locus of control, and the beneficial effects of improving intrinsic motivation and resilience have been separately presented and experimentally explored. These investigations have evidenced some mixed effects. As a wealth of previous research has displayed the beneficial separate and collective effects, Chapter 5 aimed to implement a MPPI which experimentally explored these constructs. BOOST! was a 2-day a week, 6-week

course which focused on improving these as a pathway to re-employment. Participants were long-term unemployed individuals who resided in four counties in North Wales. A total of 40 individuals participated in the intervention, and no individual reported significant distress. Following engagement with the course, individuals significantly increased in resilience and beneficial trend findings on depression, anxiety and stress were also noted. In fact, 40% of individuals successfully gained employment or volunteering roles as a consequence. The success of which all participants attributed to the intervention. As the singular exploration of these interventions produced mixed effects, compared to the beneficial effects evidenced in the multi-component BOOST! intervention, this calls into question the implementation practices of PPIs. When compared to the previous investigations in this thesis, it questions the use of single component PPIs and suggests that it is the multicomponent nature of the course that produced these effects. The disparity between the post-course employment figures from BOOST! and traditional work courses offered by the UK Government and the beneficial effects noted on self-report measures, suggests that BOOST! is a viable alternative to traditional job centre courses.

Although the studies in this body of work evidenced mixed effects, this has highlighted the possibilities of light-touch PPIs in these populations. To the best of our knowledge, this was the first comprehensive investigation into novel diary interventions and a MPPI to combat psychological ill-health in these populations simultaneously. The following chapter (Chapter 6) will discuss the potential contribution of studies to positive psychology literature, theory and public health policy. In addition to discussing the strengths and limitations of this body of work. Future research directions will then be outlined, before concluding the thesis.

## **6.2. Theoretical contributions**

As identified in Chapter 1, a plethora of research has highlighted that assorted diary interventions have evidenced beneficial and enduring wellbeing gains (Burton & King, 2004, Emmons & McCullough, 2003; Seligman et al., 2005; Reiter & Wilz, 2015). One example of these journaling interventions is the 3 Good Things diary, where participants documented 3 Good Things from their day and their causal attributions over the course of a week. This

simple intervention then led to endured effects in wellbeing and depressive symptomology being observed at 6-month follow-up (Seligman et al., 2005). Due to these profound effects, these diary interventions were hypothesised to be the ideal conceptualisation of the environmental influences which can alter an individual's wellbeing. These were then experimentally explored in this body of work. This thesis demonstrated some beneficial effects for such strategies. However, due to the mixed effects evidenced, the intricacies of such interventions require further study, which will be further discussed in this chapter. Nevertheless, the findings from this thesis substantiate that further research into these interventions is warranted.

This series of studies can be classified as Mental Health Promotion Strategies. These are defined when programs: (1) offer an updated way of thinking about mental health; (2) provide additional methods to describe the full spectrum of mental health to lessen the stigma associated with mental illness; and (3) are evidence-based interventions that enhance positive mental health (Kobau et al., 2011). Accordingly, the studies in this body of work are: (1) grounded in Positive Psychology theory, and evidence-based, (2) focused on positive and negative emotions, therefore account for the spectrum of emotions incorporated within the definition of mental health and (3) population-wide approaches, and are not perceived as 'mental health activities' which have previously evidenced high attrition (Millea et al., 2007). Importantly, there is value to studying mental health promotion strategies as this offers a greater synthesis between positive psychology and public health research, which may help to promote positive mental health in innovative ways (Kobau et al., 2011). For example, policy initiatives that support the integration of evidence-based positive mental health promotion activities into community settings is warranted to improve population health (Herman et al., 2005; Friedli, 2009). This need was also highlighted in Chapter 1.

To improve health promotion behaviours, previous research has evidenced the benefits of the creation of Keystone Habits (Duhigg, 2012; Rothman et al., 2015). In reference to this body of work, the health promotion behaviour is engagement with a potentially beneficial daily reflective diary. Specifically, habits are created when there is an environmental cue, repetition of the target behaviour, and a reward (Duhigg, 2012; Wood & R  nger, 2016). In this case, daily positive reflective practices substitute old rumination cycles,

a previously noted end-of-day habit of working individuals (Syrek, et al., 2017). In Chapters 2, 3 and 4, the previously implemented online data capture tool, was replaced with a paper version of the diary and a track-card. This decision was made as inadequate long-term compliance was observed in Studies 1a and 2a. Also, a paper version would increase the longevity of a potentially beneficial intervention. It was hoped that the track-card would serve as an environmental cue to engage with the diary and the completion and framing of the track-card would function as the reward (see Figure 2.1, 3.4 & 4.2). Thereby creating a habit and breaking daily rumination cycles. Nevertheless, in the respective studies, the track-cards evidenced high compliance from pre- to post-test, which was comparable to the previously noted statistics for the online tool. As marginal increases in long-term compliance were also observed, this substantiates literature regarding habit formation. However, in this study, it could be argued that a new habit was not created as substantial increases in long-term compliance were not observed. This is consistent with literature which reports that the persistence of unhealthy habits often undermines efforts to perform a new behaviour (Rothman et al., 2015). To remove these unhealthy habits, it is of paramount importance to implement the most suitable reward structures alongside the correct potency and saliency of the environmental cue (Judah, et al., 2012). These studies suggest that a track-card is not as potent an environmental cue as first expected.

To increase the likelihood that behaviours will become habitual, it is of vital importance that these behaviours become effortless. In Chapter 2, it was hypothesised that the enduring effects of the inaugural 3 Good Things intervention were driven by the simplicity of the diary. Specifically, this simplicity meant that practice effects were observed and the recall of positive episodes occurred more readily in participants post-intervention. Over time, this led to the creation of a positive thinking habit and an altered, more beneficial thinking style and the endured wellbeing gains noted in the original study. This hypothesis is reinforced by the null findings evidenced in Chapter 2, which demonstrate that explicit focus on one's psychological needs alongside positive events does not lead to wellbeing gains. Specifically, it can be inferred that the explicit and effortful focus on basic psychological needs did not induce a newly developed habit, leading to the null effects evidenced on wellbeing and intrinsic motivation. As it was hypothesised that simplicity was

driving the effects observed in the Seligman study, when designing the diary interventions in this body of work, a key criterion was that the diaries were designed to be simple. Thus, mnemonics were added to the track-cards, which created an environmental cue and it was hoped that this would increase the readiness of the creation of this positive memory bias. However, between Studies 1a and 2a and 1b and 2b, where the diary was altered from an on-line system to a paper diary, no significant increases in long-term compliance were noted. Alongside the null effects evidenced in this study, this suggests that this was ineffective and the diary did not alter an individual's thinking style. The non-significant findings from Chapter 4, also call into question the singular driving mechanism behind Seligman's inaugural finding. It seems that in the investigation of the inaugural 3 Good Things Diary, it was the combination of placing a focus on positive events and their causal attributions, alongside the simplicity of the intervention which drove the enduring effects. This substantiates research into attributional style and habit formation. Specifically, the ability to create an implicit habit drives this altered more positive thinking style. This then led to the endured wellbeing gains observed in the original study. As suggested in Chapter 2, one of the more fruitful ways to decipher the underlying mechanism would be to conduct a thematic analysis on the diary entries to explore the underlying mechanisms. As this is important to understand how future diary studies could be optimised, future research should continue study to disentangle these mechanisms. The exploration of the singular underlying mechanism of the diary which drives these endured effects is of value to decipher optimal design strategies for future diary interventions.

As identified in Chapter 1, currently, a debate exists in Positive Psychology as to the proportion of wellbeing gains that are heritable versus that which are due to the environment. Prior research by Lyubomirsky and colleagues (Lyubomirsky, Sheldon et al., 2005), suggests that the percentage of wellbeing gains that are malleable is roughly 40%. This figure is corroborated (at 47%) by more recent research which indicates the genetic aetiology of eudaimonic and hedonic wellbeing (Baselman & Bartels, 2019). As identified in Chapter 1, this suggests that a significant proportion of wellbeing can be altered by environmental influences. However, due to the proportion of wellbeing that appears to be heritable, a debate currently exists which gives rise to skepticisms as to the feasibility of

achieving sustainable gains in happiness (Diener, Suh, Lucas & Smith, 1999; Lyubomirsky, Sheldon et al., 2005; Baselman & Bartels, 2019). Specifically, this line of enquiry suggests that when positive events occur, this affords a temporary boost in subjective wellbeing. However, due to the genetic stability of wellbeing, this boost is transient and it eventually returns to a set-point (Lucas et al., 2003; Diener et al., 2006). This has previously been termed the 'Hedonic Treadmill' (Brickman et al., 1978). The transient nature of the experienced positive emotion further reinforces the value of the creation of future implicit positive memory biases, to increase the readiness and frequency of these positive emotion boosts. Nevertheless, although knowledge about genetics and the heritability of wellbeing is crucial to understanding the significance of environmental factors, it is important to note that one's genetic inheritance does not limit one's chance of happiness (Bang Nes, 2010).

To overcome the Hedonic Treadmill, the Sustainable Happiness Model postulates that variety is a key moderator to improve happiness (Sheldon, Boehm, & Lyubomirsky, 2013). Also, according to the Hedonic Adaption Model, this variety of interventions should also reduce the effects of the Hedonic Treadmill (Sheldon, et al., 2013). For example, Schueller and Parks (2012) obtained sizeable benefits when two or four positive activities were implemented simultaneously. One example of these interventions which offer variety is an integrative program. Here, individual exercises are combined into longer, more involved intervention packages, which have also evidenced beneficial gains in positive emotion and decreases in depressive symptomology, which endure at 1-year follow-up (Seligman et al., 2006; Schueller & Parks, 2012). The Promoting Adult Resiliency Program and Positive Psychotherapy, previously introduced in Chapter 1, are examples of these (Milleer et al., 2007; Seligman et al., 2006; Schueller & Parks, 2012).

Baselman and Bartels (2018) call for a systems approach to the factors that improve wellbeing. Importantly, they suggest that the environment, alongside genetic factors and other individualistic characteristics predict one's level of wellbeing. This suggests that a holistic approach to the influences on wellbeing is required, as placing focus in research on one environmental influence is reductionist. This reductionist approach is also not reflective of the real world as many influences exist in the environment which will predict one's wellbeing (Parks, et al., 2012). An example of a multi-component behavioural intervention



that has proven effective is the Food Dudes programme. The aim of this programme is to increase food and vegetable consumption in primary school-aged children. To do this, instructors use peer modelling, rewards and repeated exposure to the target foods to increase consumption. Importantly within the context of this thesis, although the single component interventions have proven their efficacy in previous research, the multicomponent aspect of the programme has proven most effective (Lowe, Dowey, & Horne, 1998; Horne, Greenhalgh, Erjavec, et al., 2011). This corroborates findings from Chapter 5 of this thesis. In comparison to the single component interventions examined in Chapters 2, 3 and 4, when a MPPI was implemented in Chapter 5, beneficial effects on depression, anxiety, stress and resilience were noted. In light of the conclusions drawn from this body of work and previous meta-analytic findings, it might be that the most effective method to improve happiness is to combine techniques from previously validated interventions into a package. This disputes the sole use of single component PPIs and suggests that a holistic approach is more effective than a single pronged intervention. These lengthier intervention packages with several integrated techniques also typically report larger effect sizes. However, the small effect sizes displayed in Chapter 5, contradicts these previous larger effect sizes noted in research (Millear et al., 2007; Seligman et al., 2006; Schueller & Parks, 2012). Nevertheless, a post-hoc power analysis suggests that the study was underpowered. This may have driven the small effect sizes noted and the null effects on the SWL and IMI. In spite of this, as significant but small effects were noted in the other measures for an underpowered sample, future research should endeavour to conduct a larger scale meta-analyses of the potential of such interventions.

When intervention studies are conducted on monozygotic twins, although genetic and environmental variance between the twins remained high, a proportion of unexplained variance persisted post-intervention (Haworth, Nelson, Layous, Carter, Bao, Lyubomirsky, & Plomin, 2016). Personality traits could explain a proportion of this variance. For example, recent research has suggested that manipulating extraversion increases wellbeing in participants (Margolis & Lyubomirsky, 2019). This research and the findings evidenced in this thesis suggest that individualistic reactions occur as a response to PPIs. Chapter 3 evidenced the existence of individual differences, specifically in response to high arousal emotional

states. This confirmed the existence of individual differences when investigating self-regulation strategies to goal achievement. The specific self-regulation strategies have been previously discussed in Chapter 3. Importantly, individual differences were present in displayed resilience as a response to reflecting on either anxiety provoking or exciting events. Specifically, those who displayed the largest increase from pre- to post-test resilience also evidenced significantly increased motivational persistence over time; those who decreased reported the opposite. In Chapter 3, it was hypothesised that one explanation for these findings was that participant's optimal goal achievement strategy was not utilised. Importantly, the use of these goal achievement strategies lead to participants either harnessing the diary to produce greater motivational persistence or displaying detrimental effects on resilience and motivational persistence as a consequence of the diary. Evidence from Study 1 also suggests that those with the greatest positive affect at baseline were more likely to continue with the intervention. This finding corroborates some previous research. For example, Sin and colleagues (Sin, Della-Porta, & Lyubomirsky, 2011) indicate that moderately depressed individuals have motivational deficits that prevent them from fully engaging in PPIs. Consequentially, these individuals benefit more from pleasant activities rather than reflective ones. However, Carter and colleagues (Carter et al., 2016) evidenced that children with the lowest baseline affect scores, benefit the most from a positive thinking diary, which has also been replicated with a gratitude intervention (Froh, Kashdan, Ozimkowski, & Miller, 2009). These findings suggest that, although moderately depressed individuals have motivational deficits which preclude their engagement with PPIs, they have the most to gain. Therefore, there is value in further investigating these affect differences to mitigate the detrimental effects of PPIs.

The presence of individual differences can be partially explained by the Person-Activity Fit model. This model depicts the mechanisms that underlie the success of the intervention and the individual features that render a PPI to be optimally effective. Most importantly within the context of this thesis, this model suggests that it is the fit between the person (i.e. personality and cultural variables) and the activity (i.e. dosage) that leads to intervention success (Lyubomirsky & Layous, 2013). For example, Westerners have greater wellbeing gains from gratitude interventions than individuals from Eastern cultures (Boehm,

Lyubomirsky, & Sheldon, 2011). Moreover, introverts are likely to benefit more from a reflective activity than a social activity (Lyubomirsky, 2008; Lyubomirsky, Sheldon et al., 2005). Lastly, gender differences also exist between the Random Acts of Kindness, Gratitude and Savouring Life's Joys intervention (Thompson, Peura, & Gayton, 2015). Chapter 3, substantiates these findings particularly when participants are required to reflect on high arousal emotions. Specifically, the bimodal distributions evidenced in Study 2 suggest that when the person and the activity do not fit then detrimental effects on motivational persistence and resilience occur.

Evidence from the Person-Activity Fit Model, also suggests that dosage (i.e. frequency and timing) and social support are significant mediators of the effectiveness of a PPI. For example, those who performed five random acts of kindness in one day each week for 6 weeks, compared to those who performed five acts throughout the week were more likely to evidence greater gains in wellbeing. These findings suggest that engaging in PPIs once a week seems to be maximally optimal for intervention effectiveness. This may be due in-part as many cultural routines occur once a week (Layous & Lyubomirsky, 2013) or due to the hedonic spike in positive emotion gained as a consequence. Moreover, social support is a significant mediator in the effectiveness of positive activities. As suggested in Chapter 2, autonomy support significantly affects the improvements in happiness noted as a response to positive activities (Della Porta et al., 2012). This is also in-line with Relationships Motivation Theory, a sub-theory of SDT, where relatedness is said to be an integral part of eudaimonic wellbeing gains (Vansteenkiste et al., 2010). The beneficial effects noted in Chapter 5, compared to previous studies in this body of work, may be explained by the integrated social support and weekly sessions on the course.

These individual differences and the lack of person-intervention fit may also explain the low mean effect sizes previously evidenced for self-administered PPIs (Sin et al., 2009; Boiler et al., 2013; White et al., 2019). These meta-analytic findings previously suggested that either this methodology has limited potential, or that previous self-administered PPIs were not optimised for study. These small but significant effects have also been replicated in this body of work. Findings from this thesis suggest that the small effect sizes noted in meta-analytic findings are due to a lack of optimisation of the methodology of these interventions.

Specifically, these small but significant findings may be that previous iterations of diary intervention study have not fully taken into account individual differences as a significant mediator of intervention effectiveness. This calls into question the current population-wide approach utilised within the previous two waves of Positive Psychology.

The Person-Activity Fit Model has begun to reveal the conditions under which the intervention and any individual differences affect intervention efficacy. However, the presence of conflicting findings and gaps in empirical evidence, alongside the findings from this thesis, reveal that little is still known about the function of PPIs and the individual processes that boost wellbeing. This is due in-part as individual differences have not yet been holistically explored, alongside the genetic and environmental factors that lead to gains in wellbeing in research. Thus, although previous research in positive psychology has made significant and valuable headway in the development of population-wide approaches, future research aiming to evolve the study of PPIs should consider a targeted approach to implementation. An individual's baseline motivation, affect, personality and emotional self-regulation strategy evidenced in previous research and in this thesis, all seem to provide a basis for future research. Therefore, more research is needed to determine the mediating role of these factors on wellbeing gains. These findings also suggest that although there is value in the population-wide approach utilised in the previous two waves of positive psychology study, a future more nuanced approach is required. Specifically, these findings suggest that implementation of PPIs population-wide is not the universally optimal strategy as first thought. The findings from this thesis and others suggest that The Third Wave of Positive Psychology research should focus study on targeting individual and group characteristics to improve the effectiveness of such interventions. Specifically, gaps remain in our understanding of how sociodemographic variables, culture, dosage, baseline affect and motivation effect the efficacy of PPIs. This calls for an individualised approach to the design of future PPIs. To do this, historical data could be meta-analysed and a confirmatory factor analysis conducted to optimise future PPI development. As evidenced in Chapter 3, the benefits of such a proposal is that an individualised approach would mitigate any potential negative effects of such interventions, improving future intervention efficacy.

### 6.3. Strengths

The design of this thesis has several strengths. Firstly, participants were given course credit for completing diaries in Chapters 2, 3 and 4. In studies 1a and 2a, the decision was made to 'track' participant's engagement using an on-line tool, which evidenced high compliance. Whereas in studies 1b, 2b and 3, due to a concern that participants were not engaging beyond the post-test session, this was refashioned into a paper diary and track-card. Nevertheless, the high compliance rate was still observed. Due to the nature of the participation platform, participants could not be penalised for the number (or lack thereof) diaries they completed, if they attended all testing sessions. At all sessions, this was made explicitly clear to participants. This implies that the number of diaries completed, as evidenced by the track-cards is genuine. The high compliance statistics noted in all diary studies is also reinforced in studies 1a and 2a, where compliance was captured by an objective online tool. Further adding to the legitimacy of the compliance statistic. This seems a valuable conclusion given an increase in the technical proficiency of the population and increased access to internet-enabled technologies (Office for National Statistics, 2018a). Also, given the ease of which interventions can be distributed via an on-line platform, this seems a worthwhile conclusion when developing light-touch early-intervention strategies.

Secondly, in all studies, there were no personal identifiers on any materials and questionnaires were only referred to by a unique ID code. This was in accordance with the methodology proposed by the EWP (Pennebaker & Beall, 1986; Pennebaker & Francis, 1996), where participants are encouraged to "let go" and freely express themselves. It was hoped that this would increase the personability of all materials, allowing participants to freely express themselves, reducing the possibility for social desirability bias.

To increase the ecological validity of this investigation, all interventions were conducted in a participants' home or in an environment that participants were familiar with. Alongside this, the multicomponent intervention in Chapter 5 was implemented (course 2 to 6) and participated (course 1) by RCS staff, who had a wealth of experience conducting such interventions. The willingness of the RCS staff to deliver the programme is also evident as all aspects of the programme were delivered. The location of the courses was also considered; BOOST! was conducted in locations where participants were familiar as a majority of

participants had previously engaged with courses led by RCS. Furthermore, the diary studies implemented in Chapters 2, 3, and 4 were completed in the participant's home and were designed to fit within their normal routine. Participants also had volition over the time of day they completed the diary (*e.g. when home from work or before going to bed*).

#### 6.4. Limitations.

Irrespective of thesis strengths, limitations must also be acknowledged to inform future studies.

Previous work by Layous, Lyubomirsky and colleagues has evidenced that those who effortfully engage, are motivated to become happier and believe their efforts will pay off (Layous, et al., 2011; Lyubomirsky, Dickerhoof, et al., 2011; Layous, Lee et al., 2012; Layous, Nelson, et al., 2012) are more likely to benefit from PPIs. In these investigations, interventions were implemented on large student populations who engaged in the study for course credit. Alongside this, participants in BOOST! were completing the course for their benefit contributions. As participants did not engage in research for the inherent enjoyment or impetus to increase their wellbeing, it could be argued that the null effects observed are due to the extrinsic rewards (*i.e. course credit*) gained for completion of the study. This is reinforced by Ryan, Deci and colleagues (Ryan, 1982; Ryan & Connell, 1989; Ryan & Deci, 2000b), who suggest that extrinsic rewards undermine intrinsic motivation. However, this population was selected as a challenge remains for organisational psychology researchers to gather effective control groups and required sample sizes to test the effectiveness of PPIs in the workplace (Proudfoot, 1996). This is reinforced by the small sample size ( $n = 26$ ) and the high attrition ( $n = 21$ ) noted in Study 2c. Further, previous meta-analytic findings have noted sample biases created when utilising small sample sizes in positive psychology research (Boiler et al., 2013; White et al., 2019). It is acknowledged that the 'gold standard' to establish the effectiveness of interventions and develop new treatments to combat workplace ill-health would be to conduct a large sample Randomised Controlled Trial in the workplace (Kabisch, Ruckes, Seibert-Grafe, & Blettner, 2011; Bhide, Shah, Acharay, 2018). However, due to challenges that remain to gather required sample sizes, it is a challenge to organisational psychology researchers to conduct such trials in workplaces (Proudfoot, 1996).

This is particularly relevant in North Wales, where 94% of businesses are micro-businesses and employ less than 9 individuals (Statistics Wales, 2018). Due to this, the decision was made to first administer these interventions in larger student populations, before utilising beneficial interventions into smaller cohorts of employers. Nonetheless, it is acknowledged that this population choice may have driven the null effects observed in some chapters, due to the contingent reward. However, all diary studies in this thesis were conducted having performed an a-priori power analysis. In accordance with these power analyses, the diary studies conducted are of adequate power to pilot PPIs. Small effect sizes are also observed as per previous meta-analyses (Sin & Lyubomirsky, 2009; Boiler et al., 2013; White et al., 2019). Therefore, conclusions drawn are seemingly valid in these populations.

## Conclusion

This body of work aimed to develop and implement a series of light-touch PPIs into three populations (employees, long-term unemployed and higher education students). These were unique investigations, incorporating positive psychology theory into diary interventions, alongside a novel multicomponent intervention. Population-wide null effects were observed when single component PPIs were implemented. This is contrary to the beneficial effects evidenced when these interventions were integrated into a multicomponent program. Nevertheless, individual differences were observed in the single component investigations, which may explain these null effects. These were particularly evident when participants were required to reflect on high arousal emotions. This suggests the presence of individual differences in the self-regulation goal achievement strategies utilised, that either enhance or hinder resilience and motivational persistence as a consequence. Research calls for a more holistic approach to positive psychological study, which accounts for environmental influences, genetics and individual differences. Findings from this body of work call for the Third Wave of Positive Psychology to provide a more nuanced approach to study and this thesis provides some preliminary findings in this line of enquiry. These findings have important ramifications for the future development of interventions and mental health promotion strategies. Specifically, an individualised approach (where intervention type is mapped with personality) of multicomponent exercises

could provide a powerful means to promote resilience and flourishing in different individuals and populations.



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## Appendices

Chapter 2			
<b>Study 1a</b>	<i>Appendix</i>	1.1	Self-Determined Needs Diary
		1.2	Three Events Diary
		1.3	Demographic Questionnaire
		1.4	Basic Psychological Needs Scale (BPNS)
		1.5	Intrinsic Motivation Inventory (IMI)
		1.6	Scale of Positive and Negative Experience
		1.7	Satisfaction with Life Scale (SWL)
		1.8	Depression, Anxiety and Stress Scale (DASS-21)
		1.9	Motivational Persistence Scale (MP)
		1.10	Information Sheet
		1.11	Consent Form
		1.12	Email containing the link to the on-line diary and instructions for participants.
		1.13	On-line debrief sheet
		1.14	Independent Samples T-Tests conducted to test for differences at baseline between those who completed the study vs. those who dropped out.
		1.15	Z-scores shown for all measures (pre-, post-test and follow-up)
		1.16	Output from a series of Independent Samples T-Tests conducted to test for baseline differences.
		1.17	Mixed Measures ANOVAs conducted when participants who completed $\leq 3$ were removed.
<b>Study 1b</b>		1.18	Self-Determined Needs Diary
		1.19	First Three Things Diary
		1.20	Pre-test Demographic Questionnaire
		1.21	Post-test Demographic Questionnaire
		1.22	Basic Psychological Need Satisfaction and Frustration Scale
		1.23	Full demographic information for participants
		1.24	Independent Samples T-Test conducted to decipher differences at baseline between those who completed vs. those who dropped out of the study
		1.25	Mixed Measures ANOVAs conducted when individuals who completed $\leq 3$ diaries were removed from analysis
		1.26	Output from a series of Independent Samples T-Tests conducted to test for baseline differences.

		1.27	z-scores for all measures at the three time-points (pre-, post-test and follow-up)
<b>Chapter 3</b>			
<b>Study 2a</b>	<i>Appendix</i>	2.1	Anxiety Diary
		2.2	Connor Davidson Resilience Scale (CD-RISC)
		2.3	Information Sheet
		2.4	Consent Form
		2.5	Online Debrief
		2.6	Independent samples t-test conducted to decipher differences at baseline between those who completed the study and those who dropped out.
		2.7	z-scores shown for all measures at all time-points (pre-, post-test & follow-up).
		2.8	Output from a series of Independent Samples T-Tests conducted test for baseline differences
		2.9	Mixed Measures ANOVAs conducted when individuals who completed $\leq 3$ diaries were removed from analysis
<b>Study 2b</b>		2.10	Excitement Diary
		2.11	Email containing the link to the on-line diary and instructions for participants.
		2.12	Pre-test demographic information
		2.13	Independent t-test conducted to decipher differences at baseline between those who completed the study vs. those who dropped out
		2.14	z-scores displayed for all measures (pre-, post-test & follow-up).
		2.15	Output from a series of Independent Samples T-tests conducted to test for baseline differences
<b>Study 2c</b>		2.16	The general IMI scale
		2.17	Output from a series of Independent Samples T-tests conducted to test for baseline differences.
		2.18	z-scores displayed for all measures (pre-, post-test & follow-up).



Chapter 4			
Study 3	Appendix	3.1	Locus of Control (LOC) Diary
		3.2	Positive Events (PE) Diary
		3.3	Sleep Diary
		3.4	Follow-up demographic questionnaire
		3.5	Center for Epidemiological Studies-Depression Scale (CES-D).
		3.6	Spheres of Control (SOC-3) scale
		3.7	Information Sheet
		3.8	Consent form
		3.9	Debrief sheet
		3.10	Demographic information for all participants
		3.11	Independent samples t-test conducted to decipher differences at baseline between those who completed the study and those who dropped out.
		3.12	z-scores shown for all measures at all time-points (pre-, post-test & follow-up).
		3.13	Output from a series of Independent Samples T-Tests conducted test for baseline differences
Chapter 5			
Study 4	Appendix	4.1	<b>Information Sheet</b>
		4.2	<b>Consent Form</b>
		4.3	<b>Improving Motivation (Week 1)</b>
		A	Session plan for course leaders
		B	Week 1 PowerPoint presentation
		C	SDT quiz
		D	BOOST! cards
		4.4	<b>Changing Thinking Styles (Week 2)</b>
		A	Session plan for course leaders
		B	Week 2 PowerPoint presentation
		C	Mindtraps worksheet
		D	Homework task
		E	BOOST! cards
		4.5	<b>Using Signature Strengths (Week 3)</b>
		A	Session plan for Course Leaders
		B	Week 3 PowerPoint presentation
		C	‘Strengths Box’ template
		D	Homework Task
		E	BOOST! cards

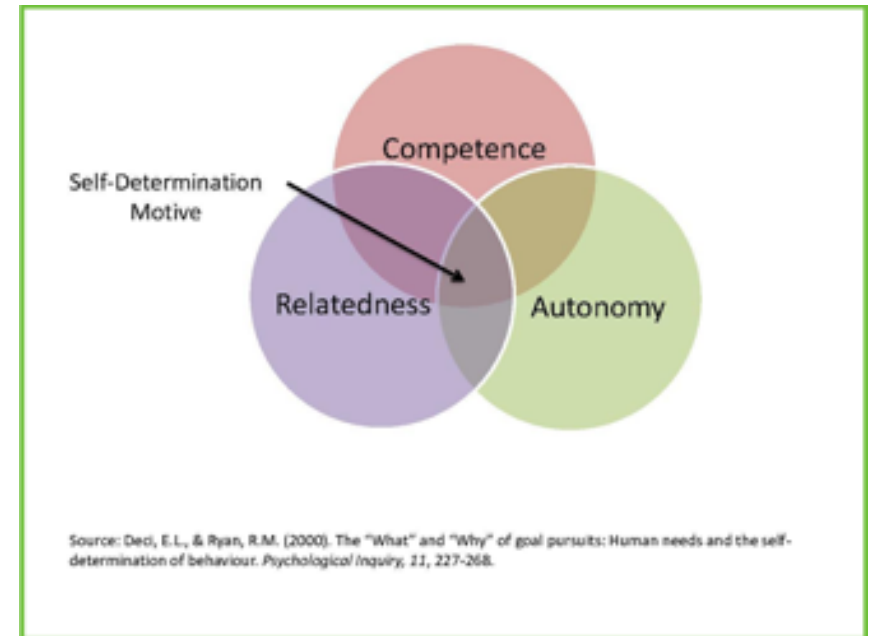
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<b>4.6</b>	<b><i>Improving Resilience (Week 4)</i></b>
A	Session plan for Course Leaders
B	Week 4 PowerPoint presentation
C	Worksheet 1
D	Worksheet 2
E	Homework Task
F	BOOST! cards
<b>4.7</b>	<b><i>Goal-Setting (Week 5)</i></b>
A	Session plan for Course Leaders
B	Week 5 PowerPoint presentation
C	Value Wheel
D	In-session worksheet
E	Micro-resilience worksheet
F	BOOST! cards
<b>4.8</b>	<b><i>Self-Compassion (Week 6)</i></b>
A	Session plan for Course Leaders
B	PowerPoint presentation
C	In-session worksheet
D	BOOST! cards
<b>4.9</b>	<i>z-scores for each measure</i>

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Chapter 2			Pg.
<b>Study 1a</b>	<i>Appendix</i>	1.1	Self-Determined Needs Diary
		1.2	Three Events Diary
		1.3	Demographic Questionnaire
		1.4	Basic Psychological Needs Scale (BPNS)
		1.5	Intrinsic Motivation Inventory (IMI)
		1.6	Scale of Positive and Negative Experience
		1.7	Satisfaction with Life Scale (SWL)
		1.8	Depression, Anxiety and Stress Scale (DASS-21)
		1.9	Motivational Persistence Scale (MP)
		1.10	Information Sheet
		1.11	Consent Form
		1.12	Email containing the link to the on-line diary and instructions for participants.
		1.13	On-line debrief sheet
		1.14	Independent Samples T-Tests conducted to test for differences at baseline between those who completed the study vs. those who dropped out.
		1.15	Z-scores shown for all measures (pre-, post-test and follow-up)
		1.16	Output from a series of Independent Samples T-Tests conducted to test for baseline differences.
		1.17	Mixed Measures ANOVAs conducted when participants who completed $\leq 3$ were removed.
<b>Study 1b</b>		1.18	Self-Determined Needs Diary
		1.19	First Three Things Diary
		1.20	Pre-test Demographic Questionnaire
		1.21	Post-test Demographic Questionnaire
		1.22	Basic Psychological Need Satisfaction and Frustration Scale
		1.23	Full demographic information for participants
		1.24	Independent Samples T-Test conducted to decipher differences at baseline between those who completed vs. those who dropped out of the study
		1.25	Mixed Measures ANOVAs conducted when individuals who completed $\leq 3$ diaries were removed from analysis
		1.26	Output from a series of Independent Samples T-Tests conducted to test for baseline differences.
		1.27	z-scores for all measures at the three time-points (pre-, post-test and follow-up)

## Self-Determination Theory





Motivation is our energy for action; it is a construct that explains our behaviour and represents our actions, desires and needs. Recently, research has concluded that we have 2 main types of motivation: Intrinsic and extrinsic. Extrinsic motivation denotes a motivation driven by external reward or pressure e.g. receiving a monetary reward for completing a chore. Intrinsic motivation refers to a need to seek out new challenges, to observe and to gain knowledge. A distinction of value is that intrinsic motivation is driven by an enjoyment or interest in the task, whereas extrinsic motivation is driven by the reward or external pressure. Importantly, intrinsic motivation is thought to be more sustained and long-lasting than extrinsic motivation.

Self-Determination theory is a theory of intrinsic motivation, that concerns an individual's innate psychological needs. It is based on the theory that intrinsic motivation flourishes in situations that satisfy human needs for achievement, affiliation and autonomy.

- **Autonomy** – refers to our need for choice and freedom
- **Affiliation** – the need for social interaction and to build social relationships
- **Achievement** – the need to feel competent and master skills.

Full intrinsic motivation flourishes in contexts that satisfy individual needs for autonomy, affiliation and achievement. Importantly, fulfilling these needs leads to increased wellbeing and success. In contrast, when these needs are unsupported or thwarted, it has a detrimental impact on our levels of wellbeing.

Firstly, write down 3 Positive Events that have Happened today and why or how they happened.

Positive event 1

What was the cause of this event – why did it happen?

Positive event 2

What was the cause of this event – why did it happen?

Positive event 3

What was the cause of this event – why did it happen?

Did any of these fulfil your need for:

Autonomy

If so, how?

YES

NO

Achievement

If so, how?

YES

NO

Affiliation

YES

NO

if so, how?

## Event Diary



Write down 3 events that have  
Happened today and why or how they happened.

Event 1

What was the cause of this event – why did it happen?

Event 2

What was the cause of this event – why did it happen?

Event 3

What was the cause of this event – why did it happen



Appendix 1.3: Pre-test Demographic Questionnaire.

Participant ID:

Date:

Gender:

\_\_\_\_\_ Male      \_\_\_\_\_ Female      \_\_\_\_\_ Other      \_\_\_\_\_ Prefer not to say.

How old are you?

\_\_\_ 18-25      \_\_\_ 26-33      \_\_\_ 34-41      \_\_\_ 42-50

\_\_\_ 51+

# Appendix 1.4: Basic Psychological Needs Scale (BPNS)

Participant ID: .....

Date .....

Pre/ Post/ Follow-up .....

Please read each of the following items carefully, thinking about how it relates to your life, and then indicate how true it is for you. Use the following scale to respond:

1      2      3      4      5      6      7  
Not at all      Somewhat      Very  
True      True      True

	1	2	3	4	5	6	7
I feel like I am free to decide for myself how to live my life							
I really like the people I interact with							
Often, I do not feel very competent							
I feel pressured in my life							
People I know tell me I'm good at what I do							
I get along with people I come into contact with							
I pretty much keep to myself and don't have a lot of social contacts							
I generally feel free to express my ideas and opinions							
I consider the people I regularly interact with to be my friends							
I have been able to learn interesting new skills recently							
In my daily life, I frequently have to do what I am told.							
People in my life care about me							
Most days I feel a sense of accomplishment from what I do							
People I interact with on a daily basis tend to take my feelings into consideration							
In my life I do not get much of a chance to show how capable I am							
There are not many people that I am close to							
I feel like I can pretty much be myself in my daily situations							
The people I interact with regularly do not seem to like me much							

I often do not feel very capable							
There is not much opportunity for me to decide for myself how to do things in my daily life							
People are generally pretty friendly towards me.							

Autonomy – 1, 4 (R), 8, 11 (R), 14, 17, 20 (R)

Competence – 3 (R), 5, 10, 13, 15 (R), 19 (R)

Relatedness – 2, 6, 7 (R), 9, 12, 16 (R), 18(R), 21

R = Reverse score.

## Appendix 1.5: Intrinsic Motivation Inventory (IMI)

Participant ID.....

Date: .....

Please rate the following statements on a scale of 1 to 7 (1 = not at all true; 4 = somewhat true; 7 = very true), which indicates how much the statement applied to you over the last week.

Over the last week, I have...

	1	2	3	4	5	6	7
Enjoyed my academic work very much.							
Done pretty well on my academic work, compared to other students.							
Put a lot of effort into my academic work							
Not felt nervous about my academic work.							
had some choice in my academic work.							
Felt that my academic work could be of some value to me.							
Completed my academic work because I wanted to.							
Felt that I would be willing to complete this academic work again, because it had some value to me.							
Felt very tense whilst completing my academic work.							
Felt it was important to me to do well at my academic work.							
Felt that my academic work did not hold my attention at all.							
Felt that I am satisfied with my performance on my academic work.							
Felt that I didn't try very hard to do well at my academic work.							
Completed my academic work because I had to.							
Described my academic work as interesting.							
Felt that after working on this activity for a while, I am pretty competent at my academic work.							
Thought about how much I was enjoying my academic work whilst I was completing it.							

### Scoring

Interest/ enjoyment = 1, 11 (R), 15 & 17

Perceived competence = 2, 12, 16

Effort = 3, 13 (R), 10

Pressure = 4 (R), 9,

Choice = 5, 7, 14 (R)

Value = 6, 8

TOTAL = 119

R – Reverse score.

## Appendix 1.6: Scale of Positive and Negative Experience (SPANE)

Participant ID.....

Date: .....

Please think about what you have been doing and experiencing during the past week. Then report how much you have experienced each of the following feelings, using the scale below. For each item, select a number from 1 to 5, and indicate that number below.

	Very Rarely or Never	Rarely	Sometimes	Often	Very Often or Always
Positive					
Negative					
Good					
Bad					
Pleasant					
Unpleasant					
Happy					
Sad					
Afraid					
Joyful					
Angry					
Contented					

## Scoring

The measure can be used to derive an overall affect balance score, but can also be divided into positive and negative feelings scales.

**Positive Feelings (SPANE-P):** Add the scores, varying from 1 to 5, for the six items: positive, good, pleasant, happy, joyful, contented. The score can vary from 6 to 30. 1 – 5 (rarely never to very often).

**Negative Feelings (SPANE-N):** add the scores, varying from 1-5 (very rarely to very often), for the six items: negative, bad, unpleasant, sad, afraid and angry. The score can vary from 6 to 30.

**Affect balance (SPANE-B):** The negative feelings score is subtracted from the positive feelings score, and the resultant difference score can vary from -24 (unhappiest) to 24 (happiest). A respondent with very high score of 24 reports that she or he rarely or never experiences any of the negative feelings, and very often or always has all the positive feelings.

## Appendix 1.7: Satisfaction with Life (SWL).

Participant ID.....

Date: .....

Below are five statements that you may agree or disagree with. Using the 1-7 scale below (1 = strongly disagree; 2 = disagree; 3 = slightly disagree; 4 = neither disagree or agree; 5 = slightly agree; 6 = agree; 7 = strongly agree), indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be honest and open in your responding.

	1	2	3	4	5	6	7
In most ways my life is close to my ideal							
The conditions of my life are excellent.							
I am satisfied with my life.							
So far I have gotten the important things I want in life.							
If I could live my life over, I would change almost nothing.							

### Scoring

31-35 Extremely satisfied

26-30 Satisfied

21-25 Slightly satisfied

20 Neutral

15-19 Slightly dissatisfied

10-14 Dissatisfied

5-9 Extremely dissatisfied.



# Appendix 1.8: Depression, Anxiety, and Stress Scale (DASS-21).

Participant ID.....

Date: .....

Please rate each of the statements and choose a number from 0-3 (0= never; 1 = sometimes; 2 = often; 3 = almost always), which indicates how much the statement has applied to you over the past week. There are no right or wrong answers. Do not spend too much time on each statement

	0	1	2	3
I found it hard to wind down				
I was aware of dryness of my mouth				
I couldn't seem to experience any positive feeling at all.				
I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion).				
I found it difficult to work up the initiative to do things.				
I tended to over-react to situations				
I experienced trembling (e.g. in the hands).				
I felt that I was using a lot of nervous energy.				
I was worried about situations in which I might panic and make a fool of myself.				
I felt that I had nothing to look forward to				
I found myself getting agitated				
I found it difficult to relax				
I felt down-hearted and blue				
I was intolerant of anything that kept me from getting on with what I was doing				
I felt close to panic				
I was unable to become enthusiastic about anything				
I felt I wasn't worth much as a person				
I felt that I was rather touchy				

I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat).				
I felt scared without any good reason				
I felt that life was meaningless.				

## SCORING

Stress – 1, 6, 8, 11, 12, 14, 18

Depression – 3, 5, 10, 13, 16, 17, 21.

Anxiety – 2, 4, 7, 9, 15, 19, 20.

Stress score:

Depression score:

Anxiety score:

	Depression	Anxiety	Stress
Normal	0-4	0-3	0-7
Mild	5-6	4-5	8-9
Moderate	7-10	6-7	10-12
Severe	11-13	8-9	13-16
Extremely Severe	14+	10+	17+

## Appendix 1.9: Motivational Persistence (MP) Scale

Participant ID.....

Date.....

Please read the following 12 statements and for each tick the box that best describes you. There are no right or wrong answers, so please answer as honestly as you can throughout and try not to let your response to one question influence your response to other questions.

	Not at all	Not very like me	Somewhat like me	Mostly like me	Very much like me
Long-term purpose motivates me to surmount day to day difficulties.					
Even though it doesn't matter anymore, I keep thinking of personal aims that I to give up.					
Once I decide to do something, I am like a bulldog; I don't give up until I reach the goal					
I make sure that what I set myself to obtain in several months or years is realistic					
I often find myself thinking about older initiatives that I had abandoned.					
I continue a difficult task even when the others have already given up on it.					
I purposefully pursue the achievement of the projects that I believe in.					
It's hard for me to detach from an important project that I had given up in favour of others.					

The more difficult a task is, the more determined I am to finish it.					
I remain motivated even in activities that spread on several months.					
From time to time, I imagine ways to use opportunities that I have given up.					
I have a high capacity to focus on daily tasks.					
I can easily realise when to stop in the pursuit of important personal objectives					
I often come up with new ideas on an older problem or project.					
I keep investing time and effort in ideas and projects that require years of work and patience.					
I keep track of the things I promised myself to acquire at some point.					

## SCORING

Long-term purpose pursuing – the ability to remain committed to resource consuming, higher order goals that require prolonged investment, despite failures or short-term hedonic costs. This is more closely related to the perseverance or grit.

Q's – 1, 4, 10, 13, 15.

Current purpose pursuing – the volitional aspect of everyday persistence: the ability to remain focused on the goals at hand and to prolong effort boredom, fatigue or stress. This is the need to complete started goals, or discharge the tension attached to the frustrated goal.

Q's – 3, 6, 7, 9, 12.

Recurrence of unattained purposes – Automatic process that buffers against the decline of commitment to blocked or suspended pursuits.

Q's – 2, 5, 8, 11, 14, 16.

## Appendix 1.10: Information Sheet

### Information for participants Improving Motivation and Resilience: A Positive Diary Perspective

**PhD Student Researcher:**

Kate Isherwood

email: [k.r.isherwood@bangor.ac.uk](mailto:k.r.isherwood@bangor.ac.uk)

Tel: 01248 388824

**Supervisor:** Professor John Parkinson

email: [j.parkinson@bangor.ac.uk](mailto:j.parkinson@bangor.ac.uk)

Dear participant,

Thank you for taking the time to read this information sheet. We are inviting you to take part in research into the effectiveness of Diary Interventions on wellbeing and motivation. This study will investigate the effect of a Positive Events Diary on resilience and motivation, and whether this effects well-being. Before you take part in research, it is important that you understand why the research is being conducted and what the research will involve. We would like you to take the time to read the following information carefully. Feel free to ask any questions to researchers should they arise.

**Background to study:** Positive Psychology exercises have been shown to improve well-being. In his inaugural study, Martin Seligman, showed that interventions such as 3 Good Things and Using Signature Strengths in New Ways, improve wellbeing at 6-month follow-up (Seligman, Steen & Park, 2005). We are studying the value of positive events diaries as well as integrating some motivation theories such as Self Determination Theory and Goal Setting into this format. Self-Determination theory describes the existence of three fundamental, universal needs; competence, relatedness and autonomy. Competence refers to a level of mastery or skill that one feels; autonomy refers to a sense of self-governed control; relatedness refers to a need for social interaction and support. Research has shown that individuals with high levels of competence, relatedness and autonomy, are more persistent, resilient and importantly intrinsically motivated. It is hoped by encouraging individuals to improve and attend to how they are satisfying their needs, they will feel more equipped to deal with life's challenges. It is hoped that these interventions will increase subjective wellbeing and motivation. These interventions are furthering research into this area by assessing the effectiveness of need satisfaction and resilience building on mental wellbeing.

#### Do I have to take part?

It is up to you to decide whether or not you want to take part. If you decide to take part, we will give you this information sheet to keep and we will ask you to sign a consent form. After agreeing to take part you are still free to withdraw at any time and without giving a reason. There is no penalty for withdrawing at any time.

### **What do I have to do?**

If you decide to take part you will be asked to complete some demographic questionnaires and other questionnaires asking you about your levels of motivation, well-being alongside other relevant measures (such as motivation).

You will be given training into how to complete the diary using examples. This study will last for 3 sessions: two one-week apart, with the third taking place 3-months later. At the end of session 1 you will be given a diary, and asked to complete this diary over 5 consecutive days between session 1 and session 2. During session 1 and session 2 you will also be given a set of demographic, mood and motivation questionnaires to complete. After session 2, the experimenter will contact you again in 2-3 months to complete these questionnaires for a final time, in order to assess the lasting effects of the Positive Psychology exercises.

### **What are the possible disadvantages and risks of taking part?**

There are no expected risks to this study. The study focusses on goal-setting, motivation, resilience building and need satisfaction. Should you not wish to continue with the study you are free to withdraw without penalty. You may also omit questions you do not wish to answer. Should you for any reason feel distressed at any time, please seek support from the relevant department. The counselling department details, should you need it are outlined below:

Student Counselling Service – 01248 388520 or email [counselling@bangor.ac.uk](mailto:counselling@bangor.ac.uk).  
Second Floor Neuadd Rathbone,  
College Road,  
Bangor University,  
Bangor,  
LL57 2DF.

### **What are the possible benefits of taking part?**

By participating in this study you are aiding the progression of psychological science, specifically in the fields of Positive Psychology and motivation. The theoretical and practical implications of this may include the development of similar projects, and the enhancement of further positive event diary interventions.

### **What will happen to the results of my study?**

When the study is complete, it will form part of a doctoral thesis submitted to the School of Psychology, alongside a possible publication, the data may also be presented at conferences. Please be assured that all data will be kept confidential, and all data will be anonymised. You will not be referred to by name, and data will only be identifiable by an anonymous participant number. Furthermore, all data will be stored securely within the School of Psychology, and securely destroyed after 5 years.

**Will I be paid for taking part in the study?**

Participants recruited through SONA will receive printer and SONA credits for their participation; participants recruited externally will receive £7 per hour of their participation (this is calculated in the hours in contact with the researcher, and does not include the time filling in the diary).

**What if I have questions about my participation?**

If you require any assistance or have any questions about the research study, please feel free to contact the above researchers (details above).

**What if I have any complaints/ queries?**

Please contact the School Manager, Hefin Francis at e-mail: [h.francis@bangor.ac.uk](mailto:h.francis@bangor.ac.uk)

Once again, thank you very much for taking the time to participate in the study.



## Appendix 1.11: Consent Form

### Participant Consent Form

**PhD Student researcher:**

Kate Isherwood

Email: [k.r.isherwood@bangor.ac.uk](mailto:k.r.isherwood@bangor.ac.uk)

TEL: 01248388824

**Supervisor:**

Professor John Parkinson

Email: [j.parkinson@bangor.ac.uk](mailto:j.parkinson@bangor.ac.uk)

TEL: 01248388340

You are being asked to take part in a research study examining the benefits of Positive Psychology, specifically the effect of diary interventions on motivation and wellbeing. You are free to withdraw from the study at any time and your data will be discarded at any point throughout the study without penalty. Please contact the experimenter if you feel you want to withdraw.

During the study you will be asked to fill out questionnaires and to complete some simple written exercises. Each session will last approximately an hour, and you will be asked to fill in a simple diary for 5 consecutive days throughout the week. We will meet on the same day and time for each of the sessions (1-week and 3-month follow-up).

The researcher will email you again at 3-months and ask you to complete the questionnaires again, to assess any lasting effects of the exercise, alongside finding out if you carried on completing the intervention. By signing this consent form, you are consenting to the provision of an email contact and for the researcher to contact you.

**What will happen to the results of this study?** The responses will be used to investigate the efficacy of Positive Psychology exercises in the form of a diary intervention to improve wellbeing and motivation. Results from the study may be included in theses to be submitted in September 2019. These results might also be published in academic journals and presented at academic conferences. However, at no point will any participant be named or identified by name.

**Confidentiality:** The names of individual participants will not be noted in the written report from the study. Answers to the questions and the data will be linked via an anonymous ID, from which the analyses will be then be conducted. Only researchers named on the above consent form will have access to any data. After 5 years all data will be destroyed.

If you have any further questions at any point in the study, please contact Kate Isherwood (details above). If you wish to speak to the lead supervisor, then please contact Prof. John Parkinson (details above). Any complaints you have about this study or your participation then please contact Mr. Hefin Francis, School Manager, School of Psychology at [h.francis@bangor.ac.uk](mailto:h.francis@bangor.ac.uk).

**School of Psychology Ethics Approval Code:**

I have read and understand this consent form, and I volunteer to participate in this research study, studying the effectiveness of diary interventions on motivation and wellbeing. I understand that I can withdraw from the study at any point, without penalty, and I do this by contacting the researchers above.

I understand that my data may be used in possible publications or conference presentations and I understand that my data is contributing towards a doctoral theses submission in September 2019. I do understand that my data will be kept confidential at all times and will be destroyed after 5 years.

Participant name:

Participant signature:

Date:

---

Researcher name:

Researcher signature:

Date:

Appendix 1.12: Email containing the link to the on-line diary and instructions for participants

"Dear XXX,

Thank you for taking the time to complete my study. At your last session, I mentioned that you would be given questionnaires 2-months later. Please find attached the link to the follow-up questionnaire. Please complete these questionnaires on or before **Friday 7th April at 5pm.**

<http://kafka.sensemaker-suite.com/collector/collector.gsp?projectId=needs&language=En&userID=krisherwood#Collector>

When you enter onto the link, it will ask you for your unique ID. Your unique ID is: **KICSDTTEST.**

**When you have finished the questionnaire, please make sure you save your story and wait for the page to refresh.**

For completing this questionnaire, alongside your 8 SONA credits, you will also be placed in a prize draw for your chance to win a £50 Amazon voucher. The draw will take place sometime in May, but if you are not around Bangor to collect your voucher when the prize is drawn, don't worry – I can mail the voucher to your address.

Once again, thank you for taking the time to complete my study.  
Many thanks,  
Kate"

## Appendix 1.13: On-line debrief



Save story

Thank you for taking the time to participate in this study.

You have taken part in a study to collect data on the effectiveness of diary interventions in improving motivation and resilience. This research has allowed us to investigate how we can increase motivation and resilience through light-touch positive psychology interventions. This has the potential to form the basis of research into a commercial resilience training programme, which is hoped to improve motivation and resilience in the working populous. Self-Determination theory describes the existence of three fundamental, universal needs; competence, relatedness and autonomy. Using your data, we will explore the impact of individuals focusing on increasing these needs and how they may drive behaviour. It is also hoped that an increased understanding of these factors may provide insight into how current motivational training programs can be better adapted to become more engaging and attractive to a wider range of participants. You have provided valuable responses, which will be an integral part of this investigation and we would like to extend our sincere thanks for giving your time and energy to complete your diary and questionnaires. The research has been investigated with researchers from the School of Psychology, Bangor University, under the supervision of Professor John Parkinson. Student researchers is a PhD student from the School of Psychology, Bangor University –Kate Isherwood. This research was conducted with support from the European Social Fund, namely the Knowledge Economy Skills Scholarships (KESS). All data will be kept confidential and may be used in doctoral theses to be submitted in September 2019. No individual participant will be referred to by name. All data after 5 years of completion will be destroyed. Should you have any questions about this study, or would like a copy of the results and findings when available, please e-mail Kate Isherwood (School of Psychology, Bangor University) - k.r.isherwood@bangor.ac.uk Any complaints concerning the conduct of this research should be addressed to Mr. Hefin Francis, School Manager, School of Psychology, Bangor University, Gwynedd, LL57 2AS. Ethics approval code from Bangor University, School of Psychology Once again, thank you for taking the time to participate in this study.

Appendix 1.14: Independent t-tests conducted to test for differences at baseline between those who completed the study vs. those who dropped out.

	Completed study?		<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
	Yes	No				
	M (±SD)	M (±SD)				
<b>SWL</b>	24.16 (± 6.71)	22.25 (±5.48)	1.47	103	.15	.04
<b>DASS</b>	16.88 (±11.27)	19.67 (±10.58)	-1.23	103	.22	.03
<b>MP</b>	50.54 (±8.43)	52.22 (±8.94)	-.95	101	.35	.02
<b>IMI</b>	79.88 (±12.98)	76.28 (±12.79)	1.36	103	.18	.04
<b>BPN</b>	107.07 (±14.24)	102.12 (±13.80)	1.67	99	.098	.05
<b>SPANE</b>	9.20 (±7.71)	5.06 (±8.14)	2.57	103	.012	.11

*Table 5.1:* Mean (and standard deviation) and T-statistic shown for independent samples T-tests conducted at baseline for those who completed measures at the three time points and those who did not complete study.

Appendix 1.15: Z-scores shown for all measures (pre-, post-test and follow-up).

	Z-score					
	Skewness			Kurtosis		
	Pre	Post	Follow-up	Pre	Post	Follow-up
<b>SWL</b>	-1.63	-3.01	-1.28	-.73	.95	-1.05
<b>SPANE</b>	-2.57	-3.39*	-2.45	.20	1.58	-.32
<b>IMI</b>	-1.24	-2.77	-1.47	.05	1.35	-.33
<b>MP</b>	2.32	1.10	1.47	1.00	1.22	-.72
<b>DASS</b>	3.80*	5.53*	4.26*	1.11	5.29*	1.61
<b>BPNS</b>	-1.18	-1.86	-.05	-.89	.75	-.34

Table 5.2: Z-scores shown for all subscales across all three time points (pre-, post-test & follow-up). Using methodology proposed by Kim (2013), when  $n = >50, <300$  absolute z-scores greater than  $\pm 3.29$  concludes that data violates parametric assumptions (\* = data violated parametric assumptions)

Appendix 1.16: Output from a series of Independent Samples T-Tests conducted to test for baseline differences.

	SDT	Three Events	<i>t</i>	<i>df</i>	<i>p</i>
	Mean ( $\pm$ SD)	Mean ( $\pm$ SD)			
SWL	23.00 ( $\pm$ 7.08)	25.79 ( $\pm$ 5.74)	1.78	66	.08
SPANE ‡	3.83 ( $\pm$ 1.05)	3.54 ( $\pm$ 1.00)	-1.15	67	.26
IMI	75.84 ( $\pm$ 12.89)	84.41 ( $\pm$ 11.74)	2.87	67	.005
MP	49.31 ( $\pm$ 7.26)	51.74 ( $\pm$ 7.96)	1.31	65	.20
DASS ‡	3.90 ( $\pm$ 1.33)	3.75 ( $\pm$ 1.27)	-.50	67	.62
BPN	105.29 ( $\pm$ 11.29)	108.87 ( $\pm$ 5.74)	1.11	60	.27

Table 5.3: results from a series of Independent Samples T-Test conducted to test for baseline differences between groups. A significance value  $p < .05$  indicates that data violates this assumption.  
‡ = transformed data used in analysis.

Appendix 1.17: Mixed-Measures ANOVAs conducted when participants who  $\leq 3$  diaries were removed from analysis.

	SDT	Three Events				
	M ( $\pm$ SD)	M ( $\pm$ SD)	<i>F</i>	<i>df</i>	<i>p</i>	<i>d</i>
<b>SWL</b>			1.39	2,120	.25	.31
<i>Pre</i>	22.74 ( $\pm$ 7.45)	25.71 ( $\pm$ 5.89)				
<i>Post</i>	24.58 ( $\pm$ 6.44)	25.77 ( $\pm$ 6.54)				
<i>Follow-up</i>	25.26 ( $\pm$ 6.15)	26.42 ( $\pm$ 5.40)				
<b>SPANE</b>			.52	2,120	.59	.19
<i>Pre</i>	3.90 ( $\pm$ .17)	3.52 ( $\pm$ .19)				
<i>Post</i>	3.92 ( $\pm$ .20)	3.46 ( $\pm$ .20)				
<i>Follow-up</i>	3.75 ( $\pm$ .23)	3.13 ( $\pm$ .27)				
<b>IMI ¥</b>			1.13	1,60	.29	.27
<i>PretoPost</i>	4.34 ( $\pm$ 9.58)	-2.63 ( $\pm$ 14.81)				
<i>PretoFollow-up</i>	.56 ( $\pm$ 9.80)	-3.13 ( $\pm$ 12.48)				
<b>MP</b>			.12	2,116	.85	.09
<i>Pre</i>	49.45 ( $\pm$ 7.40)	51.07 ( $\pm$ 7.27)				
<i>Post</i>	50.16 ( $\pm$ 8.27)	52.31 ( $\pm$ 6.15)				
<i>Follow-up</i>	49.48 ( $\pm$ 8.50)	51.83 ( $\pm$ 7.19)				
<b>DASS ‡</b>			.51	2,120	.60	.18
<i>Pre</i>	3.94 ( $\pm$ 1.39)	3.67 ( $\pm$ 1.26)				
<i>Post</i>	3.73 ( $\pm$ 1.42)	3.18 ( $\pm$ 1.29)				
<i>Follow-up</i>	3.97 ( $\pm$ 1.70)	3.51 ( $\pm$ 1.10)				
<b>BPN</b>			.27	2,106	.77	.14
<i>Pre</i>	106.12 ( $\pm$ 11.05)	108.03 ( $\pm$ 13.84)				
<i>Post</i>	105.62 ( $\pm$ 12.98)	109.38 ( $\pm$ 15.81)				
<i>Follow-up</i>	102.65 ( $\pm$ 11.98)	105.34 ( $\pm$ 13.87)				

Table 5.4: Means (and standard deviations) and F-statistic shown for Mixed Measures ANOVAs conducted when those who had completed three or less diaries were removed from analysis.



# Fulfilment Diary

Over the next 7 days, you will be asked to focus on fulfilling your basic psychological needs. Inside this booklet there are 7 pages (one for each day). Don't worry about it taking too much time, it is designed so it shouldn't take you longer than 10 minutes a day.

The diary will ask you to identify a situation where you:

1. **Had a choice.** This doesn't have to be momentous and could be something as small as choosing to go for a coffee.
2. **Developed a skill.** Identify something where you developed a skill. This could be finishing an assignment, or making a great coffee!
3. **Had social interaction.** Identify a situation where you enjoyed being with people today.

## Some things to remember:

1. I won't be collecting these to read. These are yours, **so make them as personal as you want to.**
2. **Don't overthink it.** It should only take you 10 minutes a day to complete.
3. **Enjoy it!**



# Fulfilment Diary

## CHOICE

What did you choose to do today? It can be as momentous as applying for a job, or as small as going for a coffee, working from home or going for a run.

Why did you choose to do it?


## SOCIAL

Who did you enjoy being with today? Write down a positive social experience e.g. chatting to a colleague, going to a party; it could be intimate or it could be public.

What was the cause of this event? Why did it happen?

## SKILL

Did you develop a skill today? What gave you satisfaction? A sense of a job well done? This could be completing a presentation, finishing a report or could be something as satisfying as making a great coffee or completing the next level on your video game.



What was the cause of this event? Why did it happen?



## REMEMBER

**Choice** - choose for yourself

**Skill** - become more accomplished

**Social** - talk to people

## 3 things diary

Below, please write down 3 things that have happened today. They don't need to be particularly large events and could be something as simple as going to get a coffee.

1 thing that happened today:

Thing no. 2

Thing no. 3

## Appendix 1.20: Pre-test Demographic Questionnaire

Participant ID:

Date:

**How old are you?**

☐ 18-25                      ☐ 26-33                      ☐ 34-41                      ☐ 42-50  
☐ 51+

**What is your gender?**

☐ Male                      ☐ Female                      ☐ Other                      ☐ Prefer not to say

**Roughly how much income did your household earn this year?**

☐ less than £20,000                      ☐ £20,001 - £40,000  
☐ £40,001 - £60,000                      ☐ £60,001 - £80,000  
☐ £80,001-£100,000                      ☐ £100,001 +

**Do you have a part-time job alongside your studies?**

☐ YES                      ☐ NO

**If so, how many hours a week on average do you work?**

☐ Less than 4 hours                      ☐ 4-8 hours                      ☐ 8-12 hours  
☐ 12-16 hours                      ☐ 16+ hours.

**Do you do any volunteering alongside your studies?**

☐ YES                      ☐ NO

**If so how many hours on average do you volunteer?**

☐ Less than 4 hours                      ☐ 4-8 hours                      ☐ 8-12 hours  
☐ 12-16 hours                      ☐ 16+ hours.

**Do you have an interest in the field of Positive Psychology?**

☐ YES                      ☐ NO

Have you ever participated in a Positive Psychology Intervention before?

\_\_\_ YES

\_\_\_ NO

Briefly explain this intervention

A large, empty rectangular box with a black border, intended for the user to write a brief explanation of the intervention.

## Appendix 1.21: Post-Test Demographic Questionnaire

Participant ID: .....

Date.....

I completed ..... /7 diaries.

Below are a few questions that explore how you found the diary. All responses are anonymous, so please be as honest as possible as this will inform future iterations of the diary.

I found the diaries helpful

☐

YES

☐

NO

I found the diaries difficult to complete

☐

YES

☐

NO

Overall, how did you find the diary?

My favourite thing about the diary was:

If I could change something about the diary, it would be:

## Appendix 1.22: Basic Psychological Need Satisfaction and Frustration Scale

Participant ID:.....

Pre/Post/Follow-up: .....

Date: .....

Please read each of the following statements carefully, thinking about the experiences that you have had over the last week. Please indicate by choosing a number between 1 and 5 below.

1 2 3 4 5

Not at all Completely true

true

	1	2	3	4	5
I have felt a sense of choice and freedom in the things I undertook.					
I have felt disappointed with many of my performances.					
I have felt that people are important to me were cold and distant towards me.					
In the last week, most of the things I did felt like "I had to".					
I have felt confident that I could do things well.					
I have felt that my decisions reflected what I really wanted.					
I have felt connected with the people who care for me, and for whom I care.					
I have felt excluded from the group I want to belong to.					
I have felt forced to do many things I didn't choose to do.					
I have felt capable at what I did.					
I have experienced a warm feeling with the people I spent time with.					
I felt insecure about my abilities.					



**Scoring:**

Autonomy satisfaction – items 1 & 6

Autonomy Frustration – items 4 & 9

Relatedness satisfaction – items 7 & 11

Relatedness frustration – items 3 & 8

Competence satisfaction – items 5 & 10

Competence frustration – items 2 & 12

Appendix 1.23: Full demographic information for participants

	Response	No. of responses		
		Total n	SDT	Control
Parental	N/A	4	1	3
household income	Less than £20,000	18	6	12
	£20,001 - £40,000	20	10	10
	£40,001 - £60,000	14	4	10
	£60,001 - £80,000	7	3	4
	£80,001 - £100,000	4	4	-
	£100,001 +	2	1	1
Employed?	Yes	14	4	10
	No	55	25	30
Hours worked per week.	Less than 4	1	1	-
	4-8	3	-	3
	8-12	6	3	3
	12-16	3	-	3
	16+	2	1	1
Volunteer?	Yes	24	11	13
	No	45	18	27
Hours volunteered per week.	Less than 4	16	8	8
	4-8	7	4	3
	8-12	1	-	1
	16+	1	-	1
Have an interest in Positive Psychology?	Yes	51	26	25
	No	18	3	15
Previous participation in a PPI?	Yes	15	3	12
	No	54	26	28

Table 5.5: A frequency table to show the demographic information of participants, overall and split by condition.

Appendix 1.24: Independent t-test conducted to test for differences at baseline between those who completed the study vs. those dropped out.

	Continued?		<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
	Yes	No				
	M (± SD)	M (± SD)				
<b>SWL</b>	23.25 (±5.20)	22.28 (±6.40)	.85	106	.40	.014
<b>SPANE</b>	6.46 (±6.41)	6.49 (±7.94)	-.02	106	.99	<.001
<b>DASS *</b>	18.94 (±10.98)	18.33 (±14.00)	.23	64.62	.80	.02
<b>MP</b>	50.19 (±7.96)	51.72 (±8.04)	-.96	106	.34	<.001
<b>IMI</b>	82.28 (±12.53)	82.79 (±13.88)	.45	106	.84	.002
<b>BPN - SAT</b>	20.99 (±3.90)	21.72 (±4.29)	-.90	106	.37	.02
<b>BPN-FRUS</b>	15.14 (±4.52)	14.23 (±5.02)	.97	106	.33	.02

Table 5.6: T-statistic shown for all subscales at baseline between individuals who completed the study at all 3 time points and those who dropped out. \* = due to a violation of the assumption of sphericity, the Greenhouse Geisser Statistic is used.

Appendix 1.25: Mixed Measures ANOVAs conducted when individuals who completed  $\leq 3$  diaries were removed from analysis.

	SDT	First 3 Things	<i>F</i>	<i>df</i>	<i>p</i>	<i>d</i>
	M ( $\pm$ SD)	M ( $\pm$ SD)				
<b>SWL ¥</b>			<.001	1, 62	.98	<.001
<i>Pre</i> to <i>Post</i>	.34 ( $\pm$ 5.20)	.17 ( $\pm$ 3.16)				
<i>Pre</i> to <i>Follow-up</i>	.34 ( $\pm$ 6.22)	.20 ( $\pm$ 4.63)				
<b>SPANE</b>						
<i>Pre</i>	4.97 ( $\pm$ 7.32)	7.68 ( $\pm$ 5.96)				
<i>Post</i>	5.07 ( $\pm$ 7.51)	8.79 ( $\pm$ 7.94)				
<i>Follow-up</i>	4.86 ( $\pm$ 8.70)	5.68 ( $\pm$ 8.71)				
<b>IMI</b>			.28	2,116	.76	.14
<i>Pre</i>	83.68 ( $\pm$ 10.15)	83.16 ( $\pm$ 12.77)				
<i>Post</i>	81.71 ( $\pm$ 13.32)	78.97 ( $\pm$ 13.85)				
<i>Follow-up</i>	78.71 ( $\pm$ 13.33)	78.34 ( $\pm$ 9.42)				
<b>MP</b>			.40	2,124	.67	.15
<i>Pre</i>	50.72 ( $\pm$ 8.84)	51.43 ( $\pm$ 6.02)				
<i>Post</i>	50.83 ( $\pm$ 8.77)	51.69 ( $\pm$ 7.30)				
<i>Follow-up</i>	51.31 ( $\pm$ 10.19)	51.20 ( $\pm$ 7.44)				
<b>DASS-21 ¥ ‡</b>			.083	1, 62	.78	.06
<i>Pre</i> to <i>Post</i>	-.45 ( $\pm$ 1.13)	-.13 ( $\pm$ 1.01)				
<i>Pre</i> to <i>Follow-up</i>	-.05 ( $\pm$ .85)	.18 ( $\pm$ 1.12)				
<b>BPN-SAT ¥</b>			2.23	1,62	.14	.38
<i>Pre</i> to <i>Post</i>	1.21 ( $\pm$ 4.55)	-.26 ( $\pm$ 4.13)				
<i>Pre</i> to <i>Follow-up</i>	1.31 ( $\pm$ 4.46)	-1.43 ( $\pm$ 4.05)				
<b>BPN-FRUS</b>			1.09	2,124	.34	.26
<i>Pre</i>	16.79 ( $\pm$ 4.15)	13.57 ( $\pm$ 4.02)				
<i>Post</i>	14.69 ( $\pm$ 4.27)	13.11 ( $\pm$ 4.20)				
<i>Follow-up</i>	17.83 ( $\pm$ 5.14)	15.74 ( $\pm$ 5.22)				

Table 5.7: Means (and standard deviations) and F-statistic shown for Mixed Measures ANOVAs conducted when those who had completed three or less diaries were removed from analysis. ¥ = due to significant baseline differences, change scores calculations were derived and a 2-way ANOVA was used to analyse data; ‡ = transformed data (either Log 10 or square-root was used in analysis).

Appendix 1.26: Output from a series of Independent Samples T-Tests conducted to test for baseline differences.

	SDT	First three things	<i>t</i>	<i>df</i>	<i>p</i>
	Mean ( $\pm$ SD)	Mean ( $\pm$ SD)			
SWL	21.72 ( $\pm$ 4.62)	24.35 ( $\pm$ 5.42)	2.11	67	.039
SPANE-B	4.97 ( $\pm$ 7.32)	7.59 ( $\pm$ 5.58)	1.69	66	.098
IMI	83.68 ( $\pm$ 10.15)	82.06 ( $\pm$ 13.33)	-.54	62	.60
MP	50.72 ( $\pm$ 8.84)	50.95 ( $\pm$ 6.54)	.12	67	.90
DASS-21 ‡	4.93 ( $\pm$ 1.27)	3.64 ( $\pm$ .80)	-4.83	44.01	<.001
BPN-SAT	19.21 ( $\pm$ 3.79)	22.28 ( $\pm$ 3.49)	3.48	67	.001
BPN_FRUS	16.79 ( $\pm$ 4.15)	13.95 ( $\pm$ 4.45)	-2.69	67	.41

Table 5.8: results from a series of Independent Samples T-Test conducted to test for baseline differences between groups. A significance value  $p < .05$  indicates that data violates this assumption.  
‡ = transformed data used in analysis.

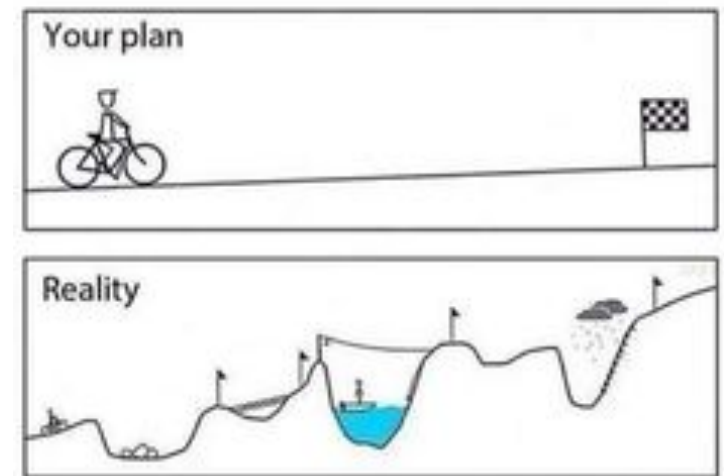
Appendix 1.27: Z-Scores for all measures at the three time-points (pre-, post-test and follow-up).

Scale	Z-score					
	Skewness			Kurtosis		
	Pre	Post	Follow-up	Pre	Post	Follow-up
SWL	-1.08	-3.16	-3.11	-.32	.68	-.21
SPANE	-2.20	-.89	-2.73	.74	-.46	.92
IMI	-.99	-3.03	-.63	1.43	1.29	1.25
MP	-.75	.19	-1.42	.88	.36	2.65
DASS	4.02*	4.59*	2.94	1.62	2.90	.30
BPN-SAT	-1.52	-1.31	-1.62	-.84	-1.22	-1.00
BPN_FUS	1.21	2.26	1.33	-.34	-.55	-1.29

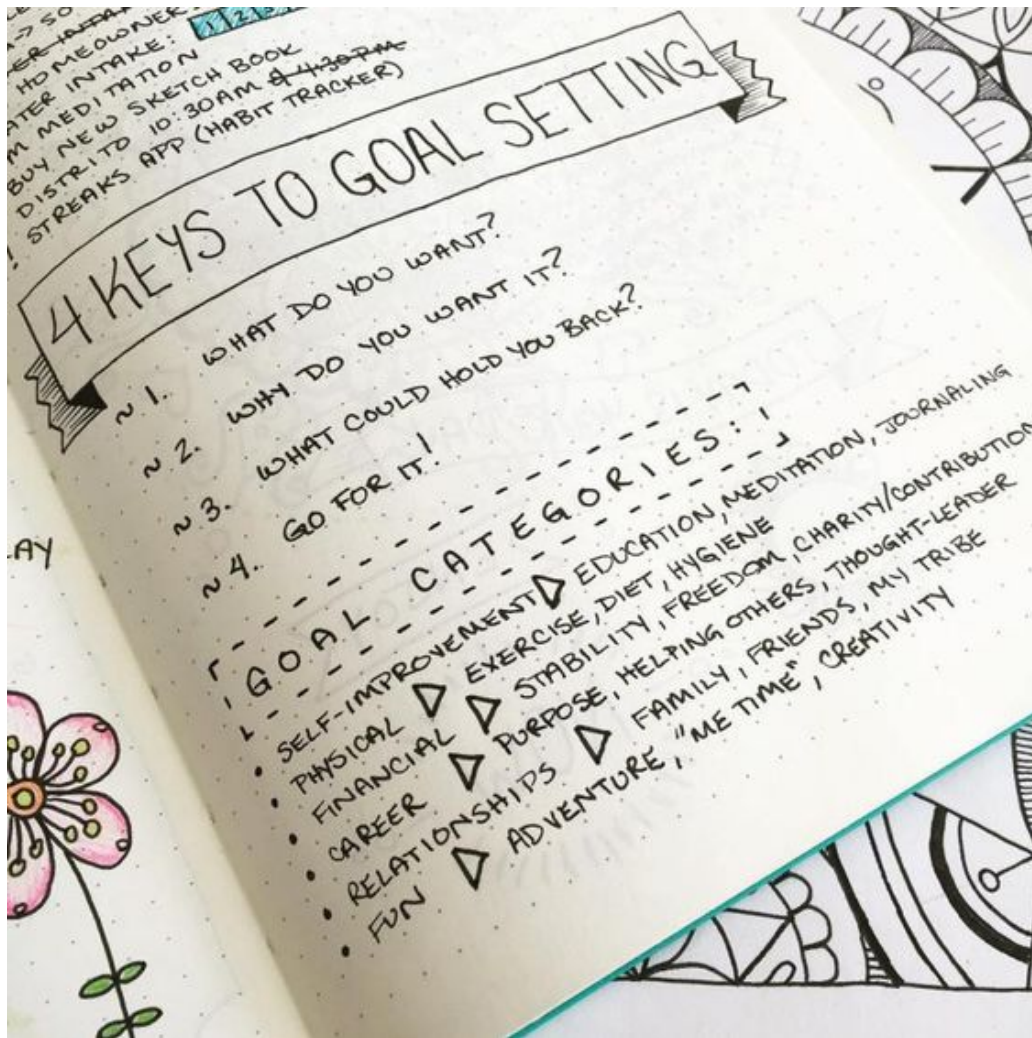
Table 5.9: Z-scores shown for all subscales across all three time points (pre-, post-test & follow-up). Using methodology proposed by [Kim \(2013\)](#), when  $n = >50, <300$  absolute z-scores greater than  $\pm 3.29$  concludes that data violates parametric assumptions (\* = data violated parametric assumptions)

Chapter 3			Pg.
<b>Study 2a</b>	<i>Appendix</i>	2.1	Anxiety Diary
		2.2	Connor Davidson Resilience Scale (CD-RISC)
		2.3	Information Sheet
		2.4	Consent Form
		2.5	Online Debrief
		2.6	Independent samples t-test conducted to decipher differences at baseline between those who completed the study and those who dropped out.
		2.7	z-scores shown for all measures at all time-points (pre-, post-test & follow-up).
		2.8	Output from a series of Independent Samples T-Tests conducted test for baseline differences
		2.9	Mixed Measures ANOVAs conducted when individuals who completed $\leq 3$ diaries were removed from analysis
<b>Study 2b</b>		2.10	Excitement Diary
		2.11	Email containing the link to the on-line diary and instructions for participants.
		2.12	Pre-test demographic information
		2.13	Independent t-test conducted to decipher differences at baseline between those who completed the study vs. those who dropped out
		2.14	z-scores displayed for all measures (pre-, post-test & follow-up).
<b>Study 2c</b>		2.15	Output from a series of Independent Samples T-tests conducted to test for baseline differences
		2.16	The general IMI scale
		2.17	Output from a series of Independent Samples T-tests conducted to test for baseline differences.
		2.18	z-scores displayed for all measures (pre-, post-test & follow-up).

# Anxiety Diary







When we are resilient, we identify an aim that we are striving for, alongside the barriers which stand in our way of achievement. These barriers could deplete our levels of self-esteem, our sense of control or our ability to remain optimistic. We have maybe failed at a similar goal in the past, so we identify new ways in which we can strive to achieve our goal. Most importantly, when we are resilient we do not give up when we are struggling to achieve, or we have a set-back in our path to success.

A common misunderstanding is that resiliency is a trait that only some possess. However, the ability to be resilient is widely thought of to be a process, that anyone can learn and develop, and not a trait characteristic. This means that individuals have learnt, over time, to be able to interact with their environment to promote well-being, and be able to protect themselves against adverse situations.

What are you anxious about at the moment?

What was the barrier you faced today?

What goal is this anxiety related to?

Did you struggle to overcome your barrier today?

☐

YES

☐

NO

What is holding you back from achieving that goal?

If you faced this struggle again, how would you tackle it differently?

## Appendix 2.2. Connor Davidson Resilience Scale (CD-RISC)

Participant ID.....

Date .....

Pre/ Post/ Follow-up.....

Please rate the following statements on a scale from 0-4 scale (0 = not true at all; 1= rarely true; 2= sometimes true; 3 = often true; 4 = true nearly all of the time).

	0	1	2	3	4
Able to adapt to change					
Close and secure relationships					
Sometimes fate or God can help					
Can deal with whatever comes					
Past success gives confidence for new challenge					
See the humorous side of things					
Coping with stress strengthens					
Tend to bounce back after illness or hardship					
Things happen for a reason					
Best effort no matter what					
You can achieve your goals					
When things look hopeless, I don't give up					
Know where to turn for help					
Under pressure, focus and think clearly					
Prefer to take the lead in problem solving					
Not easily discouraged by failure					
Think of self as a strong person					
Make unpopular or difficult decisions					
Can handle unpleasant feelings					
Have to act on a hunch					

Strong sense of purpose					
In control of your life					
I like challenges					
You work to attain your goals					
Pride in your achievement.					

## Appendix 2.3. Information Sheet

### Information for participants

#### The effect of Resilience Diary Interventions on Wellbeing: A Time perspective

PhD Student Researcher:

Kate Isherwood

email: [k.r.isherwood@bangor.ac.uk](mailto:k.r.isherwood@bangor.ac.uk)

Tel: 01248 388824

Supervisor: Professor John Parkinson

email: [j.parkinson@bangor.ac.uk](mailto:j.parkinson@bangor.ac.uk)

Dear participant,

Thank you for taking the time to read this information sheet. We are inviting you to take part in research into the effectiveness of Diary Interventions on wellbeing and motivation. This study will investigate the effect of Positive Events Diaries on Resilience, and whether this effects goal-setting behaviour. Before you take part in research, it is important that you understand why the research is being conducted and what the research will involve. We would like you to take the time to read the following information carefully. Feel free to ask any questions to researchers should they arise.

**Background to study:** Positive Psychology exercises have been shown to improve wellbeing. In his inaugural study, Martin Seligman, showed that interventions such as 3 Good Things and Using Signature Strengths in New Ways, improve wellbeing at 6-month follow-up (Seligman, Steen & Park, 2005). We have taken the traditional 3 Good Things diary, designed by Seligman, and integrated some integral Positive Psychology theories, like Self Determination Theory and Goal Setting into this traditional format. Although, a new approach to need satisfaction and goal achievement, it is hoped that these interventions will have increase subjective wellbeing and motivation at 3-month follow-up. These interventions are furthering research into this area by assessing the effectiveness of need satisfaction and resilience building on mental wellbeing.

#### **Do I have to take part?**

It is up to you to decide whether or not you want to take part. If you decide to take part, we will give you this information sheet to keep and we will ask you to sign a consent form. After agreeing to take part you are still free to withdraw at any time and without giving a reason. There is no penalty for withdrawing at any time.

#### **What do I have to do?**

If you decide to take part you will be asked to complete some demographic questionnaires and other questionnaires asking you about your levels of motivation, depressive scores alongside other measures.

You will be given training into how to complete the Positive Psychology exercises using examples. This study will last for 3 sessions, 2 one-week apart, with the third taking place 3-months later. At the end of session 1 you will be given a diary, and asked to complete this

diary over 5 consecutive days between session 1 and session 2. During session 1 and session 2 you will also be given a set of demographic, mood and motivation questionnaires to complete. After session 2, the experimenter will contact you again in 2-3 months to complete these questionnaires for a final time, in order to assess the lasting effects of the Positive Psychology exercises.

### **What are the possible disadvantages and risks of taking part?**

There are no expected risks to this study. The study focusses on goal-setting, motivation, resilience building and need satisfaction. Should you not wish to continue with the study you are free to withdraw without penalty. You may also omit questions you do not wish to answer. Should you for any reason feel distressed at any time, please seek support from the relevant department. The counselling department details, should you need it are outlined below:

Student Counselling Service – 01248 388520 or email [counselling@bangor.ac.uk](mailto:counselling@bangor.ac.uk).  
Second Floor Neuadd Rathbone,  
College Road,  
Bangor University,  
Bangor,  
LL57 2DF.

### **What are the possible benefits of taking part?**

By participating in this study you are aiding the progression of psychological science, specifically in the fields of Positive Psychology and motivation. The theoretical and practical implications of this may include the development of similar projects, and the enhancement of further positive event diary interventions.

### **What will happen to the results of my study?**

When the study is complete, the study will form part of a doctoral thesis submitted to the School of Psychology, alongside a possible publication, the data may also be presented at conferences. Please be assured that all data will be kept confidential, and only members of the research team will have access to your personal information. You will not be referred to by name, and data will only be identifiable by a participant number, that is anonymised. Furthermore, all data will be stored securely within the School of Psychology, and securely destroyed after 5 years.

### **Will I be paid for taking part in the study?**

Participants recruited through SONA will receive printer and SONA credits for their participation; participants recruited externally will receive £7 per hour of their participation (this is calculated in the hours in contact with the researcher, and does not include the time filling in the diary).

### **What if I have questions about my participation?**

If you require any assistance or have any questions about the research study, please feel free to contact the above researchers (details above).

### **What if I have any complaints/ queries?**

Please contact the School Manager, Hefin Francis. Details below:

Mr Hefin Francis,  
School Manager,  
School of Psychology,  
Bangor University,  
Bangor,  
Gwynedd  
LL57 2AS  
TEL: 01248388339/ e-mail: [h.francis@bangor.ac.uk](mailto:h.francis@bangor.ac.uk)

Once again, thank you very much for taking the time to participate in the study.

Yours Faithfully,

A handwritten signature in blue ink, appearing to read 'J Parkinson', with a long horizontal stroke extending to the left.

Professor John Parkinson,  
Head of School of Psychology, Bangor University.

## Appendix 2.4: Consent Form

### Participant Consent Form

PhD Student researcher:

Kate Isherwood

Email: [k.r.isherwood@bangor.ac.uk](mailto:k.r.isherwood@bangor.ac.uk)

TEL: 01248388824

Supervisor:

Professor John Parkinson

Email: [j.parkinson@bangor.ac.uk](mailto:j.parkinson@bangor.ac.uk)

TEL: 01248388340

You are being asked to take part in a research study examining the benefits of Positive Psychology, specifically the effect of diary interventions on motivation and wellbeing. You are free to withdraw from the study at any time and your data will be discarded at any point throughout the study without penalty. Please contact the experimenter if you feel you want to withdraw.

During the study you will be asked to fill out questionnaires and to complete some simple written exercises. Each session will last approximately an hour, and you will be asked to fill in a simple diary for 5 consecutive days throughout the week. We will meet on the same day and time for each of the sessions (1-week and 3-month follow-up).

The researcher will email you again at 3-months and ask you to complete the questionnaires again, to assess any lasting effects of the exercise, alongside finding out if you carried on completing the intervention. By signing this consent form, you are consenting to the provision of an email contact and for the researcher to contact you.

**What will happen to the results of this study?** The responses will be used to investigate the efficacy of Positive Psychology exercises in the form of a diary intervention to improve wellbeing and motivation. Results from the study may be included in theses to be submitted in September 2019. These results might also be published in academic journals and presented at academic conferences. However, at no point will any participant be named or identified by name.

**Confidentiality:** The names of individual participants will not be noted in the written report from the study. Answers to the questions and the data will be linked via an anonymous ID, from which the analyses will be then be conducted. Only researchers named on the above consent form will have access to any data. After 5 years all data will be destroyed.

If you have any further questions at any point in the study, please contact Kate Isherwood (details above). If you wish to speak to the lead supervisor, then please contact Prof. John Parkinson (details above). Any complaints you have about this study or your participation then please contact Mr. Hefin Francis, School Manager, School of Psychology at [h.francis@bangor.ac.uk](mailto:h.francis@bangor.ac.uk).



**School of Psychology Ethics Approval Code:**

I have read and understand this consent form, and I volunteer to participate in this research study, studying the effectiveness of diary interventions on motivation and wellbeing. I understand that I can withdraw from the study at any point, without penalty, and I do this by contacting the researchers above.

I understand that my data may be used in possible publications or conference presentations and I understand that my data is contributing towards a doctoral theses submission in September 2019. I do understand that my data will be kept confidential at all times and will be destroyed after 5 years.

Participant name:

Participant signature:

Date:

---

Researcher name:

Researcher signature:

Date:

## Appendix 2.5: Online Debrief

Save story

Thank you for taking the time to participate in this study.

You have taken part in a study to collect data on the effectiveness of diary interventions in improving motivation and resilience. This research has allowed us to investigate how we can increase motivation and resilience through light-touch positive psychology interventions. This has the potential to form the basis of research into a commercial resilience training programme, which is hoped to improve motivation and resilience in the working populous. Self-Determination theory describes the existence of three fundamental, universal needs; competence, relatedness and autonomy. Using your data, we will explore the impact of individuals focusing on increasing these needs and how they may drive behaviour. It is also hoped that an increased understanding of these factors may provide insight into how current motivational training programs can be better adapted to become more engaging and attractive to a wider range of participants. You have provided valuable responses, which will be an integral part of this investigation and we would like to extend our sincere thanks for giving your time and energy to complete your diary and questionnaires. The research has been investigated with researchers from the School of Psychology, Bangor University, under the supervision of Professor John Parkinson. Student researchers is a PhD student from the School of Psychology, Bangor University –Kate Isherwood. This research was conducted with support from the European Social Fund, namely the Knowledge Economy Skills Scholarships (KESS). All data will be kept confidential and may be used in doctoral theses to be submitted in September 2019. No individual participant will be referred to by name. All data after 5 years of completion will be destroyed. Should you have any questions about this study, or would like a copy of the results and findings when available, please e-mail Kate Isherwood (School of Psychology, Bangor University) - k.r.isherwood@bangor.ac.uk Any complaints concerning the conduct of this research should be addressed to Mr. Hefin Francis, School Manager, School of Psychology, Bangor University, Gwynedd, LL57 2AS. Ethics approval code from Bangor University, School of Psychology Once again, thank you for taking the time to participate in this study.

Appendix 2.6: Independent samples t-test conducted to decipher differences at baseline between those who completed the study and those who dropped out.

	Completed study?		<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
	Yes	No				
	M ( $\pm$ SD)	M ( $\pm$ SD)				
SWL	23.25 ( $\pm$ 6.68)	22.26 ( $\pm$ 6.34)	.78	115	.44	.15
DASS	19.85 ( $\pm$ 12.82)	19.85 ( $\pm$ 12.82)	-.85	117	.40	.16
MP	49.49 ( $\pm$ 7.86)	49.93 ( $\pm$ 8.87)	-.28	117	.78	.05
IMI	76.35 ( $\pm$ 11.77)	77.20 ( $\pm$ 10.16)	-.39	113	.70	.08
CD-RISC	63.41 ( $\pm$ 13.26)	62.49 ( $\pm$ 13.18)	.37	116	.72	.07
SPANE	7.60 ( $\pm$ 8.04)	7.19 ( $\pm$ 8.37)	.27	116	.79	.05

Appendix 2.7: z-scores shown for all measures at all time-points (pre-, post-test & follow-up).

	Z-score					
	Skewness			Kurtosis		
	Pre	Post	Follow-up	Pre	Post	Follow-up
SWL	-1.50	-1.36	-1.99	-1.53	-1.14	-1.41
SPANE	-1.82	-1.06	-1.66	-.06	-1.05	-.78
IMI	-1.27	-1.80	-1.28	-.38	-.16	-.72
MP	0.73	-0.18	0.79	-.77	-1.46	-.83
DASS	3.36*	3.42*	4.05*	1.02	1.33	1.99
CD-RISC	-1.34	-2.04	-2.18	.26	.52	.26

Appendix 2.8: Output from a series of Independent Samples T-Tests conducted to test for baseline differences.

	Anxiety	Three Events	<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
	Mean ( $\pm$ SD)	Mean ( $\pm$ SD)				
SWL	21.85 ( $\pm$ 7.51)	24.35 ( $\pm$ 5.82)	-1.58	71	.12	.37
SPANE $\pm$	5.08 ( $\pm$ 8.42)	9.66 ( $\pm$ 6.68)	-2.57	72	.012	.60
IMI	78.31 ( $\pm$ 13.18)	80.88 ( $\pm$ 15.91)	-.74	69	.46	.18
MP	48.41 ( $\pm$ 7.53)	50.66 ( $\pm$ 8.09)	-1.24	72	.22	.29
DASS	22.84 ( $\pm$ 13.77)	18.48 ( $\pm$ 13.60)	1.34	69	.19	.32
CD-RISC	60.79 ( $\pm$ 14.58)	66.09 ( $\pm$ 11.63)	-1.68	69	.10	.40

Appendix 2.9: Mixed Measures ANOVAs conducted when individuals who completed  $\leq 3$  diaries were removed from analysis

	Anxiety	Three Events	<i>F</i>	<i>df</i>	<i>p</i>
	M ( $\pm$ SD)	M ( $\pm$ SD)			
<b>SWL</b>			.39	1.68, 102.68	.68
<i>Pre</i>	22.19 ( $\pm$ 7.51)	24.58 ( $\pm$ 5.78)			
<i>Post</i>	22.66 ( $\pm$ 7.71)	26.00 ( $\pm$ 6.49)			
<i>Follow-up</i>	21.59 ( $\pm$ 8.44)	25.03 ( $\pm$ 7.63)			
<b>SPANE</b>			1.09	1, 62	.30
<i>Pre</i> to <i>Post</i>	.41 ( $\pm$ 6.83)	.66 ( $\pm$ 6.79)			
<i>Pre</i> to <i>Followup</i>	-.13 ( $\pm$ 7.66)	-1.75 ( $\pm$ 9.80)			
<b>IMI</b>			.79	2,120	.46
<i>Pre</i>	78.38 ( $\pm$ 13.84)	82.33 ( $\pm$ 15.93)			
<i>Post</i>	76.28 ( $\pm$ 14.05)	79.87 ( $\pm$ 15.72)			
<i>Follow-up</i>	69.44 ( $\pm$ 16.40)	76.80 ( $\pm$ 16.29)			
<b>MP</b>			2.04	2,124	.14
<i>Pre</i>	48.22 ( $\pm$ 7.64)	50.43 ( $\pm$ 7.76)			
<i>Post</i>	48.94 ( $\pm$ 8.21)	53.59 ( $\pm$ 7.57)			
<i>Follow-up</i>	47.13 ( $\pm$ 8.02)	52.47 ( $\pm$ 8.89)			
<b>DASS</b>			2.08	2,120	.13
<i>Pre</i>	4.42 ( $\pm$ 1.37)	4.05 ( $\pm$ 1.37)			
<i>Post</i>	4.31 ( $\pm$ 1.21)	3.83 ( $\pm$ 1.28)			
<i>Follow-up</i>	5.07 ( $\pm$ 1.51)	4.15 ( $\pm$ 1.31)			
<b>CD-RISC</b>			.78	1.82, 107.16	.46
<i>Pre</i>	62.32 ( $\pm$ 14.01)	65.87 ( $\pm$ 12.03)			
<i>Post</i>	63.10 ( $\pm$ 14.23)	60.54 ( $\pm$ 14.56)			
<i>Follow-up</i>	60.55 ( $\pm$ 14.56)	66.73 ( $\pm$ 14.13)			

# Achieve your goals

Over the next 7 days, you will aim to achieve your goals. Inside this booklet there are 7 pages (one for each day). Don't worry about it taking too much time, it is designed so it shouldn't take you longer than 10 minutes a day.

**Inside, the diary will ask you to:**

**1. Identify something that was exciting today.** This doesn't have to be a big event and could be something as simple as a particular lecture or gym class you are excited about.

**2. Link this excitement to a goal.** Again, don't overthink this; it could be a particular assignment given in a module.

**3. Identify a Bad Guy.** This is any struggle or barrier you have overcome that day. Say you had a 9am lecture that you've never made and you made it today. Well done! The struggle you overcame was the alarm clock and that in itself is a huge achievement.

**Some things to remember:**

1. I won't be collecting them in to read. These are yours **make them as personal as you want to.**
2. **Don't overthink it.** It should only take you 10 minutes a day
3. Events don't have to be all about university, if you're working towards a goal in your sport, jot that down. **Everything is an achievement!**
4. **Enjoy it!**

# Achieve your goals

What was exciting today?

Did this excitement represent action towards a goal?

Did you defeat a Bad Guy today?

Excitement =  
motivate & delight

Achieve = action

Beat the Bad Guys  
= challenge



Appendix 2.11: Email containing the link to the on-line diary and instructions for participants.

"Dear XXX,

Thank you very much for taking the time to complete my study this morning. Please find attached the link to the diary. It is important that you fill in this diary once a day for the next 5 days - this should only take you 10 minutes per day. As I mentioned in the session, it is your choice when you start to complete the diary, but please make sure you aim to complete it for 5 consecutive days between now and your next testing session next week.

<http://eu.sensemaker-suite.com/collector/collector.gsp?projectId=GSR2&language=En#Collector>

When you log on to the site, it will ask you for a unique ID. **Your unique ID is: GSREXXX**

Any problems or questions, please do let me know!

Warm regards,  
Kate"

Appendix 2.12: Pre-test demographic information.

	No. of responses			
	Response	Total n	Excitement	First Three Things
Age	18-25	55	26	25
	34.41	1	-	1
Gender	Male	12	5	7
	Female	43	24	26
	Not Specified	1	1	-
Parental household income	N/A	2	1	1
	Less than £20,000	19	9	10
	£20,001 - £40,000	18	13	5
	£40,001 - £60,000	9	1	8
	£60,001 - £80,000	5	4	1
	£80,001 - £100,000	2	1	1
	£100,001 +	1	1	-
Employed?	Yes	16	8	8
	No	37	20	17
	Not Specified	3	2	1
Hours worked per week.	Less than 4	6	3	3
	4-8	8	5	3
	8-12	1	-	1
	12-16	4	2	2
	16+	2	1	1
Volunteer?	Yes	11	5	6
	No	41	22	19
	Not Specified	4	3	1
Hours volunteered per week.	Less than 4	10	5	5
	4-8	6	3	3
Have an interest in Positive Psychology?	Yes	47	25	22
	No	8	5	3
	Not Specified	1	-	1
Previous participation in a PPI?	Yes	5	4	1
	No	50	25	25
	Not specified	1	1	-

Appendix 2.13: Independent t-test conducted to decipher differences at baseline between those who completed the study vs. those who dropped out

	Completed study?		<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
	Yes	No				
	M ( $\pm$ SD)	M ( $\pm$ SD)				
SWL	22.93 ( $\pm$ 6.09)	23.91 ( $\pm$ 5.59)	-.77	88	.45	.01
DASS	18.82 ( $\pm$ 12.68)	16.39 ( $\pm$ 10.57)	.93	87	.36	.02
MP	51.35 ( $\pm$ 7.04)	51.14 ( $\pm$ 8.88)	-.035	86	.97	>.001
IMI	82.41 ( $\pm$ 13.58)	81.62 ( $\pm$ 14.78)	.26	88	.80	>.001
CD-RISC	61.13 ( $\pm$ 12.78)	64.21 ( $\pm$ 11.95)	-1.12	85	.27	.03
SPANE	6.96 ( $\pm$ 6.99)	9.06 ( $\pm$ 4.87)	-1.50	86	.14	.05

Appendix 2.14: z-scores displayed for all measures (pre-, post-test, and follow-up).

	Z-score					
	Skewness			Kurtosis		
	Pre	Post	Follow-up	Pre	Post	Follow-up
SWL	-1.24	-.70	-.03	-1.42	-.62	-1.58
SPANE	-.83	-2.44	-2.65	-.38	2.41	1.48
IMI	-3.14	-3.14	-1.53	1.57	3.01	.29
MP	-1.68	2.84	-1.10	.34	2.98	-1.09
DASS	2.84	2.46	1.48	.57	-.62	-1.23
CD-RISC	.04	-.23	-.72	-.64	-.81	.35

Appendix 2.15: Output from a series of Independent Samples T-Tests conducted to test for baseline differences

	Excitement	First Three Things	<i>t</i>	<i>df</i>	<i>p</i>
	Mean ( $\pm$ SD)	Mean ( $\pm$ SD)			
SWL	21.54 ( $\pm$ 7.81)	21.75 ( $\pm$ 6.24)	-.074	23	.94
SPANE	6.71 ( $\pm$ 8.87)	6.00 ( $\pm$ 6.63)	.20	20	.85
IMI	80.86 ( $\pm$ 14.34)	80.10 ( $\pm$ 8.94)	.15	22	.88
MP	49.71 ( $\pm$ 8.46)	49.71 ( $\pm$ 8.46)	-1.89	24	.07
DASS	14.50 ( $\pm$ 10.85)	18.50 ( $\pm$ 8.79)	-.96	22	.35
CD-RISC	69.46 ( $\pm$ 9.91)	77.10 ( $\pm$ 11.38)	-1.72	21	.10

## Appendix 2.16: The general IMI scale.

Participant ID.....

Date: .....

Pre-, post-test or follow-up:.....

Think of an activity that you have partaken in over the last week. This activity does not have to be work-related and could be a recreational activity. Please rate the following statements on a scale of 1 to 7 (1 = not at all true; 4 = somewhat true; 7 = very true), which indicates how much the statement applied to this activity over the last week.

Over the last week, I have...

	1	2	3	4	5	6	7
Enjoyed my activity very much.							
Done pretty well on my activity, compared to other students.							
Put a lot of effort into my activity							
Not felt nervous about my activity.							
had some choice in my activity.							
Felt that my activity could be of some value to me.							
Completed my activity because I wanted to.							
Felt that I would be willing to complete this activity again, because it had some value to me.							
Felt very tense whilst completing my activity.							
Felt it was important to me to do well at my activity.							
Felt that my activity did not hold my attention at all.							
Felt that I am satisfied with my performance on my activity.							
Felt that I didn't try very hard to do well at my activity.							
Completed my activity because I had to.							
Described my activity as interesting.							
Felt that after working on this activity for a while, I am pretty competent at my activity.							

Thought about how much I was enjoying my activity whilst I was completing it.

--	--	--	--	--	--	--	--

#### Scoring

Interest/ enjoyment = 1, 11 (REV), 15 & 17

Perceived competence = 2, 12, 16

Effort = 3, 13 (REV), 10

Pressure = 5, 7, 14 (REV), 4 (REV), 9,

Value = 6, 8

Appendix 2.17: Output from a series of Independent Samples T-Tests conducted to test for baseline differences.

	Excitement	First Three Things	<i>t</i>	<i>df</i>	<i>p</i>
	Mean ( $\pm$ SD)	Mean ( $\pm$ SD)			
SWL	21.54 ( $\pm$ 7.81)	21.75 ( $\pm$ 6.24)	-.074	23	.94
SPANE	6.71 ( $\pm$ 8.87)	6.00 ( $\pm$ 6.63)	.20	20	.85
IMI	80.86 ( $\pm$ 14.34)	80.10 ( $\pm$ 8.94)	.15	22	.88
MP	49.71 ( $\pm$ 8.46)	49.71 ( $\pm$ 8.46)	-1.89	24	.07
DASS	14.50 ( $\pm$ 10.85)	18.50 ( $\pm$ 8.79)	-.96	22	.35
CD-RISC	69.46 ( $\pm$ 9.91)	77.10 ( $\pm$ 11.38)	-1.72	21	.10



Appendix 2.18: z-scores displayed for all measures (pre-, post-test & follow-up).

	Z-score					
	Skewness			Kurtosis		
	Pre	Post	Follow-up	Pre	Post	Follow-up
SWL	-.47	-1.64	-2.60*	-1.45	-.55	.92
SPANE	-1.51	-.78	-.26	-.11	1.27	-.01
IMI	-1.57	-.29	-.16	.28	-.19	-.43
MP	1.22	1.42	1.32	-.66	.03	.32
DASS	.89	1.65	1.90	-.68	.23	.33
CD-RISC	.52	-.82	-.49	.48	-.52	.43

Chapter 4			Pg.
<b>Study 3</b>	<i>Appendix</i>	3.1 Locus of Control (LOC) Diary 3.2 Positive Events (PE) Diary 3.3 Sleep Diary 3.4 Follow-up demographic questionnaire 3.5 Center for Epidemiological Studies-Depression Scale (CES-D). 3.6 Spheres of Control (SOC-3) scale 3.7 Information Sheet 3.8 Consent form 3.9 Debrief sheet 3.10 Demographic information for all participants 3.11 Independent samples t-test conducted to decipher differences at baseline between those who completed the study and those who dropped out. 3.12 z-scores shown for all measures at all time-points (pre-, post-test & follow-up). 3.13 Output from a series of Independent Samples T-Tests conducted to test for baseline differences	

### Appendix 3.1: Locus of Control Diary

Think of an event today where you controlled the outcome. This could be something as simple as you having authority over a decision, you were in charge at work or looking after younger siblings at home, or could be something as simple as you choosing what to have for lunch.

How did this make you feel? Was it a positive experience or a negative experience to have this freedom of control?

Rate on the scale below, by circling the number that closest relates to you, how in control you felt in this situation? (*0 no control; 10 completely in control*).

0 \_\_\_\_ 1 \_\_\_\_ 2 \_\_\_\_ 3 \_\_\_\_ 4 \_\_\_\_ 5 \_\_\_\_ 6 \_\_\_\_ 7 \_\_\_\_ 8 \_\_\_\_ 9 \_\_\_\_ 10

How could you use the lessons from this experience again?

### Appendix 3.2: Positive Events (PE) Diary

Think of a positive event today. What made you feel good today?

What specific emotions did this elicit? Did it make you happy? Excited? Contented?

What was the consequence of this positive event? Did you engage more with other activities?

Did you have any other positive experiences?

1.

2.

3.

### Appendix 3.3: Sleep Diary

**How many hours sleep did you get last night?** (if you use a health tracker (i.e. FitBit) then please feel free to refer to this).

\_\_\_\_\_

**What time did you go to bed last night?**

\_\_\_\_\_ am/pm (*circle which applies*)

**And what time did you wake up?**

\_\_\_\_\_ am/pm (*circle which applies*)

**On a scale of 0-10, how rested did you feel today?** (*0 not rested; 10 fully rested*)

0 \_\_\_\_ 1 \_\_\_\_ 2 \_\_\_\_ 3 \_\_\_\_ 4 \_\_\_\_ 5 \_\_\_\_ 6 \_\_\_\_ 7 \_\_\_\_ 8 \_\_\_\_ 9 \_\_\_\_ 10

**On a scale of 0-10, how would you rate your sleep quality last night?** (*0 terrible quality; 10 great quality*)

0 \_\_\_\_ 1 \_\_\_\_ 2 \_\_\_\_ 3 \_\_\_\_ 4 \_\_\_\_ 5 \_\_\_\_ 6 \_\_\_\_ 7 \_\_\_\_ 8 \_\_\_\_ 9 \_\_\_\_ 10

### Appendix 3.4: Follow-up Questionnaire

Participant ID: .....

Pre, Post-test & follow-up:.....

Date:.....

I kept up with the diary

☐

YES

☐

NO

If so, roughly how many days did you keep up the diary for?

☐

0 days

☐

1-7  
(1-week)

☐

8-13  
(2-weeks)

☐

14-20  
(3 weeks)

☐

21-28  
(4-weeks)

I did/ didn't keep up with the diary because..... (delete as appropriate)

Did you find the diary useful?

☐

YES

☐

NO

I did/ didn't find the diary useful because..... (delete as appropriate)

Appendix 3.5: Center for Epidemiological Studies- Depression Scale (CES-D).

Participant ID:.....

Pre/ post-test/ follow-up?.....

Date:.....

Below is a list of the ways in which you may have felt or behaved. Please tell me, by placing a mark in the relevant box, how often you have felt this way during **the past week**.

	Rarely or none of the time ( <b>less than 1 day</b> )	Some or a little of the time ( <b>1-2 days</b> )	Occasionally or a moderate amount of time ( <b>3-4 days</b> )	Most or all of the time ( <b>5-7 days</b> ).
I was bothered by things that usually don't bother me.				
I did not feel like eating; my appetite was poor.				
I felt that I could not shake off the blues even with help from my friends and family.				
I felt that I wasn't as good as other people				
I had trouble keeping my mind on what I was doing				

	Rarely or none of the time ( <b>less than 1 day</b> )	Some or a little of the time ( <b>1-2 days</b> )	Occasionally or a moderate amount of time ( <b>3-4 days</b> )	Most or all of the time ( <b>5-7 days</b> ).
I felt depressed				
I felt everything I did was an effort.				
I felt hopeful about the future				
I thought my life had been a failure				
I felt fearful				
My sleep was restless				
I was happy				
I talked less than usual				
I felt lonely				



	Rarely or none of the time ( <b>less than 1 day</b> )	Some or a little of the time ( <b>1-2 days</b> )	Occasionally or a moderate amount of time ( <b>3-4 days</b> )	Most or all of the time ( <b>5-7 days</b> ).
People were unfriendly				
I enjoyed life				
I had crying spells				
I felt sad				
I felt that people disliked me				
I could not 'get going'.				

## Scoring the CES-D

In scoring the CES-D, a value of 0, 1, 2 or 3 is assigned to a response depending upon whether the item is worded positively or negatively.

For items 1-3, 5-7, 9-11, 13-15, 17-20 the scoring is:

- Rarely or none of the time (less than one day) = 0
- Some or a little of the time (1-2 days) = 1
- Occasionally or a moderate amount of time (3-4 days) = 2
- Most or all of the time (5-7 days) = 3

Items 4, 8, 12, 16 are reverse scored as follows:

- Most or all of the time (5-7 days) = 0
- Occasionally or a moderate amount of time (3-4 days) = 1
- Some or a little of the time (1-2 days) = 2
- Rarely or none of the time (less than 1 day) = 3

Possible range of scores is 0 to 60, with the higher scores indicating the presence of more symptomatology.

### Appendix: 3.6: Spheres of Control (SOC-3) Scale

Participant ID:.....

Pre/Post-test/ Follow-up?:.....

Date:.....

Have a think about the situations you have been in over the last week. Please indicate, by placing a mark next to the relevant number, how much you agree with each statement (1 = disagree; 4 = neutral; 7 = agree).

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
I can usually achieve what I want if I work for it.							
Once I make plans, I am almost certain to make them work.							
I prefer games involving some luck over games requiring skill							
I can learn almost anything if I set my mind to it.							
My major accomplishments are entirely due to my hard work and ability							
I usually do not set goals because I have a hard time following them through							
Bad luck has sometimes prevented me from achieving things.							
Almost anything is possible for me if I really want it.							
Most of what happens in my career is beyond my control							

I find it pointless to keep working on something that's too difficult for me							
--	--	--	--	--	--	--	--

The SOC inventory measures the degree to which people perceive control over three spheres of life: the personal achievement, interpersonal relations, and social and political institutions. Someone might be high in personal control but low in interpersonal and socio-political control, for example. Any other combination is possible, although Personal Control is usually higher than Interpersonal Control, which is usually higher than Socio-Political Control.

### Scoring:

On all the negatively-keyed items listed below, reverse the subject's responses (i.e., 7=1, 6=2, 5=3, 4=4, 3=5, 2=6, 1=7). Then calculate the score for each scale by summing the 10 items.

Personal Control: Positive 1, 4, 10, 13, 22  
 Negative 7, 16, 19, 25, 28

## Appendix 3.7: Information Sheet

### Information for participants Improving Motivation and Resilience: A Positive Diary Perspective

PhD Student Researcher: Kate Isherwood

email: [k.r.isherwood@bangor.ac.uk](mailto:k.r.isherwood@bangor.ac.uk)

Tel: 01248 388824

Supervisor: Professor John Parkinson

email: [j.parkinson@bangor.ac.uk](mailto:j.parkinson@bangor.ac.uk)

Dear participant,

Thank you for taking the time to read this information sheet. We are inviting you to take part in research into the effectiveness of diary interventions on wellbeing and perceptions of control. This study will investigate the effect of a Perceptions of Control, Positive Events or Sleep Diary on wellbeing. Before you take part in research, it is important that you understand why the research is being conducted and what the research will involve. We would like you to take the time to read the following information carefully. Feel free to ask any questions to researchers should they arise.

**Background to study:** Positive Psychology exercises have been shown to improve well-being. In his inaugural study, Martin Seligman, showed that interventions such as 3 Good Things and Using Signature Strengths in New Ways, improve wellbeing at 6-month follow-up (Seligman, Steen & Park, 2005). We are studying the value of focussing on positive events and perceptions of control over the course of a week. When an individual focusses on positive events, it momentarily broadens their attention and thinking, meaning they are more likely to take on challenge and be more open to new experiences (*Broaden Build Theory*; Frederickson, 2004).

Our Locus of Control describes the existence of two axis of control; internal or external (Rotter, 1966). An Internal Locus of Control suggests that an individual believes that they ultimately have control over events and its outcomes (e.g. *"I worked hard, and deserved my good exam results"*). Whereas, an external Locus of Control suggests that an individual believes that this control is due to external forces (e.g. *my exam performance is down to my teacher's marking not my effort*). Research has shown that when an individual internalises their successes and recognises their hard work, they are happier, less depressed and feel more equipped to deal with life's challenges.

It is hoped that these interventions will increase subjective wellbeing and perceptions of control. These interventions are furthering research into this area by assessing the effectiveness of focussing on perceptions of control versus positive events.

#### Do I have to take part?

It is up to you to decide whether or not you want to take part. If you decide to take part, we will give you this information sheet to keep and we will ask you to sign a consent form. After agreeing to take part you are still free to withdraw at any time and without giving a reason. There is no penalty for withdrawing at any time.

**What do I have to do?**

If you decide to take part you will be asked to complete some demographic questionnaires and other questionnaires asking you about your levels of motivation, well-being alongside other relevant measures (such as perceptions of control).

You will be given training into how to complete the diary using examples. This study will last for 3 sessions: two one-week apart, with the third taking place 1-month later. At the end of session 1 you will be given a diary, and asked to complete this diary over 7 consecutive days between session 1 and session 2. During session 1 and session 2 you will also be given a set of demographic, mood and perception of control questionnaires to complete. After session 2, the experimenter will contact you again 1-month later to complete these questionnaires for a final time, in order to assess the lasting effects of the Positive Psychology exercises.

**What are the possible disadvantages and risks of taking part?**

There are no expected risks to this study. Should you not wish to continue with the study you are free to withdraw without penalty. You may also omit questions you do not wish to answer.

Should you for any reason feel distressed at any time, please seek support from the relevant department. The counselling department details, should you need it, are outlined below:

*Student Counselling Service*  
*Second Floor Neuadd Rathbone,*  
*College Road,*  
*Bangor University,*  
*Bangor,*  
*LL57 2DF.*  
*Tel: 01248 388520 or email: [counselling@bangor.ac.uk](mailto:counselling@bangor.ac.uk).*

**What are the possible benefits of taking part?**

By participating in this study you are aiding the progression of psychological science, specifically in the field of Positive Psychology. The theoretical and practical implications of this may include the development of similar projects, and the enhancement of further positive event diary interventions.

**What will happen to the results of my study?**

When the study is complete, it will form part of a doctoral thesis submitted to the School of Psychology, alongside possible publications; data may also be presented at conferences. Please be assured that all data will be kept confidential, and all data will be anonymised. You will not be referred to by name, and data will only be identifiable by an anonymous participant number. Furthermore, all data will be stored securely within the School of Psychology, and securely destroyed after 5 years.

**Will I be paid for taking part in the study?**

Participants recruited through SONA will SONA credits for their participation; participants recruited externally will receive £7 per hour of their participation (this is calculated in the hours in contact with the researcher, and includes the time filling in the diary).

**What if I have questions about my participation?**

If you require any assistance or have any questions about the research study, please feel free to contact the above researchers (details above).

**What if I have any complaints/ queries?**

Please contact the School Manager, Huw Ellis at e-mail: [huw.ellis@bangor.ac.uk](mailto:huw.ellis@bangor.ac.uk)

Once again, thank you very much for taking the time to participate in the study.

Yours faithfully,



Professor John Parkinson.  
Head of School of Psychology, Bangor University

## Appendix 3.8: Consent Form

### Participant Consent Form

PhD Student researcher:

Kate Isherwood

Email: [k.r.isherwood@bangor.ac.uk](mailto:k.r.isherwood@bangor.ac.uk)

TEL: 01248388824

Supervisor:

Professor John Parkinson

Email: [j.parkinson@bangor.ac.uk](mailto:j.parkinson@bangor.ac.uk)

TEL: 01248388340

You are being asked to take part in a research study examining the benefits of Positive Psychology exercises, specifically the effect of diary interventions, on wellbeing and perceptions of control. You are free to withdraw from the study at any time without penalty and your data will be discarded. Please contact the experimenter if you feel you want to withdraw.

During the study, you will be asked to fill out questionnaires and to complete some simple written exercises. Each session will last approximately an hour, and you will be asked to fill in a simple diary for 7 consecutive days throughout the week. We will meet on the same day and time for each of the first two sessions (pre- and 1-week post-test; 1-month follow-up will be conducted online).

The researcher will email you again at 1-month and ask you to complete the questionnaires again, to assess any lasting effects of the exercise, alongside finding out if you carried on completing the intervention. By signing this consent form, you are consenting to the provision of an email contact and for the researcher to contact you.

**What will happen to the results of this study?** The responses will be used to investigate the efficacy of Positive Psychology exercises in the form of a diary intervention to improve wellbeing and motivation. Results from the study may be included in a thesis to be submitted in May 2019. These results may also be published in academic journals and presented at academic conferences. However, at no point will any participant be identified by name.

**Confidentiality:** The names of individual participants will not be noted in the written report from the study. Answers to the questions and the data will be linked via an anonymous ID, from which the analyses will be then be conducted. Only researchers named on the above consent form will have access to any data. After 5 years all data will be destroyed.

If you have any further questions at any point in the study, please contact Kate Isherwood (details above). If you wish to speak to the lead supervisor, then please contact Prof. John Parkinson (details above). Any complaints you have about this study or your participation then please contact Mr. Huw Ellis, School Manager, School of Psychology at [huw.ellis@bangor.ac.uk](mailto:huw.ellis@bangor.ac.uk).



**School of Psychology Ethics Approval Code: 2018-16249**

Once again, thank you very much for taking the time to participate in the study.

Yours faithfully,

A handwritten signature in blue ink, appearing to read 'J. Parkinson', with a long horizontal stroke extending to the left.

Professor John Parkinson.  
Head of School of Psychology, Bangor University

Please **write your initials** in the box that best represents your answer:

1. I have had the opportunity to ask questions and discuss the study.

YES

NO

2. I have received enough information about the study and fully understand what is expected of me.

YES

NO

3. I understand that my participation is voluntary

YES

NO

4. I understand that I am able to withdraw at any time throughout the study, without giving reason

YES

NO

5. I understand that research data may be accessed by researchers working at or with Bangor University, or used in possible publications, conference presentations and a thesis submission in September 2019, but at all times I will be non-identifiable and data will be kept confidential.

YES

NO

6. I agree to take part in the study

YES

NO

Participant name:

Date:

Participant signature:

---

Researcher name:

Date:

Researcher signature:

## Appendix 3.9: Debrief Sheet

### Debriefing Sheet

Thank you for taking the time to participate in this study. You have taken part in a study to collect data on the effectiveness of diary interventions to improve wellbeing. This research has allowed us to investigate how we can increase perceptions of control and positive affect through light-touch positive psychology interventions. This has the potential to form the basis of research into a commercial training programme, which is hoped to improve motivation and employment prospects in the employed and unemployed populations.

Locus of control describes the existence of two different control axis; internal and external. Depending on the valence of the event, and how we perceive this control, this drives our future behaviour, our self-talk and self-esteem. Furthermore, if we focus on positive events from the day, this momentarily broadens our attention, meaning that we are more likely to take on challenge and be open to new experiences. Using your data, we will explore the impact of focusing on positive events and events that we can control and try to further understand how they drive behaviour. You have provided valuable responses, which will be an integral part of this investigation and we would like to extend our sincere thanks for giving your time and energy to complete your diary and questionnaires.

The research has been investigated with researchers from the School of Psychology, Bangor University, under the supervision of Professor John Parkinson. The student researcher is a PhD student from the School of Psychology, Bangor University. This research was conducted with support from the European Social Fund, namely the Knowledge Economy Skills Scholarships (KESS).

All data will be kept confidential and may be used in doctoral theses to be submitted in September 2019. No individual participant will be referred to by name. All data after 5 years of completion will be destroyed.

Should you have any questions about this study, or would like a copy of the results and findings when available, please e-mail Kate Isherwood (School of Psychology, Bangor University) - [k.r.isherwood@bangor.ac.uk](mailto:k.r.isherwood@bangor.ac.uk). Any complaints concerning the conduct of this research should be addressed to Mr. Huw Ellis, School Manager, School of Psychology, Bangor University, Gwynedd, LL57 2AS.

Ethics approval code from Bangor University, School of Psychology: XXXXX

Once again, thank you for taking the time to participate in this study.

Yours faithfully,



Professor John Parkinson,  
Head of School of Psychology, Bangor University.

### 3.10: Demographic Information for all participants

Scale	Response	No. of responses			
		Total n	LOC	PE	Sleep
Gender	Male	19	5	8	6
	Female	62	25	19	18
Parental	N/A	4	1	0	3
household income	Less than £20,000	26	10	8	8
	£20,001 - £40,000	20	7	7	6
	£40,001 - £60,000	24	9	9	6
	£60,001 - £80,000	3	1	1	1
	£80,001 - £100,000	2	1	1	0
	£100,001 +	2	1	1	0
Volunteering	Yes	25	9	8	8
	No	56	21	19	16
Hours volunteered per week.	Less than 4	19	5	5	7
	4-8	7	4	3	1
	8-12	1	0	1	0

3.11: Independent Samples t-test conducted to decipher differences at baseline between those who completed the study and those who dropped out.

	Completed study?		<i>t</i>	<i>df</i>	<i>p</i>
	Yes	No			
	M (±SD)	M (±SD)			
SWL	21.31 (±6.59)	22.55 (±7.39)	-.74	99	.46
CD_RISC	62.73 (±13.92)	65.80 (±17.09)	-.84	99	.40
SPANE	4.44 (±7.61)	6.65 (±9.11)	-1.12	99	.27
SOC-3	49.71 (±7.86)	48.20 (±9.85)	.73	98	.47
IMI	73.78 (±13.44)	73.80 (±14.53)	-.007	98	.99
CES-D	20.05 (±9.68)	19.40 (±9.07)	.27	98	.79

Appendix 3.12: z-scores shown for all measures at all time points (pre-, post-test, & follow-up).

	Z-score					
	Skewness			Kurtosis		
	Pre	Post	Follow-up	Pre	Post	Follow-up
SWL	-1.04	-1.51	-1.68	-1.15	-0.06	0.47
SPANE	0.01	-1.27	-0.96	-0.91	-0.14	-1.46
CES-D	2.59	4.05*	2.25	-0.55	2.25	-0.60
IMI	-0.27	0.01	0.61	-0.27	-0.37	-1.14
SOC-3	0.71	-0.65	0.34	-0.31	-0.55	-0.46
RES	0.86	0.08	-2.86	-1.21	-0.54	5.39*

Appendix 3.13: Output from a series of One-Way ANOVAs conducted to test for baseline differences.

	LOC	PE	SLEEP			
	Mean ( $\pm$ SD)	Mean ( $\pm$ SD)	Mean ( $\pm$ SD)	<i>f</i>	<i>df</i>	<i>p</i>
SWL	21.70 ( $\pm$ 6.71)	22.16 ( $\pm$ 5.10)	21.17 ( $\pm$ 6.61)	.15	2,75	.86
SPANE	6.07 ( $\pm$ 7.79)	2.19 ( $\pm$ 6.51)	4.54 ( $\pm$ 8.20)	1.86	2,77	.16
CES-D	18.77 ( $\pm$ 9.48)	20.58 ( $\pm$ 8.50)	20.78 ( $\pm$ 11.37)	.42	2,77	.66
IMI	70.43 ( $\pm$ 14.09)	74.30 ( $\pm$ 10.64)	60.45 ( $\pm$ 11.37)	8.56	2,78	<.001
CONT	50.80 ( $\pm$ 8.98)	48.72 ( $\pm$ 7.00)	49.21 ( $\pm$ 7.73)	.51	2,76	.51
RES	66.70 ( $\pm$ 13.07)	58.27 ( $\pm$ 12.73)	63.22 ( $\pm$ 15.20)	2.68	2,76	.075

Chapter 5			Pg.
Study 4	Appendix	4.1	<b>Information Sheet</b>
		4.2	<b>Consent Form</b>
		4.3	<b>Improving Motivation (Week 1)</b>
		A	Session plan for course leaders
		B	Week 1 PowerPoint presentation
		C	SDT quiz
		D	BOOST! cards
		4.4	<b>Changing Thinking Styles (Week 2)</b>
		A	Session plan for course leaders
		B	Week 2 PowerPoint presentation
		C	Mindtraps worksheet
		D	Homework task
		E	BOOST! cards
		4.5	<b>Using Signature Strengths (Week 3)</b>
		A	Session plan for Course Leaders
		B	Week 3 PowerPoint presentation
		C	'Strengths Box' template
		D	Homework Task
		E	BOOST! cards
		4.6	<b>Improving Resilience (Week 4)</b>
		A	Session plan for Course Leaders
		B	Week 4 PowerPoint presentation
		C	Worksheet 1
		D	Worksheet 2
		E	Homework Task
		F	BOOST! cards
		4.7	<b>Goal-Setting (Week 5)</b>
		A	Session plan for Course Leaders
		B	Week 5 PowerPoint presentation
		C	Value Wheel
		D	In-session worksheet
		E	Micro-resilience worksheet
		F	BOOST! cards
		4.8	<b>Self-Compassion (Week 6)</b>
		A	Session plan for Course Leaders
		B	PowerPoint presentation
		C	In-session worksheet
		D	BOOST! cards
		4.9	<i>z-scores for each measure</i>



## Appendix 4.1: Information Sheet

### **Information Sheet BOOST: Getting Back into Work With a Resilience Toolkit.**

You are enrolled onto a 6-week course run in collaboration with Bangor University and Rhyl City Strategy which has the aim of helping you build psychological skills that will help in your life. Over the next 6-weeks, you will receive training and tools to implement in the following areas:

- Motivation
- Strengths
- Goal Setting
- Resilience
- Attributional Re-training
- Self-Compassion

#### **What do I have to do?**

Each week, you will be assigned an exercise to complete within the sessions, alongside a take home task to complete in your own time. The trainers will provide you with all the necessary tools and information you need to complete these tasks. Before the start of the program, you will be asked to fill in brief questionnaires, which will measure your levels of motivation, resilience, satisfaction with life and levels of depression, stress and anxiety. These will be measured again upon completion of the course and again 2-months later.

#### **What is the purpose of me taking part?**

The program aims to implement established Positive Psychology methodologies, alongside Cognitive Behavioural techniques into the workplace. You will be given the tools to use and implement into your everyday lives and into your job seeking.

#### **Do I have to take part?**

Your participation is voluntary and you can withdraw at any point and your data will be removed from the study. However, you can still take part in the course, and your data will be deleted from the study without penalty.

#### **What are the possible disadvantages and risks of taking part?**

There are no expected risks to this study. Should you not wish to continue with the study you are free to withdraw without penalty. You may also omit questions you do not wish to answer. Should you for any reason feel distressed at any time, please seek support from any trainer

within RCS, who can direct you to the relevant service.

**How is confidentiality ensured?**

All data from the questionnaires will be kept securely and confidentially. All data will be anonymized so that no-one can identify you from your responses.

**What if I have further questions?**

We welcome the opportunity to answer any questions you may have about the course. Please contact the trainer running the session, from either RCS or from Bangor University, or feel free to email either Kate Isherwood ([k.r.isherwood@bangor.ac.uk](mailto:k.r.isherwood@bangor.ac.uk)) or Rhi Willmot ([r.willmot@bangor.ac.uk](mailto:r.willmot@bangor.ac.uk)) at School of Psychology, Bangor University, Gwynedd, LL57 2AS.

## Appendix 4.2: Consent Form

### Consent Form.

This is to certify that I ....., agree to participate as a volunteer in this 6-week resilience building program. The course and its role has been explained to me by..... and I fully understand what is expected of me.

I consent to my data being used in a thesis submitted in 2019, and I understand that if I withdraw then my data will be destroyed at no penalty to me. I also understand that I can participate in the course without my data being used in research. Furthermore, I understand that although my email address is kept by RCS, my data will be non-identifiable by researchers.

We would like to also collect further data from your experiences on the course in the next couple of months to further support our data and expectations we have of the course. Please circle the following statements as appropriate:

- a. I DO consent to the trainers contacting me via email at a later date within the next couple of months for more information

Please provide below an email address via which we can contact you:

.....

- b. I DO NOT consent to the researchers contacting me via email at a later date within the next couple of months for information.

Please only sign if you have read and fully understood this content.

Participant Signature: .....

Date: .....

Researcher Signature: .....

Date: .....

## Appendix 4.3: Improving Motivation (Week 1)

Appendix 4.3A: Session plan for Course Leaders

Appendix 4.3B: Week 1 PowerPoint Presentation

Appendix 4.3C: SDT quiz

Appendix 4.3D: Week 1 BOOST! cards

# Appendix 4.3A: Session plan for Course Leaders

## WEEK 1 – Improving motivation to work

TOPIC	Building motivation for work
TIME	4.3 hours
Learning outcomes	Materials, resources needed:
<p>Aim: To give participant's an understanding of motivation and how they can harness and use it.</p> <p>Objectives: At the end of the session, participants will:</p> <ul style="list-style-type: none"> <li>- Understand motivation from a theoretical perspective</li> <li>- Considered free and controlled motivation</li> <li>- Identified a goal</li> <li>- Identified how they are motivated by their core needs.</li> </ul>	<ul style="list-style-type: none"> <li>- Pen</li> <li>- Post-it notes</li> <li>- Flip chart paper</li> <li>- Motivation to work worksheet (Kate to print)</li> <li>- SDT diary (Kate to print)</li> <li>- Plastic cups (Kate will get)</li> <li>- Water</li> </ul>

TIMING	ACTIVITY
10am	ARRIVE & WELCOME
10:05am	Brief intro to course; intro to Positive Psychology; intro to ourselves and background. Intro to plan for the day.
10:20am	ICE BREAKER – get into line of birthday without speaking and discuss with the person on your left why you are here today.
10:40am	<p>Motivation exercise.</p> <ol style="list-style-type: none"> <li>1. Recall an experience when you were highly motivated and an experience when you weren't motivated.</li> <li>2. In groups, adjectives that describe both experiences on post-it notes.</li> <li>3. Share on big board with trainers</li> <li>4. Split into free (enjoyment) or controlled (external pressure) motivation.</li> </ol>
11:30am	Morning break
11:45am	<p>Theory of motivation. Show power-point.</p> <p>Motivation is: The force/energy behind behaviour.</p> <ul style="list-style-type: none"> <li>- Self-Determination Theory</li> <li>- Intrinsic vs. Extrinsic motivation</li> <li>- Controlled to integrated motivation</li> </ul>
12:15pm	LUNCH
1pm	SDT quiz; read some situations and ask them to vote for their outcome. The overall score = how motivated by which need they are.
1:30pm	Think of a time when you were motivated by autonomy, social and competence.
1:45pm	Motivation for a goal worksheet
2pm	Introduction to 'homework' – SDT diary. Ask them to fill in one day to gather understanding, give them each 7 copies.
2:30pm	BYE.

## Appendix 4.3B: Week 1 PowerPoint presentation



### Some housekeeping:

1. More forms!
2. If you ever need to leave because you are struggling with content, just go. But someone will follow you. If you need to just nip out for the toilet, then just make a sign, or let us know, so we don't follow you!
3. Always ask if you don't understand anything.



### Who are we?

#### Thursday Team

Kate Isherwood  
Bangor University

Rhi Willmot  
Bangor University

Brianne Nichols  
Bangor University

#### Friday Team

Hayley Romain  
RCS Wales

Sioned Hughes  
RCS Wales



### What is BOOST?



### How will the course be structured?

Week 1 – Motivation

Week 2 – Thinking styles

Week 3 – Strength building

Week 4 – Resilience

Week 5 – Goal-setting

Week 6 – The Game of Life: Bringing it all together.



## Today:

TIMING	ACTIVITY
10am	ARRIVE & WELCOME
10:05am	Brief intro to course; intro to Positive Psychology; intro to ourselves and background. Intro to plan for the day.
10:20am	ICE BREAKER – get into line of birthday without speaking and discuss with the person on your left why you are here today.
10:40am	Motivation exercise: 1. Recall an experience when you were highly motivated and an experience when you weren't motivated. 2. In groups, adjectives that describe both experiences on post-it notes. 3. Share on big board with trainers 4. Split into free (enjoyment) or controlled (external pressure) motivation.
11:30am	Morning break
11:45am	Theory of motivation. Show power-point. Motivation is: The force/energy behind behaviour. - Self-Determination Theory - Intrinsic vs. Extrinsic motivation - Controlled to integrated motivation
12:15pm	LUNCH
1pm	SOT quiz; read some situations and ask them to vote for their outcome. The overall score = how motivated by which need they are.
1:30pm	Think of a time when you were motivated by autonomy, social and competence.
1:45pm	Motivation for a goal worksheet
2pm	Introduction to 'homework' – SOT diary. Ask them to fill in one day to gather understanding, give them each 7 copies.
2:30pm	BYE.

**boost!**

## Ice-Breaker

- Get into line of your birth DATE, without talking to anyone.
- The line should be January to December at the end.
- Say one reason to the person on your left why you are here today.

**boost!**



## Week 1: Improving Motivation

**boost!**

## Motivation

What do you think motivation is?

**boost!**

## Motivation

Motivation is the force behind our behaviour.

1. Direction – our motivation has a direct impact on our choice of goal.
2. Energy – motivation provides the energy behind our behaviour.
3. Persistence – 'Get up and go'. Determines the point at which we give up.

**boost!**



# Motivation

Motivation is the force behind our behaviour.

1. Freedom – a need for control and freedom in our choices.
2. Skill – a need to feel like we know what we are doing.
3. Social – the drive to make friends and socialise.

## Self-Determination Theory

(Ryan & Deci, 2000)



# Motivation

Motivation is the force behind our behaviour.

Motivation is our ability to strive. We all have a want to achieve, to succeed but we don't always know what or how!



## 2 types of motivation

Motivation is the force behind our behaviour.

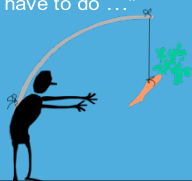
### FREE

- Enjoyment
- Choice
- A 'want' to do something



### CONTROLLED

- External pressure
- Gains/ rewards
- "I have to do ..."



Non self-determined			Self-determined		
Amotivation	Extrinsic Motivation				Intrinsic Motivation
Non-Regulation	External Regulation	Introjected Regulation	Identified Regulation	Integrated Regulation	Intrinsic Regulation
Impersonal	External	Somewhat external	Somewhat internal	Internal	Internal
No intention Incompetence Lack of control	Compliance External rewards or punishments	Ego-involvement Approval from others	Valuing an activity Endorsement of goals	Congruence Synthesis with self	Interest Enjoyment Inherent satisfaction



Any questions? Thoughts?



#### Appendix 4.3C: SDT quiz

##### SDT Scenarios

Trainer: Label 3 plastic cups for each participant A, B & C. Pour a few drops of red food colouring into cup A, blue into cup B and green into cup C. Give the cups to each participant, as well as a fourth cup filled with water.

Read out the following scenarios and instructions to each participant.

1. You have an afternoon to yourself and are deciding how to spend it. The sun is shining and you have a few hours to do whatever you choose! What sounds most appealing?

1. Calling up a friend and heading out to enjoy the beautiful weather together. Pour a little water into cup C.
2. Start working on a personal project in the sun, like gardening or reading. Pour a little water into cup B.
3. Go out and explore somewhere new, enjoying the freedom of your own company. Pour a little water into cup A.

2. You have had a fight with a friend and you are feeling upset and angry as a result. What do you do in order to feel better?

1. Do something you know you are good at, to help yourself feel happier.  
Pour a little water into cup B.
2. Seek out the company of another friend or family member to soothe your bad feelings. Pour a little water into cup C.
3. Spend some time alone, to deal with these feelings by yourself.  
Pour a little water into cup A.

3. You win a £50 voucher in a prize draw and are deciding how to spend it. Do you...

1. Put the money towards materials for an activity you have been working on eg. Some new DIY tools or baking ingredients. Pour a little water into cup B.
2. Buy one train ticket to somewhere new and exciting, and have an adventure away. Pour a little water into cup A.
3. Buy some snacks and drinks, and invite some friends round to have a party. Pour a little water into cup C.

4. You have had a road traffic accident, and although physically you are fine, are feeling a little shaken after the stress of the event. What do you do to calm down?

1. Think about all the times you have successfully navigated the roads. Pour a little water into cup B.
2. Take a break from other people in order to process what happened in a place that reduces your stress. Pour a little water into cup A.
3. Have a cuppa with some friends or family, who can reassure you. Pour a little water into cup C.

5. It's Friday evening and you have completed the RCS Boost! Course. What is most important to you?

1. The time spent with the people you have met on the course, and the friendships you have made. Pour a little water into cup C.
2. The skills you have developed and the potential for using these in your next challenge. Pour a little water into cup B.
3. Being able to work on new things in a way that suits you, and is

consistent with what you value in life. Pour a little water into cup A.

6. You have achieved something that you are really proud of. Which option sounds the best?

1. Being able to choose exactly how you celebrate. Pour a little water into cup A.
2. Having a delicious meal with lots of family and/or friends. Pour a little water into cup C.
3. Just relaxing in the knowledge that you have done really well! Pour a little water into cup B.

Which cup is the fullest?

A/Red = Freedom Fighter! You like situations that support your sense of autonomy. This means that they give you a sense of freedom, and allow you to do things in a way that is consistent with your own goals and values, without putting stress or pressure on you to act in a certain way.

B/Blue = Skill Strengtheners! You like situations that support your sense of achievement. This means that developing as a person is important to you and you are most attracted to activities that help you feel like you have grown in some way.

C/Green = Social Butterfly! Interacting with other people is most important to you. You enjoy spending time with others and will be most attracted to situations that allow you to do this.

All cups equally full – you like to work across the board!

Trainer: can also put ring of tape around the cup to show need satisfaction threshold levels. If the water is above the line, we feel satisfied, but if the water is below the line we are motivated to 'top up'.

Appendix 4.3D: Week 1 BOOST! cards



WARNING ENGINE FAILURE



CONTROLLED MOTIVATION

I am under controlled motivation when I am doing something only because I feel pressured into it, or because I want a reward as a result. I am less likely to continue doing activities that I have controlled motivation for, and less likely to enjoy them.

Combat With...

FREE MOTIVATION



CHOOSING MY DIRECTION

Thinking about my reasons for doing something can help me grow my motivation. When I figure out what's in it for me, I feel more enthusiastic and interested in working towards a goal.

Top Up With...

WHAT'S IN IT FOR ME?



FREEDOM BOOST

I get a freedom boost when I do an activity because I personally want to do it. There might be a number of reasons behind this, but if I feel in charge of the decision, I will feel more motivated.

Top Up With...

THE 3 NEEDS DIARY



PERSISTENCE

Persistence is about not giving up when things get difficult. Reminding myself of the reasons why I want to do something in the first place can help me persist with challenges, even when things get hard.

Top Up With...

WHAT'S IN IT FOR ME?



SKILL BOOST

When I do things that make me feel like I am improving my skills, I get a boost. Activities that help me see the results of my hard work and developing talent give me more energy to keep working towards my goals.

Top Up With...

THE 3 NEEDS DIARY




SOCIAL BOOST

Spending time with friends gives me a social boost. Chatting, helping and being around other people makes me feel excited and enthusiastic. If I work towards goals in a social way, I will be more motivated to follow them through.


Top Up With...

THE 3 NEEDS DIARY


BOOST




BOOST




BOOST




BOOST



BOOST



BOOST



## Appendix 4.4: Changing Thinking Styles (Week 2)

Appendix 4.4A: Session plan for Course Leaders

Appendix 4.4B: Week 2 PowerPoint presentation

Appendix 4.4C: Mindtraps worksheet

Appendix 4.4D: Homework task

Appendix 4.4E: Week 2 BOOST! cards.

## Appendix 4.4A: Session plan for Course Leaders

### WEEK 2 – Changing thinking styles

TOPIC	Changing thinking styles
TIME	4.3 hours
Learning outcomes	Materials, resources needed:
<p>Aim: To give participants an understanding of thinking styles and how they can change maladaptive thinking styles.</p> <p>Objectives: At the end of the session, participants will:</p> <ul style="list-style-type: none"> <li>- Understand what mindtraps are and how to avoid them</li> <li>- Understand how to use the ABCDE model.</li> <li>- Introduction to attributional style and its impact on behaviour.</li> </ul>	<ul style="list-style-type: none"> <li>- Pen</li> <li>- Post-it notes</li> <li>- Flip chart paper</li> <li>- Thought bubbles (Kate &amp; Rhi to print)</li> <li>- Worksheets (group and individual; Kate &amp; Rhi to print).</li> </ul>

TIMING	ACTIVITY
10am	ARRIVE & WELCOME
10:05am	Go through SDT diary. Did they understand it? Find it useful? Have any experiences to share.
10:30am	Intro to thought bubbles; do they see themselves in the bubbles? We all have biases/ mindtraps, are any of these adaptive; which ones do you think are +ve?
11am	Intro to attributional style. Attributional style is: how we think about the reasons why an event or outcome occurred. <ul style="list-style-type: none"> <li>- 3 axes – personal, permanent or pervasive.</li> <li>- Changing attributional style – ABCDE model.</li> </ul>
11:30am	Morning break
11:45am	Introduction to Mind traps. What are they? How can we use them?
12:30pm	LUNCH
1:15pm	Look at your thought bubbles, what situations do these relate to and how do you dispute them?
1:45pm	Afternoon break
2pm	Positive and negative response sheet <ol style="list-style-type: none"> <li>1. As a group</li> <li>2. Individually (as homework.</li> </ol>
2:30pm	BYE.



## Appendix 4.4B: Week 2 PowerPoint presentation



### Some housekeeping:

1. If you ever need to leave because you are struggling with anything, please feel free. Someone will follow you to make sure you are okay.

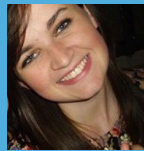
If you need to just nip out for the toilet, then just make a sign, or let us know, so we don't follow you!

2. Always ask if you don't understand anything.
3. Ground rules



### Who are we?

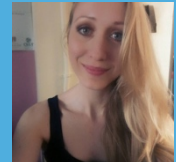
#### Thursday Team



Kate Isherwood  
Bangor University



Rhi Willmot  
Bangor University



Brianne Nichols  
Bangor University



### This week...

Week 1 – Motivation

Week 2 – Thinking styles

Week 3 – Strength building

Week 4 – Resilience

Week 5 – Goal-setting

Week 6 – The Game of Life: Bringing it all together.



### Today:

10.05 – How did you find your 'top-up'?

10.30 – Thought Bubbles

11.00 – Intro to Explanatory style

11.30 – Morning Break

11.45 – Escaping Mindtraps

12.00 – Lunch

1:15 – Popping bubbles

1:45 – Afternoon Break

2.00 – Practicing A,B,C,D,E



## Adding to the Tool Kit:

- Understand different kinds of thinking styles and how they affect us
- Understand what Mindtraps are and how they affect us
- Gain some strategies to use when you are in a Mindtrap

**boost!**



## Last week's Top-Up

How did you get on?

Was it helpful? Unhelpful?

What would you change/keep the same?

Did it help you to explore what we discussed in the session?

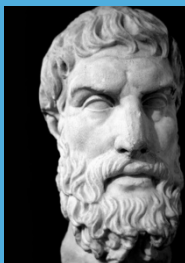
**boost!**

## Week 2: Thinking Styles

**boost!**

Which bubbles feel like you?

**boost!**



It's not what happens to you,  
but how you react to it that  
matters.

Epictetus

**boost!**

## Explanatory Style

The way we explain why things happen to us.

1. Influences our self-talk
2. Impacts self-esteem, motivation, relationships
3. Changes how we experience the world



**boost!**

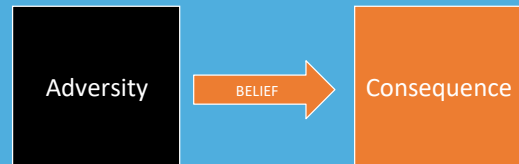
## Optimism & Pessimism



boost!

## From A to C

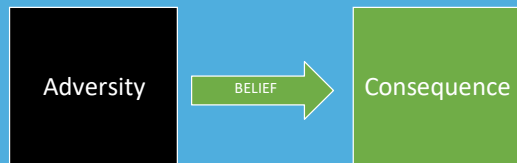
Think of an experience where you felt bad...



boost!

## From A to C

Think of an experience where you felt good...



boost!

## Mindtraps

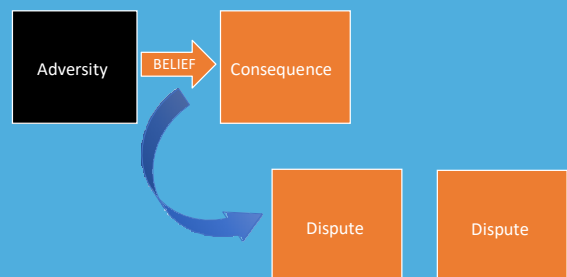
When explanatory style goes wrong...



boost!

Any questions? Thoughts?

## A, B, C...D,E



boost!

## Disputing Mindtraps

Get some distance, then use your  
**F.A.I.S.**

1. **F**acts – is it true?
2. **A**lternatives – what else could be a cause?
3. **I**mplications – what does the cause really mean for me?
4. **S**ervice – is it helping me?

**boost!**



**F.A.I.S.**



## A Guide to Mind Traps

**THE BLAME TRAP:** We get caught in the Blame Trap when we refuse to take responsibility for our decisions and our actions. Instead we try to make others responsible. The thoughts sound like: "He's making me mad." "She made me do it." "It's not my fault I slipped, he's the one who brought the dope home." "You hurt my feelings."

**CHALLENGE WITH:** I am responsible for my feelings and my actions. Blaming others keeps me from having to look at my part. I may have an emotional reaction to someone's behavior, but I am responsible for how I respond. Others may ask me to do things, or offer me opportunities, but no one is responsible for my decisions except me.

**THE HELPLESS TRAP:** We get caught in the Helpless Trap when we think and act like we are victims of circumstance and there's nothing we can do to solve our problems. The thoughts sound like: "I can't handle this hassle." "There's nothing I can do about all my problems." "I'll never be able to get out of this mess."

**CHALLENGE WITH:** I am capable. I can handle this. I can figure out what will work. There is no good reason why I can't manage this situation, even if it is frightening and difficult. The solution will take time, effort, patience, and hard work, and I'm up to it.

**THE CATASTROPHE TRAP:** We get caught in the Catastrophe Trap when we exaggerate even our smallest troubles, turning them into major crises. In another version of this trap, we convince ourselves that everything we attempt will be doomed to failure or catastrophe. The thoughts sound like: "I can't cope with this, it's just too awful!" "I'll never get over this." and "There's no way I can change, so why bother." "Even if I apply for the job, I probably won't get it." "I don't see why I should stay in treatment, I'll probably not make it."

**CHALLENGE WITH:** What has happened is unfortunate (annoying, irritating, unpleasant, frustrating), but it is not the end of the world.. I don't like it, but I can handle it. I know this will pass with time. On a scale of 1 to 10, how large is this problem, really? What are my options for handling this problem? Just because I've been disappointed in the past doesn't mean I can never succeed. If I don't at least try, I'll never know what could have been.

**THE GUILT TRAP:** We get caught in the Guilt Trap when we have thoughts that are unfairly harsh and critical about ourselves. We may think we are responsible for external events or for other people's feelings and actions. Or we may think anything we do that is short of perfection makes us

a bad person. The thoughts sound like: "I should have done a better job." "If I were a better person I'd call my mother more often." "It's my fault my husband is so unhappy." "I'm so stupid! I should have remembered my appointment."

CHALLENGE WITH: I am a human being. Human beings make mistakes and are not perfect. I am not obligated to be perfect, only to do the best I can. I will not call myself harsh, critical names. Instead I will say "I'm imperfect and I make mistakes, just like everyone else. I am not responsible for everything that goes wrong."

THE ALL OR NOTHING TRAP: We get caught in the All or Nothing Trap when we overreact to people or events by assuming they are totally one way or totally the other. We label things as good-bad, black-white, yes-no, success-failure, either-or, and ignore the full range of possibilities in between. The thoughts sound like: "He's always late." "She never can get it right." "I'm always in a hurry." "The whole dinner is ruined because I burned the rolls!"

CHALLENGE WITH: Am I being honest? Am I being fair? Am I overreacting? I know he often is late, but that's different than always. I know she sometimes makes mistakes, but that's different than never getting it right. Am I really always in a hurry? Just because one thing is not quite right, that doesn't mean the whole thing is wrong.

## Remember these steps for challenging mindtraps:


1. Realise that some of your negative or uncomfortable feelings and emotional states may be caused by ~~how~~ and what you think.
2. Recognise and keep track of what you are thinking, and how you are feeling.
3. If your thoughts sound like mind traps, challenge them. Remember, it's possible to get caught up in more than one mind trap at a time.
4. Challenge your thoughts by disputing them. Learn to talk back to the little voice inside your head.
5. Talk it out! Share your thoughts and feelings with someone you can trust and who supports you.

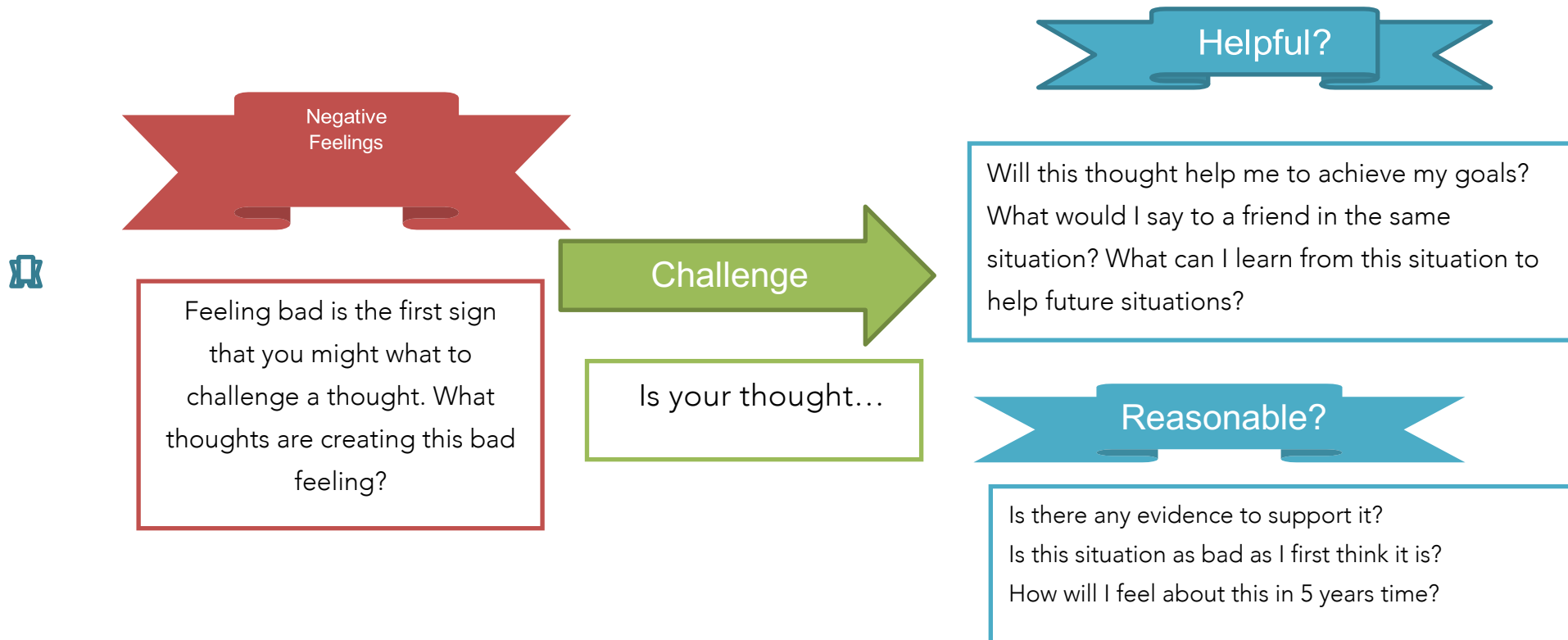
## Appendix 4.4D: Homework task

### Challenge your Negative Thoughts

We can't control what happens to us, but we can control how we react to it. You can practice challenging unhelpful thoughts, and learn how to react positively, even in difficult situations.

How do I know when to challenge my thoughts?




Thoughts are interpretations, not facts, and everyone thinks differently. When you experience a negative  feeling, this is the first sign that you might want to challenge the thoughts behind it.








Think of an Activating Event where you had a **negative** response. You may have felt anger, helplessness, guilt, sadness, or frustration. What was the event?.....

Write or draw to show what happened, and what you want to do in future.






BELIEF	CONSEQUENCE	DISPUTE & EVIDENCE...	Future
			
What did you say to yourself? How did you feel?	What did you do or not do as a result?	Is this thought helpful or reasonable?	What could you replace this thought with?

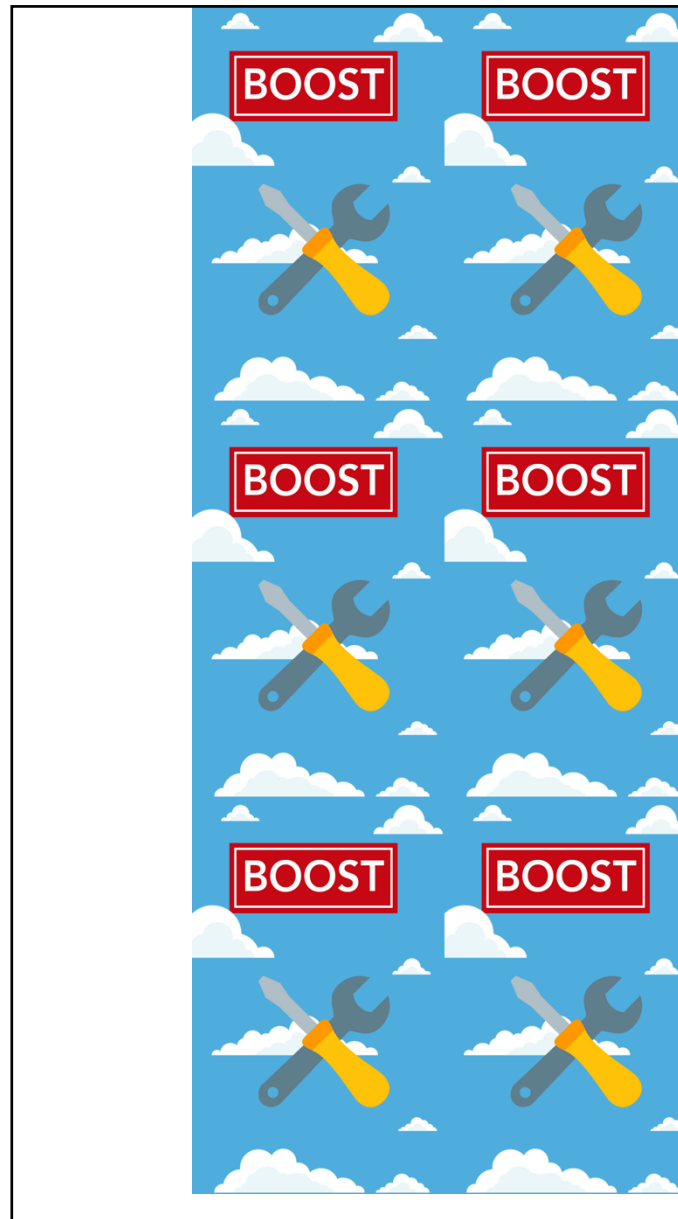
Think of some ACTIVATING EVENT where you had a positive response. You may have felt proud, successful, happy, or loved. What was the event? .....

Write or draw to show what happened, and what you want to do in future.

BELIEF...	CONSEQUENCE	Future	Mantra
			
What did you say to yourself? How did you feel?	What did you do or not do as a result?	How will you use this to help you in the future?	What mantra can you develop from this to escape a mindtrap?

Appendix 4.4E: Week 2 BOOST! cards.

	
<b>BALANCED THINKING</b>	<b>LENSES</b>
<p>My <i>explanatory style</i> describes the way I explain why things happen. I decide whether the causes of events are external, changeable and specific, or personal, fixed and everlasting. I can check if my thoughts are balanced by reviewing the evidence to support them.</p>	<p>I understand that optimists and pessimists see the world through different 'lenses'. These lenses decide how we react to events. Sometimes it is helpful to wear optimistic lenses, and sometimes it is helpful to wear pessimistic lenses. I have control over the lenses I wear.</p>
<p>Top Up With...</p> <p><b>THE ABCDE'S</b></p>	<p>Top Up With...</p> <p><b>THE ABCDE'S</b></p>
	
<b>MINDTRAP</b>	<b>SENSE OF CONTROL</b>
<p>The beliefs I have about why things happen determine how I react to events. If the beliefs I have are unreasonable and unhelpful, I am in a mindtrap, and might feel angry or upset. I can dispute unreasonable beliefs to get a more balanced view of the situation.</p>	<p>I can't determine what happens to me, but I can decide how I react to it. I have control over the way I think and the lenses I wear. Practicing using different lenses and examining my thoughts gives me a sense of control, and balances my thinking style.</p>
<p>Combat With...</p> <p><b>BREAKING THE CYCLE</b></p>	<p>Top Up With...</p> <p><b>THE ABCDE'S</b></p>
	
<b>THOUGHT DETECTIVE</b>	
<p>My <i>explanatory style</i> describes how I explain why things happen. I decide whether the causes of events are personal, changeable and specific, or not. These decisions determine which 'lenses' I wear, and I can check if my thoughts are balanced by reviewing the evidence to support them.</p>	
<p>Top Up With...</p> <p><b>THE ABCDE'S</b></p>	



## Appendix 4.5: Using Signature Strengths (Week 3)

Appendix 4.5A: Session plan for Course Leaders

Appendix 4.5B: Week 3 PowerPoint presentation

Appendix 4.5C: 'Strengths Box' template

Appendix 4.5D: Homework Task

Appendix 4.5E: BOOST! cards

# Appendix 4.5A: Session plan for Course Leaders

## WEEK 3 – Boosting Strengths!

TOPIC	Identifying strengths and using in new ways
TIME	4.3 hours
Learning outcomes	Materials, resources needed:
<p>Aim: To help pps. understand strengths from a positive psy perspective and encourage them to use them in their daily life.</p> <p>Objectives: At the end of the session, participants will:</p> <ul style="list-style-type: none"> <li>- Understand the value of tactically using strengths to wellbeing and performance</li> <li>- Identify their own top 5 strengths</li> <li>- Plan out how they will use their strengths in new ways over the next week</li> <li>- HAVEFUN</li> </ul>	<ul style="list-style-type: none"> <li>- Spaghetti</li> <li>- Marshmallows</li> <li>- Strength cards</li> <li>- Post-it notes</li> <li>- Strength top up (print)</li> <li>- Box template on coloured cards</li> <li>- Implementation intention templates for using strengths in new ways</li> </ul>

TIMING	ACTIVITY
10am	ARRIVE & WELCOME
10:05am	Go over 'Top Ups' from last week (were they helpful, what did you find etc.)
10:20am	Spaghetti and marshmallows building: <ol style="list-style-type: none"> <li>1. Get into groups of three/four</li> <li>2. Task 1: Use the spaghetti and marshmallows to build a sculpture in your groups</li> <li>3. BUT ALSO Task 2: At the same time every time you see someone do something you like or admire, write it down on a post-it (different colours for different people)</li> </ol>
10:50am	Introduce schedule for the rest of the day + Strengths theory <ol style="list-style-type: none"> <li>1. Strengths don't need to be skills - they can be personality traits</li> <li>2. Using our strengths makes us feel good <ol style="list-style-type: none"> <li>a. Flow</li> </ol> </li> <li>3. It's not about how many strengths you have, it's how you use them</li> </ol>
11:15am	Morning break
11:30am	Identifying strengths Pt. 1: <ol style="list-style-type: none"> <li>1. What activities do you like doing and why? <ol style="list-style-type: none"> <li>a. Loose track of time</li> <li>b. Want to do even when you are tired or stressed</li> <li>c. Look forward to</li> </ol> </li> </ol>
12:00pm	Identifying strengths Pt. 2: <ol style="list-style-type: none"> <li>1. Pick up the cards that you think best describe your strengths</li> <li>2. Tell us why you picked them and how you use them. How else could they be used?</li> </ol>
12:20pm	LUNCH
1:15pm	Using strengths in new ways: <ol style="list-style-type: none"> <li>1. Look at the post-its from the tower task</li> <li>2. Look at the cards you picked up</li> <li>3. Do they match up? Where are the differences</li> <li>4. Pick your top 5</li> </ol>
1:30pm	Make your strength pyramid: <ol style="list-style-type: none"> <li>1. Cut out your pyramid</li> <li>2. Write 5 ways in which you plan to use your strengths in a new way in 5 different days next week.</li> </ol>

2.15pm	Introduction to 'top-up' – Strength reflection diary. Fill in every day they use the strength. Just some quick words about how they found using their strengths.
2:30pm	BYE.

## Appendix 4.5B: Week 3 PowerPoint presentation



**How will the course be structured?**

Week 1 – Motivation

Week 2 – Thinking styles

**Week 3 – Strength building**

Week 4 – Resilience

Week 5 – Goal-setting

Week 6 – The Game of Life: Bringing it all together.

**boost!**



**Week 3: Strength Building**

**boost!**

**What are strengths?**

Strengths are a mixture of knowledge, talent and skill.

By learning what strengths are and matching yourself to a job or a role, you will perform better but also you will enjoy it more.

**boost!**





## What are strengths?

Everyone has strengths, but not everyone knows what their strengths are.

The most successful people don't have more strengths, they just know how to use them.

**boost!**



## What are strengths?

Our strengths can come naturally to us and we don't automatically think about what we are good at.

THIS IS WHY WE NEED TO IDENTIFY AND DEVELOP OUR STRENGTHS.

**boost!**



## Why are strengths important?



=



**boost!**



## Why are strengths important?

Using our strengths helps us get into FLOW

**boost!**



## What activities do you...

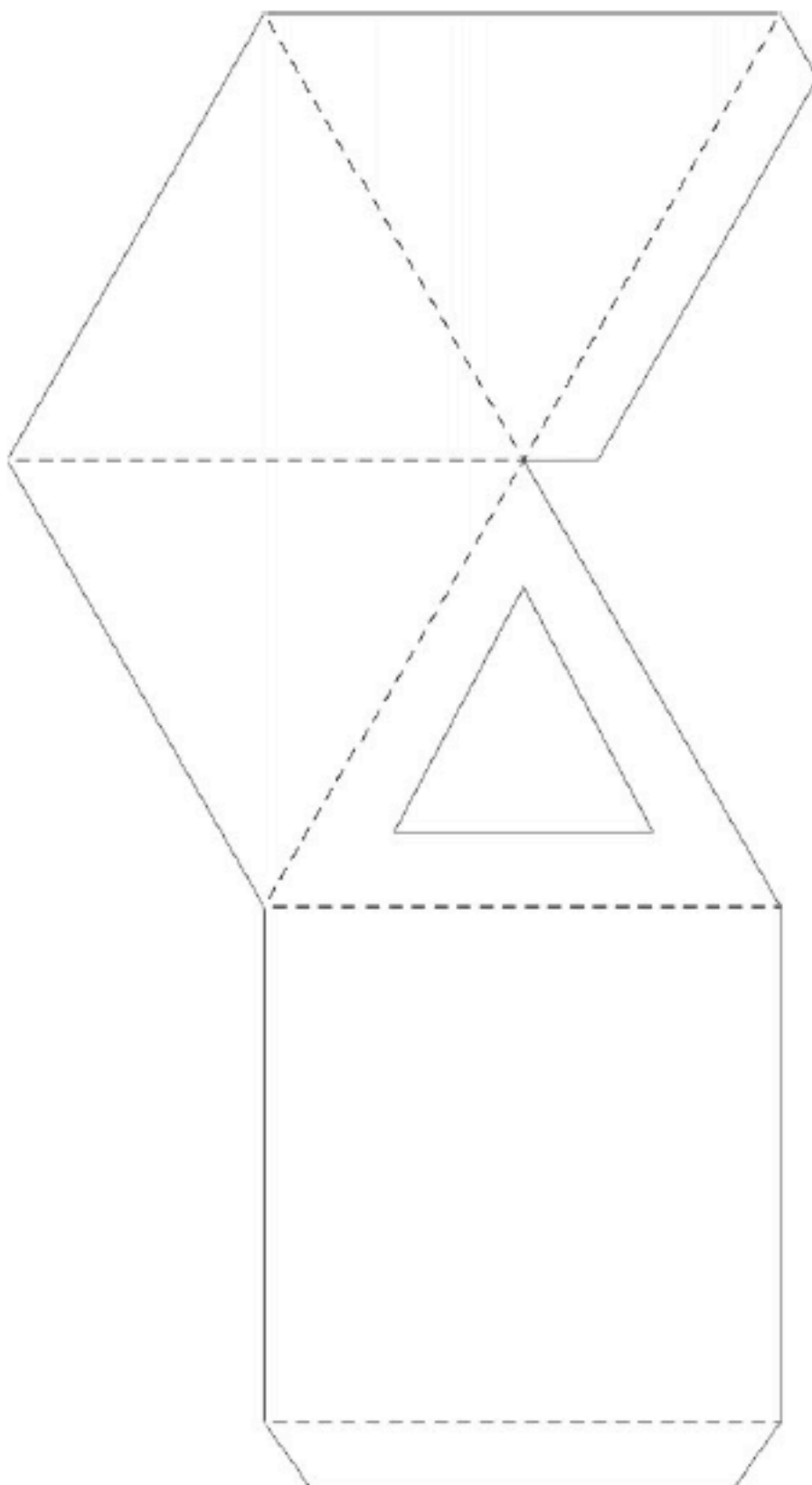
Loose track of time when you are doing them? Want to do even when you are tired or stressed?

Feel energetic and enthusiastic when you are doing them?

**boost!**



Appendix 4.5C: 'Strengths Box' template



USING YOUR STRENGTHS. Write or draw in the boxes to Top Up your strengths.

Today I used the strength of .....

How did you use your  
strength today?



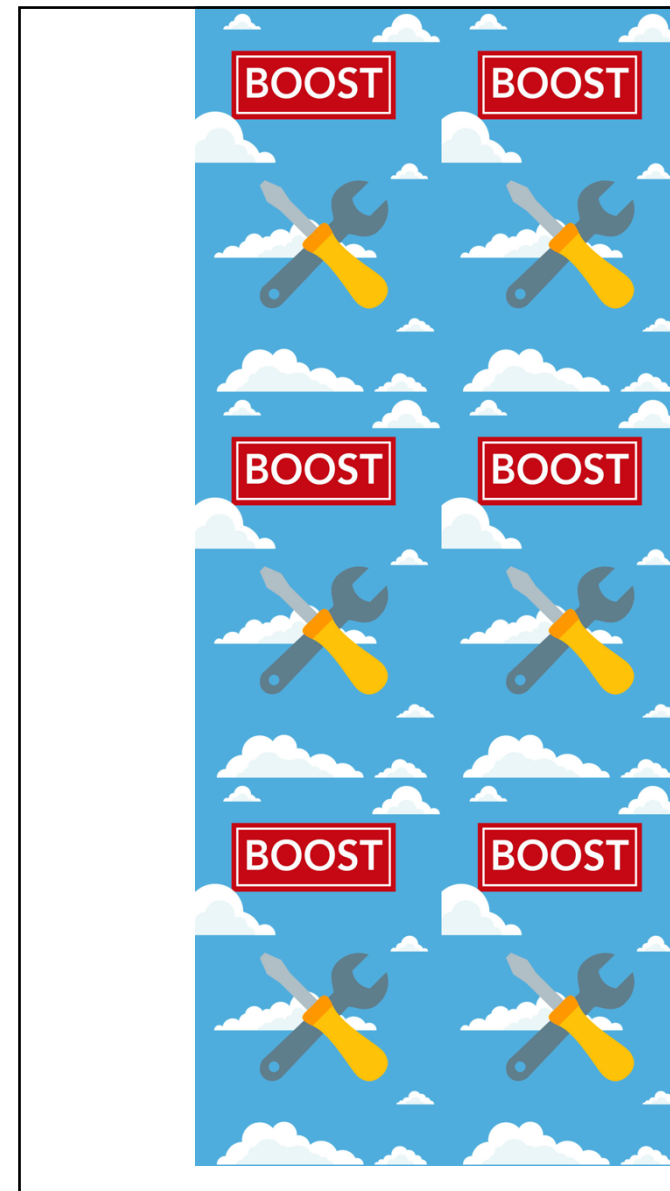
How did you feel  
afterwards?



How will you use one of  
your strengths next?

# Appendix 4.5E: BOOST! cards

1



## Appendix 4.6: Improving Resilience (Week 4)

Appendix 4.6A: Session plan for Course Leaders

Appendix 4.6B: Week 4 PowerPoint presentation

Appendix 4.6C: Worksheet 1

Appendix 4.6D: Worksheet 2

Appendix 4.6E: Homework Task Week 4

Appendix 4.6F: BOOST! cards

## Appendix 4.6A: Session plan for Course Leaders

### WEEK 4 –Improving Resilience!

TOPIC	Building Resilience
TIME	4.3 hours
Learning outcomes	Materials, resources needed:
<p>Aim: To help pps. understand what resilience is, why is it important and how they can use various strategies to become more resilient.</p> <p>Objectives: At the end of the session, participants will:</p> <ul style="list-style-type: none"> <li>- Be able to define resilience in a clear and practical way</li> <li>- Understand how to use 'growth mindset' strategies and self-talk</li> <li>- Practice using a growth mindset over the next week</li> <li>- HAVE FUN</li> </ul>	<ul style="list-style-type: none"> <li>- Post-it notes</li> <li>- Growth Mindset top up (print)</li> <li>- Growth mindset worksheet</li> <li>- Eggs</li> <li>- construction materials e.g. newspaper, sellotape</li> <li>- Resilience worksheet</li> <li>- Resilience hwk.</li> </ul>

TIMING	ACTIVITY
10am	ARRIVE & WELCOME
10:05am	Go over 'Top Ups' from last week (were they helpful, what did you find etc.)
10:20am	Resilience theory; powerpoint. What is resilience? What is Growth Mindset? How can we employ Growth Mindset techniques?
10:50am	Growth mindset speech bubbles. Pick one up that helpful, one that's not helpful and discuss why they are/ n't helpful and discuss why they chose them.
11:15am	Morning break
11:30am	Building a resilience carrier.
12:15pm	Testing out the carriers
12:30pm	LUNCH
1:30pm	Growth Mindset worksheet
1:50pm	Resilience & goal setting for the next week worksheet
2.15pm	Glve out next deck of cards and explain and distribute the weekly diaries.
2:30pm	BYE.

## Appendix 4.6B: Week 4 PowerPoint presentation



### How will the course be structured?

Week 1 – Motivation

Week 2 – Thinking styles

Week 3 – Strength building

**Week 4 – Resilience**

Week 5 – Goal-setting

Week 6 – The Game of Life: Bringing it all together.



### Today:

What is resilience?

Resilience and Mindset

Growing a growth Mindset

Protecting Eggs

Setting goals



### What is Resilience?

Resilience is a term used by many different people, to mean different things.

How would you describe a resilient person?



### What is Resilience?

**Staying** strong, through everything life throws at us.





## What is resilience?



Changing, to be able to tackle future challenges.

## Why is resilience important?

Strengthening our resilience means that:

- We are less likely to give up when things get difficult
- Less likely to feel angry or upset if we fail
- More likely to develop and grow from challenging experiences

**boost!**

## Your resilience

We all have difficult experiences in life that need us to be resilient.

What situations have you experienced that have strengthened your resilience?

**boost!**

## Growing your resilience

Resilience is all about facing and growing from difficult situations.

The challenge of these situations means it isn't always easy to stay resilient, but the growth mindset outlook can help with this.



**boost!**

## Task 1. Different Mindsets

Our 'mindset' describes the relationship between the thoughts we have and the actions we take.

Look at the speech bubbles around the room, and pick up one that you think is a helpful mindset, and one that you think is an unhelpful mindset.

Why did you choose the bubbles you did?

**boost!**

## Growth Mindset

Half of the bubbles were examples of a growth mindset, and half were examples of a fixed mindset.

Whether we use growth or fixed self-talk can have a big influence on our attitudes and behaviour.

**boost!**

## Growth Mindset

Most importantly, when we use a growth mindset, we believe that our abilities can change. (We can 'grow' from each challenge).

When we use a fixed mindset, we believe that our abilities are fixed. (If we take on challenge, we risk looking like a failure).



## Growth Mindset



## Task 2.

Get into pairs. Each pair has an egg. Your task is to create a carrier which protects the egg from falling from a second floor window.

One person is in charge of making the carrier.

One is in charge of the mindset. Use the 'growth mindset' phrases to support and motivate your partner.



## Task 2.2

Now one of you will take the role of the 'fixed mindset'. This person's job is to try and use fixed mindset phrases to hinder the construction of the carrier.

The other person must try to dispute these phrases, using the growth mindset phrases you tried before.



## RELEASE THE EGGS!



## Task 3

Thinking back to the growth and fixed mindset phrases we used this morning, think about a goal you would like to achieve this week, and what strategies you can use to help you get there.

What would a fixed mindset approach be, and what would a growth mindset approach be?



## Appendix 4.6C: Worksheet 1

### Keep on Keeping On: Persevere with Your Goals Growth Mindset

People with a growth mindset see their abilities as changeable. This means that they see challenges and feedback as an opportunity to learn and develop.

People with a fixed mindset believe their abilities are fixed. This means that they see challenges as a threat that might expose their flaws, and feedback as a personal criticism.

We can choose to develop a 'growth' mindset, which helps us to take on challenges, cope with setbacks and make the most out of feedback.



I'm not good at  
this I give up  
It's good enough  
I can't do any  
better This is too  
hard  
I made a  
mistake I just  
can't do this I'll  
never be that  
smart  
Plan A didn't  
work Other

What am I  
missing? I'll use a  
different strategy  
I can always  
improve This may  
take some time  
Mistakes help me  
to learn  
I am going to  
train my brain  
I will learn how to  
do this  
There's always  
plan B  
I will learn from  
them

Think of a goal that you would like to achieve over the next week.  
What is the goal?

I want to .....

When I think about taking on this challenge:

Fixed mindset:

What I will say (growth  
mindset):

When I face setbacks:

Fixed mindset:

What I will say  
(growth mindset):



## The Power of 'Yet'

An easy way to keep a growth mindset is to finish every fixed sentence with the word 'yet'. For example – "I can't do this...yet".

Keep practicing this and you will start doing it automatically, until you can face every situation with a growth mindset.

## Appendix 4.6D: Worksheet 2

Write below a goal (or a couple of goals) that you'd like to achieve in the near future. This could be something as simple as going for a coffee with a friend, to starting a new job. In the next step think about why this goal is important to you? Why does it make you excited to think about achieving it? e.g. going for a coffee with a friend is fun and friendly and allows you to chat about stuff that's on your mind. It is an example of increasing your social resilience.

?

<p>What goal are you trying to achieve</p>	<p>What gets you excited about this goal? Why is it important to you?</p>	<p>Channel this excitement into action, what is the next step you need to take?</p> <p>What:</p> <p>When:</p>
--	---	---

#### Appendix 4.6E: Homework Task Week 4







Think back to the goal that you set at the beginning of the week. Try to identify a step that you have taken towards your goal each day, and any Bad Guy's you faced. This could be something as simple as moving the alarm clock to the other side of the room, when you struggled to get out of bed one day, to dealing with your child having a tantrum in Asda. It is not critical that you have achieved the overall goal, it is more important that you know what you need to do in order to get closer to it.

<div>What was the step you took today?</div>	<div>Did it work?</div> <div>YES</div> <div>NO</div>	<div>Did you defeat any Bad Guys?</div>
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Appendix 4.6F: BOOST! cards

 <b>TAKING ON CHALLENGE</b> I am not afraid of failure, because failure shows me how to improve. Every time I fail, I become a stronger person. I embrace challenges that test me because they don't show that I am weak, but instead they tell me how to get stronger. Top Up With... <b>THE RESILIENCE JOURNAL</b>	 <b>SELF-SABOTAGE</b> Self-sabotage happens when I am scared of failure and then act in a way that makes sure I will fail. This means that I have something to blame instead of my own ability. I can stop self-sabotaging by reminding myself of the benefits of failure. Combat With... <b>SPROUTING A GROWTH MINDSET</b>
 <b>INSPIRED BY OTHERS</b> If I find the right strategies, I can I can become better at anything I want to. So when I see the success of others, I see this as something to aim for, not as a sign that other people are doing better than me. Learning from other successful people can help me to develop my own skills. Top Up With... <b>SPROUTING A GROWTH MINDSET</b>	 <b>GROWTH MINDSET</b> I know that my abilities are not fixed, but can change. This means that if I work hard and understand what tools to use to succeed, I can achieve my goals. I replace fixed mindset comments with growth mindset ones, and everything I can't do, I only can't do yet. Top Up With... <b>SPROUTING A GROWTH MINDSET</b>
 <b>FINDING ALLIES</b> I know that reaching out to others is not a sign of weakness, but instead creates a network to give me support when I feel bad, encouragement when I am taking on a challenge, and feedback when I need to change my strategy in order to achieve a goal. Top Up With... <b>SPROUTING A GROWTH MINDSET</b>	 <b>BOUNCING BACK</b> I know that failure isn't a sign that I will always do something wrong, but shows me what to change. This means that when I fail I might feel sad for a short time, but I can bounce back emotionally because I now know how to do better next time. Top Up With... <b>THE RESILIENCE JOURNAL</b>

 <b>BOOST</b>	 <b>BOOST</b>
 <b>BOOST</b>	 <b>BOOST</b>
 <b>BOOST</b>	 <b>BOOST</b>

## Appendix 4.7: Goal-Setting (Week 5)

Appendix 4.7A: Session plan for Course Leaders

Appendix 4.7B: Week 5 PowerPoint presentation

Appendix 4.7C: Value Wheel

Appendix 4.7D: In-session worksheet

Appendix 4.7E: Micro-resilience worksheet

Appendix 4.7F: BOOST! cards

## Appendix 4.7A: Session plan for Course Leaders

### WEEK 5 – Goal-Setting

TOPIC	Showing self-compassion
TIME	4.3 hours
Learning outcomes	Materials, resources needed:
<p>Aim: To provide participants with effective Goal-setting strategies.</p> <p>Objectives: At the end of the session, participants will:</p> <ul style="list-style-type: none"> <li>- Be able to identify a goal that is of value to them</li> <li>- Be able to align their values to their future goals.</li> </ul>	<ul style="list-style-type: none"> <li>- Boost game</li> <li>- Full deck of cards</li> <li>- Value Wheel</li> <li>- In-session worksheet</li> <li>- Micro-resilience top-up sheet</li> </ul>

TIMING	ACTIVITY
10am	ARRIVE & WELCOME
10:05am	Go over 'Top Ups' from week previous.
10:30am	Presentation
11am	Morning break
11:15am	Value wheel
11:45am	In-session worksheet (Goal-setting)
12pm	LUNCH
1pm	Micro-resilience top-up sheet
2.00pm	Homework task
2:30pm	BYE.

## Appendix 4.7B: Week 5 PowerPoint presentation



### How will the course be structured?

Week 1 – Motivation

Week 2 – Thinking styles

Week 3 – Strength building

Week 4 – Resilience

**Week 5 – Goal-setting**

Week 6 – The Game of Life: Bringing it all together.



### Today:

90<sup>th</sup> Birthday Wheel of Fortune

Introduction to WOOP

Implementation Intentions

Making a Wish list

Obstacles & Microresilience



### Task 1. What are your long-term values?

Imagine you are at your 90<sup>th</sup> birthday party, surrounded by family and friends. These people are making speeches to celebrate your life.

Think about what you would like them to say about how you have lived. You could use the categories on your pie chart to help with this.

Use the materials provided to create a Wheel of Fortune that represents what you would like people to say.



### Why are values important?

Identifying what we find important in life gives us structure and guidance when we want to set shorter term goals.

Long-term values can guide our daily behaviours.



## WOOP

The **WOOP** method has been evidenced as very effective in helping people to achieve their goals.

**W**ish

**O**utcome

**O**bstacles

**P**lanning



**boost!**

## S.M.A.R.T. Wishing

**S**pecific

**M**easurable

**A**ttainable

**R**elevant

**T**imely

**boost!**

## Specific

Who is involved?

What do I want to accomplish?

Where & when will it be done?

Why am I doing this?

Which requirements/constraints do I have?

**boost!**

## Measurable

How will I track my progress towards my goal?

How will I know when my goal is accomplished?

**boost!**

## Attainable

Is the goal reasonable enough to be accomplished?

Is the goal set too high or too low?

**boost!**

## Relevant

Is the goal worthwhile and will it meet my needs?

Is it consistent with other goals I have?

Does it fit with my immediate and long-term plans/values?

**boost!**

## Timely

Include a time-limit – “I will complete this step by month/day/year”



## Implementation Intentions

Implementation intentions help turn intentions to actions



## If...then

If it is twelve o'clock **then** I will go for a short walk



## Task 2. Wish for the Week

Now we will use the theory covered today to set and work towards a goal for the week.

Think of a goal you would like to achieve. Use the worksheet to help make it S.M.A.R.T.

Fill in the blank space on your vision board with images for your goal.



## Task 3. Avoiding Obstacles

Think about the obstacles that might get in the way of you achieving your goal.

Plan some implementation intentions to help you overcome these obstacles.

Eg. If someone is discouraging **then** I will use growth mindset self-talk to encourage myself.



## Micro-Resilience



## Micro-Resilience

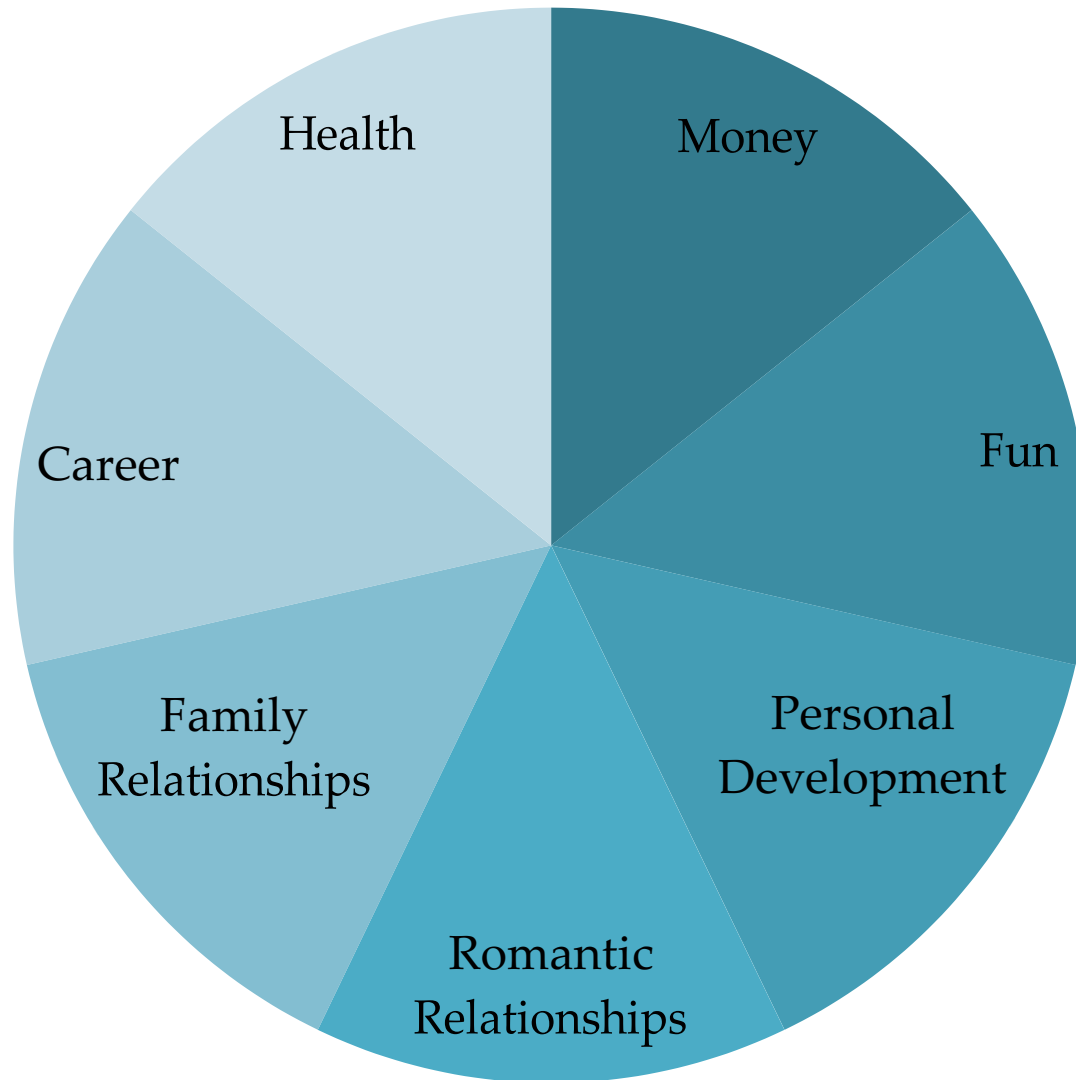
Small and simple activities or behaviours can make a huge difference to our ability to perform well across the day, and achieve short and long-term goals.

What would you like your micro-resilience strategies to be?





Appendix 4.7C: Value Wheel



## WOW goals

Within One Week, I will.....

Define your goal. This goal should be challenging but achievable. Try to define a specific but measurable goal



Why is this goal important to you?



What are the barriers or obstacles to you achieving this goal?

Break your goal down into a series of smaller steps. How will you track your progress along your path to success?



Are there any skills or resources that you will need?



Who can help? Most challenges are easier with a friend. Is there someone who can help or mentor you or work with you?

Appendix 4.7E: Micro-resilience worksheet

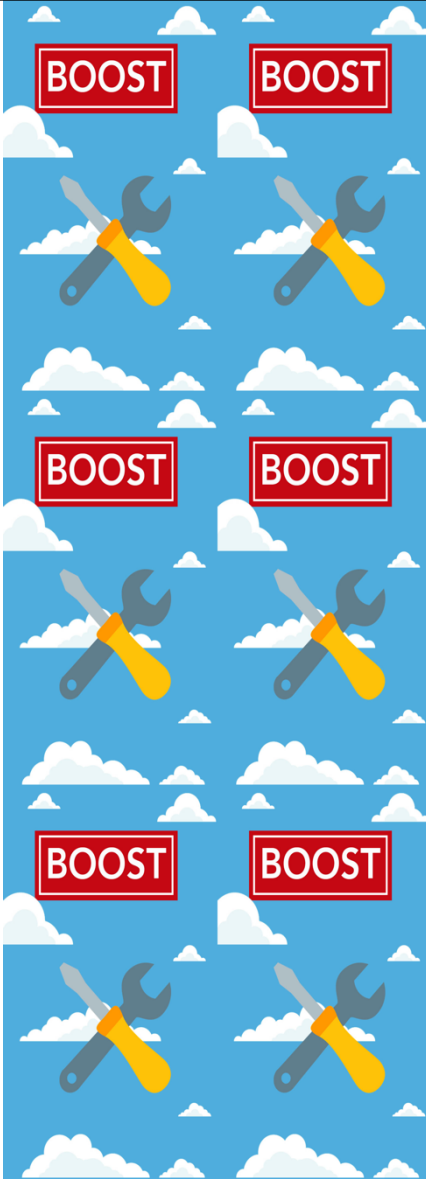
Write or draw in the boxes to Top Up your micro-resilience.

What micro-resilience strategy did you use today? .....

<p>How did you feel afterwards?</p>	<p>What did it help you achieve?</p>	<p>How will you use micro-resilience next?</p>
-------------------------------------	--------------------------------------	--

Appendix 4.7F: BOOST! cards

 <p><b>DEDICATION</b></p> <p>I know that achieving goals takes commitment and self-discipline. It might be hard to maintain the effort needed to do this over a long time, but I can make it easier by breaking up one big challenge into smaller tasks, and thinking about the personal benefits of success. I can do this!</p> <p>Top Up With...</p> <p><b>THE RESILIENCE JOURNAL</b></p>	 <p><b>DEFINING MY WISH</b></p> <p>When I decide to set a goal, I also need to make sure my goal is specific, measurable and realistic. I must clearly describe what success would look like, understand how I would evaluate this success and know that achieving the goal is possible, if I put in time and effort.</p> <p>Top Up With...</p> <p><b>WOOP</b></p>
 <p><b>FUTURE THINKING</b></p> <p>Thinking in detail about the positive outcomes of achieving my goals can give me the motivation and self-belief I need to follow them through. If I picture myself being successful in my mind, my brain starts to believe that this success is possible.</p> <p>Top Up With...</p> <p><b>WOOP</b></p>	 <p><b>IDENTIFYING OBSTACLES</b></p> <p>It is helpful for me to think about the things that stop me from achieving my goal, so I can be prepared for them if they happen, or do something differently next time. Developing these strategies can help me feel more confident, and be more successful.</p> <p>Top Up With...</p> <p><b>THE RESILIENCE JOURNAL</b></p>



## Appendix 4.8: Self-Compassion (Week 6)

Appendix 4.8A: Session plan for Course Leaders

Appendix 4.8B: Week 6 PowerPoint presentation

Appendix 4.8C: In-session worksheet

Appendix 4.8D: BOOST! cards

# Appendix 4.8A: Session plan for Course Leaders

## WEEK 6 – Self-Compassion

TOPIC	Showing self-compassion
TIME	4.3 hours
Learning outcomes	Materials, resources needed:
<p>Aim: To sum up the session and give insight into self-compassion. To teach pps. How to be more self compassionate to themselves.</p> <p>Objectives: At the end of the session, participants will:</p> <ul style="list-style-type: none"> <li>- Be able to show self-compassion towards themselves.</li> <li>- Be able to play the 'Boost' Game.</li> </ul>	<ul style="list-style-type: none"> <li>- Boost game</li> <li>- Full deck of cards</li> <li>- Post-test questionnaires</li> <li>- Self-compassion diary</li> </ul>

TIMING	ACTIVITY
10am	ARRIVE & WELCOME
10:05am	Go over 'Top Ups' from week previous.
10:30am	Post-test questionnaires
11am	Morning break
11:15am	Self-compassion
11:45am	Self-compassion diary
12pm	LUNCH
1pm	'Boost' game
2.00pm	Flip-chart evaluation session
2:30pm	BYE.



Appendix 4.8B: Week 6 PowerPoint presentation



### How will the course be structured?

Week 1 – Motivation

Week 2 – Thinking styles

Week 3 – Strength building

Week 4 – Resilience

Week 5 – Goal-setting

**Week 6 – Self-Compassion and Building Your Boost!**



### Today:

Reviewing last weeks Top Up

Questionnaires

Self-Compassion

Build Your BOOST!

Feedback

Goodbye ☺



### How was your top-up?

What micro-resilience strategies did you use?

How did you get on with your goal?

Did you achieve it? If you didn't what could you change?



### Self-Compassion

Showing the same kindness and understanding we would show to a friend, to ourselves.

Taking care of our minds and our bodies.

3 parts



## Common Humanity

Everybody fails

What is your favourite mistake?

**boOst!**



## Self-Kindness

Kind self talk

Discuss a time where you spoke to a friend about them failing or feeling guilty or angry with yourself.

What kind of words did you use to talk to them? Write down some examples.

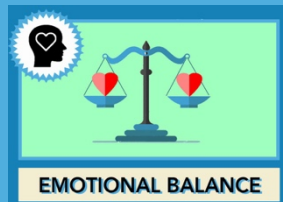
**boOst!**

## Emotional balance

Acknowledging negative feelings without over-identifying or becoming absorbed in them.

Everyone struggles.

**boOst!**



## Task 2.

Have a go at filling in your own self-compassion diaries.

Feel free to discuss them with a friend as you do this.

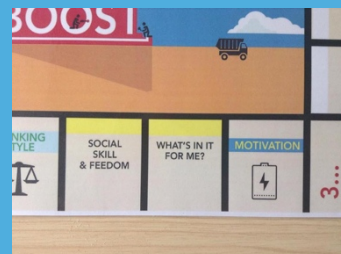
**boOst!**

## Build Your Boost!



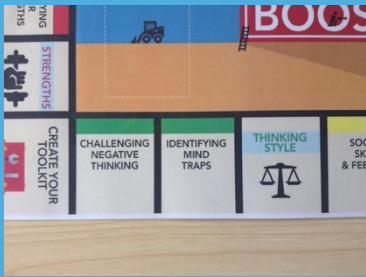
**boOst!**

## Week 1. Motivation



**boOst!**

## Week 2. Thought Styles



**boost!**

## Week 3. Strengths



**boost!**

## Week 4. Resilience



**boost!**

## Week 5. Goal Setting



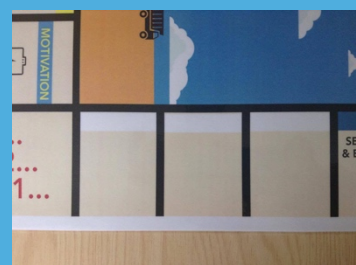
**boost!**

## Week 6. Self-Compassion



**boost!**

## What next?



**boost!**

## Your turn to play...

Get into groups of 3 and use one person's Boost set to play.

Everyone choose a counter to play with.

One person is the dealer. This person splits needs to:

1. Separate the 'warning' cards from the rest of the deck. Place these to one side.
2. Split the rest of the deck into their colour categories
3. Each player takes one card from each colour category. You should each have six cards.

Place the rest these cards on the 'Toolbox' square.



## Your turn to play...

Use the dice to travel around the board. Each time you land on a square, pick a card from your hand to talk about with the rest of the players.

Why did you pick this card? How does it relate to the square you are on? Why is it important to you?

Once you have used your card, put it at the bottom of the deck and take another one from the top.

If you land on the same square as someone else, you must take a 'warning' card. At the beginning of your next go, talk about how you could overcome the danger on this card, using what you have learnt from Boost! in order to take your turn.



## Feedback

What did you think of Boost?

Tell us the bad and the good!


What did you like? What would you keep the same?

What didn't you like? What would you change?

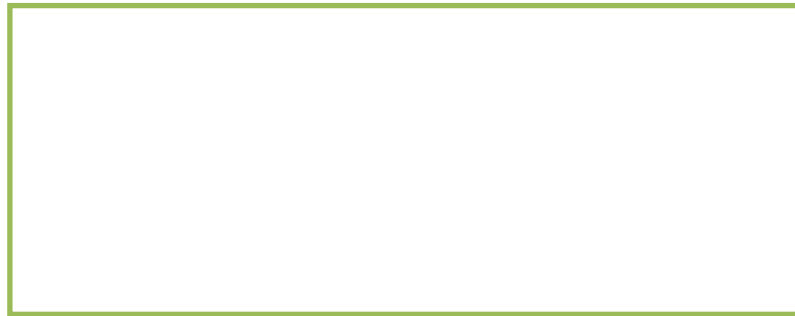


Appendix 4.8C: In-session worksheet

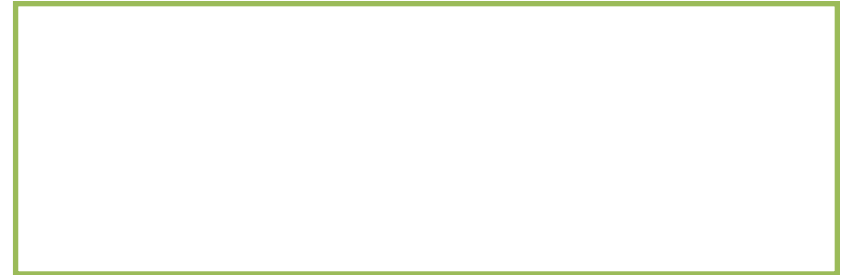
Think of a similar situation where you were happy with how you performed. What happened and why?



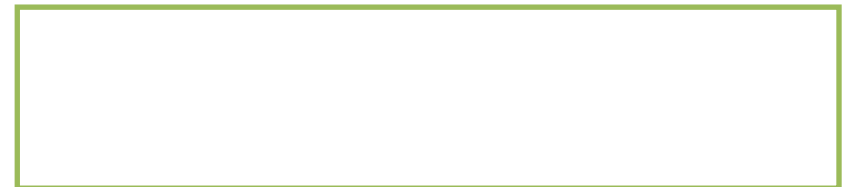
Think of a situation when you felt guilty, angry or upset with yourself. What happened and why did you feel that way?



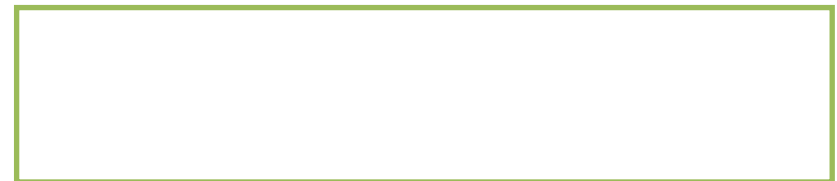
Think of a person who you care strongly about. What would you say to them if they had experienced this situation, and were feeling bad?



Who else do you think also struggles with this issue and why?



How would you like to feel about this issue in the future?




## Self-Compassion

When we see a friend in trouble, we show them kindness and empathy. Self-compassion is about showing the same feelings to ourselves. If we fail, we might be speak harshly to ourselves in an attempt to 'do better next time'. But research shows this self-criticism is more likely to harm our motivation than to help it.

If we are self-compassionate, we are more likely to take on challenge, and to learn from failure in a positive way. Self-compassion involves three elements:

1. Self-kindness – being warm and understanding to ourselves
2. Common humanity – understanding failing is part of being human.
3. Mindfulness – avoiding either suppressing or being caught up in our emotions.

Appendix 4.8D: BOOST! cards




**EMOTIONAL BALANCE**

I have emotional balance. This means that I can look at a situation, without ignoring my feelings about it, or becoming overly absorbed in them. I understand that these feelings are separate to me and my behaviour and ultimately I am in control of how I process and react to different situations.

Top Up With...

THE SELF-COMPASSION JOURNAL




**HUMAN**

I am human, not perfect. This means that sometimes I will make mistakes, or not achieve what I want to. This is okay, because failure is part of being human, and everyone feels bad sometimes. I accept these feelings, but they don't define me.

Top Up With...

THE SELF-COMPASSION JOURNAL




**SELF ACCEPTANCE**

I accept myself. I understand that my flaws are part of my personality, just like my qualities. I accept that whilst there may be things I want to work on, self-development is a continuous process and I can want to improve, whilst still being happy in my own skin.

Top Up With...

THE SELF-COMPASSION JOURNAL




**SELF KINDNESS**

I can display self kindness. I know that taking time to look after myself is very important and involves thinking and doing what is best for my own long-term mental and physical wellbeing.

Top Up With...

THE SELF-COMPASSION JOURNAL




**SOCIAL JUDGEMENT**


Having high self-esteem has lots of benefits, but it is also dependent on the judgements of other people. I can't control these judgements, which can mean how I feel about myself is unstable. On the other hand, if I practice self-compassion, I can feel positive about myself and treat myself kindly to perform at my best.

Combat With...


THE SELF-COMPASSION JOURNAL




**BOOST**




**BOOST**




**BOOST**



**BOOST**



**BOOST**



**BOOST**

Appendix 4.9: Z-scores for all measures (pre- & post-test).

	Z-score			
	Skewness		Kurtosis	
	Pre	Post	Pre	Post
SWL	.34	.72	-1.12	-1.17
IMI	-1.25	-1.67	-.54	0.05
DASS	2.68*	3.52*	.88	2.94*
CD-RISC	.14	-.71	.16	.25

Z-scores shown for all subscales across all three time points (pre-, post-test & follow-up). Using methodology proposed by Kim (2013), when  $n < 50$  absolute z-scores greater than  $\pm 1.96$  concludes that data violates parametric assumptions (\* = data violated parametric assumptions)