The power of emotional intelligence for facilitating psychologically flexible thinking: A contextual perspective in decision making and workplace flourishing

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Declaration

This thesis contains the original research of PhD candidate Roxanne Foster conducted at the Research School of Psychology, College of Medicine, Biology and Environment, Australian National University. The ideas, research and writing contained in these chapters and manuscripts are, to the best of my knowledge, entirely my own, except in instances where I have acknowledged the original source accordingly. This thesis includes three papers, two of which are currently under review and one pending resubmission as a brief report (see below). The research ideas, development, and authorship of these papers and overarching thesis were the principal responsibility of myself, the candidate. Dr Kristen Pammer provided feedback on study design and write up in her capacity as primary supervisor. Dr Nicola Schutte and Dr Jay Brinker provided input on article write up in their capacity as supervisory panel members. Inclusion and order of co-authors reflects their respective contributions towards manuscript preparation. My contribution to publishable papers is described below. The overall thesis contains 41,917 words and 171 pages, excluding appendices.

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Ms Roxanne Foster

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Abstract

There is growing support for the value of emotional intelligence and psychological flexibility in multiple life outcomes. Independently, emotional intelligence facilitates decision making and is a strong predictor of work performance. Likewise, psychological flexibility predicts job performance and facilitates decision making consonant with personal values. Notably, the relationship between these variables and their associated benefits are contextually-bound, manifesting to varying degrees for individuals in different circumstances. Despite intuitive connections between adaptive emotional functioning epitomised in emotional intelligence and the range of adaptive abilities comprising psychological flexibility, some theorists propose an inverse relationship. The series of four studies in this thesis aimed to investigate the interaction between emotional intelligence and psychological flexibility in promoting positive outcomes and to identify the primary mechanisms responsible. Given the contextual nature of both these constructs, outcomes were assessed in relation to two applied areas of investigation: decision making and workplace functioning. Both emotional intelligence and psychological flexibility are implicated in promoting positive outcomes in these selected fields and examination within these contexts strengthens the chances of detecting a relationship. Further, decision making and work functioning form pervasive aspects of daily life and applicability of findings in these contexts potentially extends widely throughout the population. The initial study provided preliminary support for the purported relationships between emotional intelligence, psychological flexibility and maximising personality traits relevant to decision making processes and outcomes. Administration of a decision changeability paradigm showed that emotional intelligence predicted higher psychological flexibility, mediated by positive affect, which in turn mitigated ruminative outcomes typical of maximising personalities in changeable decision conditions. A workplace intervention study experimentally assessed the directional nature of the relationship between emotional
intelligence and psychological flexibility. Emotional intelligence causally contributed to improved work engagement through enhanced positive affect and work-related psychological flexibility following emotional self-efficacy training. However, conflicting results between global and work-specific measures of psychological flexibility warranted follow-up. Laboratory confirmation of causal components clarified the relationship between emotional intelligence and psychological flexibility to some extent. Emotionally intelligent individuals were adept at maintaining positive affect following induction conditions that resulted in emotional regression for the majority of participants. In these conditions, emotional intelligence was related to higher functioning on a performance proxy indicating features of psychological flexibility. However, the power of emotional intelligence for facilitating flexibility in mood enhancing conditions was equivocal and further research is required to test this relationship using positive induction methods with greater efficacy. The intractability of the global psychological flexibility measure (Acceptance and Action Questionnaire) in conditions commonly considered to facilitate flexibility suggests some limitations in the use of this tool. Future directions should explore alternative measurement methods for capturing psychological flexibility, particularly brief performance measures or positively keyed global self-reports and a range of context-specific assessments. Overall, the thesis offers promising insights on the value of emotional intelligence training and potentially positive affect interventions for promoting psychological flexibility. Ultimately, this could address some of the negative outcomes associated with maximizing tendencies, such as ruminative responding in changeable decision conditions, and promote workplace flourishing.
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Chapter 1

Aims of the Research Thesis and Overarching Hypotheses

1.1 Emotional intelligence as a Contextual Facilitator of Psychological Flexibility

Multiple theoretical connections suggest that emotional intelligence may causally influence components of psychological flexibility; however, context may determine the nature of the relationship between these variables. Emotional intelligence and psychological flexibility are fundamental to health and contribute to outcomes in decision-making processes and workplace flourishing (e.g., Damasio, 1994; O’Boyle, Humphrey, Pollack, Hawver, & Story, 2011, Kashdan & Rottenberg, 2010; Bond, Lloyd, & Guenole, 2011). In these contexts, emotional intelligence may potentially build psychological flexibility, contributing to improved outcomes. For example, the characteristic experience of positive affect may promote broadened behavioural repertoires and aspects of executive functioning such as attentional control (Schutte, Malouff, Simunek, McKenly & Hollander, 2002; Fredrickson & Branigan, 2005; Posner & Rothbart, 1998). These features could assist outcomes in decision making and workplace contexts.

The experiments in the present thesis aim to clarify how emotional intelligence promotes psychological flexibility in decision making and workplace contexts and confirm associated positive outcomes, including the attenuation of ruminative thought styles and higher levels of work engagement. It is anticipated that these findings will not only inform the theoretical relationship between these variables, but raise practical implications for parsimonious interventions to improve outcomes in these situations. Identifying the role of emotional intelligence and positive affect in generating psychologically flexible thinking may expand traditional treatment approaches to include brief, self-directed training programs utilising journal writing paradigms common to emotional intelligence and positive
psychology interventions (e.g., Kirk, Schutte, & Hine, 2011; Seligman, Steen, Park, & Peterson, 2005). Findings relating to these realms of functioning potentially have wide application.

1.2 Predictions and Investigative Approach

The input-context-output model at Figure 1.1 illustrates the hypothesised relationships between the primary thesis variables embedded within the contextual features of decision making and workplace flourishing. In the current project, it is hypothesised that emotional intelligence will facilitate psychological flexibility in decision making with positive affect mediating the relationship. In turn, psychological flexibility is expected to lower ruminative outcomes associated with maximising personality styles, given that it may prompt selection of more adaptive decision strategies and acceptance of internal cognitions without rumination (Seligman & Reichenberg, 2012). In the workplace context, it is hypothesised that emotional intelligence will increase positive affect and psychological flexibility, measured through global (AAQ-II; Bond et al., 2011) and context-specific (WAAQ; Bond, Lloyd, & Guenole, 2013) instruments. In these circumstances, both emotional intelligence and psychological flexibility are expected to promote improved work engagement as an indicator of workplace flourishing.

A series of four studies are designed to confirm and test the direction of these relationships, addressing conceptual overlaps between the primary constructs which are described in more detail in the dedicated chapters on emotional intelligence (Chapter 2) and psychological flexibility (Chapter 3). The overview at Figure 1.1 contains a global synthesis of the thesis studies.
The four studies investigating the relationship between emotional intelligence and psychological flexibility, as hypothesised in Figure 1.1, unpack the contextually-bound components of this diagram. In the first two studies, the inputs and outputs specific to decision making illustrated in the upper half of the figure are examined. The first study is intended to establish preliminary correlational support between emotional intelligence, positive (and negative) affect, psychological flexibility and rumination. The second study will employ a choice changeability manipulation (Gilbert & Ebert, 2002), and examine how the relationship between emotional intelligence and psychological flexibility affects rumination in response to decision making, as a function of maximising personality styles (Schwartz et
The lower half of Figure 1.1 is examined in the third study which will assess the causal role of emotional intelligence on psychological flexibility and workplace flourishing, (operationalized as work engagement on the Utrecht Work Engagement Scale; Schaufeli, Bakker, & Salanova, 2006) through administration of an emotional self-efficacy training program (Kirk et al., 2011). Finally, the fourth study (Chapter 6) will seek laboratory confirmation of causal components influencing the relationship between emotional intelligence and psychological flexibility that were identified in the previous studies, in particular, assessing the role of positive affect through mood induction procedures. This final study focuses on the processes through which emotional intelligence facilitates psychological flexibility, divorced from context.

1.3 Summary of Chapters

Following this introductory chapter outlining the research program, Chapters 2 and 3 explore the theoretical basis for the present investigation, providing in-depth analysis of emotional intelligence and its potential contribution to psychological flexibility. Three experimental chapters (Chapter 4, Chapter 5, and Chapter 6) present findings from the four studies investigating the hypothesised relationships between emotional intelligence and psychological flexibility. Chapter 4 incorporates results from two studies investigating emotional intelligence and psychological flexibility in relation to maximising personality styles and ruminative outcomes in decision making. Chapter 5 outlines a workplace intervention study examining the causal role of emotional self-efficacy training on work-related and global psychological flexibility, and their impact on work engagement. Chapter 6 describes a mood induction study administered in laboratory conditions to evaluate how emotional intelligence influences mood transformations and the causal role of positive affect.
on psychological flexibility outcomes. Chapter 7 discusses general conclusions and directions for future research, summarising the thesis findings on the relationship between emotional intelligence and psychological flexibility. This research is expected to inform efficacious and low cost interventions that promote positive outcomes particularly relevant to decision making and workplace functioning. The theoretical rationale for the hypothesised relationships is explored in detail in the following chapters reviewing the emotional intelligence and psychological flexibility literature.
Chapter 2

The Origins and Value of Emotional Intelligence

2.1 Historical Perspectives

Emotions and intelligence were historically viewed as naturally opposing concepts. This tradition largely reflected the common perception of emotional vagaries propagated early in the history of written knowledge: “Rule your feelings, lest your feelings rule you” (Publilius Syrus, c. 100BC/1961). From this viewpoint, a person could think and behave either emotionally or intelligently. The two ideas were mutually exclusive and attempts to link emotion with intelligence would introduce a conceptual oxymoron; a fundamental contradiction in terms. Early study in psychology tended to support this perspective, regarding emotion as disorganised “visceral” responses, disruptive to reasoned thinking and behavioural effectiveness (Schaffer, Gilmer, & Schoen, 1940; Salovey & Mayer, 1990). To this extent, the absence of emotion was considered a valid manifestation of underlying intelligence (Woodworth, 1940). However, alternative perspectives on the function of emotion accompanied with developments in theories of intelligence are challenging the assumption that emotions and intelligence are necessarily diametric constructs.

2.1.1 A Functional Understanding of Emotion

Contrary to behavioural or rational disruption, viewpoints emerged characterising emotions as “processes which arouse, sustain, and direct activity”; motivational influences adaptively redirecting thought and action as part of an organised response to the environment (Leeper, 1948, p. 17). These theories explained the origin of emotional experience using an evolutionary framework. The adaptive mechanism of emotions endowed early ancestors with
a substantial evolutionary advantage, promoting individual and species-level survival (Frijda, Kuipers, & Schure, 1989; Tooby & Cosmides, 1990). Proponents theorised that emotions facilitate specific action tendencies (Tooby & Cosmides, 1990). The subjective experience of emotions co-ordinated physiological, behavioural, and cognitive systems, priming certain responses appropriate to environmental pressures. For example, a threat appraisal stimulated the emotional response of fear, activating multiple brain regions (such as the amygdala, hypothalamus and pituitary gland) and infusing the nervous system with adrenal hormones. Rapid heart rate increased blood circulation to muscles important for movement, and attention was narrowed to the salient features of the threat. In this scenario, emotions mobilised a host of bodily resources (mental and physical) towards successful execution of the flight response. Survival of the organism hinged on an effective and efficient emotional response to activate these component processes. In this way, emotional responses became an innate characteristic of human genetic makeup through natural selection.

The functional value of positive emotions was somewhat more difficult to situate within a coherent and specific thought-action-urge framework than negative emotions. Responses to positive emotions seemed overly generic and vague, eluding theoretical linkages to specific survival behaviours (Fredrickson, 1998). Instead, Fredrickson (2001) proposed that positive emotions exhibit a distinct pattern to negative emotional processes, broadening thought-action repertoires as opposed to narrowing response tendencies to a critical selection. Positive emotions generally occur in non-threatening situations, in which specific reactions are unwarranted. In these circumstances, it is considered more adaptive for positive emotion to broaden the way individuals think and engage in behaviour (Fredrickson, 2001). Positive emotions encourage and activate a range of approach behaviours with the environment, contributing to the accumulation of personal experience and resources. Analogues in the animal kingdom exemplify this process. Creatures experiencing joy instigate play, increasing
strength and agility as resources to access in future threatening situations. Translating that example into modern terms, joy might promote social connection and enhance relationships, providing access to social support when needed (Lopes et al., 2004; Lopes, Salovey, & Straus, 2003). Likewise, curiosity could motivate knowledge acquisition, a highly-valued resource in the contemporary education-oriented social system and job market. Consequently, emotions whether positive or negative, demonstrate functional features, energising action towards adaptive outcomes.

2.1.2 Intelligence: From Unifactorial to Multifaceted Approaches

Simultaneously with an evolving understanding around the functional importance of emotion, research investigating human intelligence was developing. Early theories of intelligence attributed heightened intellectual functioning to exceptional perceptual abilities (e.g., Galton; Smith, Hoeksema, Fredrickson, & Loftus, 2003). Superior sensory faculties resulted in more accurate knowledge acquisition and therefore greater intelligence. However, tests measuring psycho-physiological processes (such as reaction times, visual acuity, and auditory perception) demonstrated no utility in distinguishing presumably intelligent from non-intelligent individuals. Other models of intelligence with greater predictive validity assumed that mental ability was reflected in reasoning and problem solving skills, capable of expression as a function of mental to chronological age (e.g., Stanford-Binet; Youngstrom, Glutting, & Watkins, 2003). These early models assumed a single underlying intelligence factor (g) that determines individual performance across various domains (Spearman, 1904). This perspective was reflected in Weschler’s (1944, p.3) definition of intelligence as “the aggregate or global capacity of the individual to act purposefully, to think rationally, and to deal effectively with his environment”.
A contrasting view emerged describing intelligence as a set of independent mental abilities as opposed to a general or global capacity. For example, Thurstone (1938) factor analysed intelligence scores and proposed numerous primary mental abilities. Following a paradigm shift towards cognitive psychology and a focus on information-processing models of human behaviour, contemporary theories of intelligence explored the multifaceted nature of the construct. Anderson’s (1992) theory of intelligence postulated the existence of various independent knowledge modules and a separate cognitive processing system. Intelligence was viewed as an aptitude for acquiring and processing content-specific information, with more efficient processes equating to higher levels of intelligence. Sternberg’s (1988) triarchic theory extended this basic cognitive information processing approach to include aspects of learned experience and cultural influences. The environmental context emerged as essential to the manifestation of an individual’s innate potential for intelligence, providing the affordances and constraints that interact with the development of cognitive ability (Ceci, 1996).

The importance and variety of human social contexts informed Gardner’s (1993) conception of multiple intelligences. Gardner recognised that successful functioning could not be reduced to an individual capacity espoused in classical views of intelligence due to the sheer diversity of role requirements across cultural communities. Accordingly, intelligence reflected an individual’s potential for accessing, thinking and operating on particular content relevant to a cultural or community setting. The seven different forms of intelligence (including linguistic, musical, logical-mathematical, spatial, bodily-kinesthetic, intrapersonal and interpersonal intelligence) were variously distributed across a person’s unique profile, manifesting as individual differences in capacity for the types of performance required in socially constructed roles (Gardner, 1993; Walters & Gardner, 1985). Gardner’s set of inter- and intra- personal intelligences, revitalised theories of social intelligence, or “the ability to
understand and manage people” including the self (Thorndike & Stein, 1937, p. 275), despite research efforts previously concluding that a unitary trait of social intelligence was an unviable construct (Cronbach, 1960). The personal intelligences involved the ability to recognise and distinguish feelings, intentions and motivations within the self and others, respectively (Gardner, Kornhaber, & Wake, 1996). Specification of intelligences featuring emotional competencies laid the foundation for later conceptualisations of emotional intelligence.

### 2.1.3 Integrating Emotion and Intelligence

A raft of theoretical developments paved the way for the emergence of emotional intelligence. Modern theorists viewed intelligence as a capacity for the efficient and accurate processing of certain types of information, with the implicit recognition that multiple forms of intelligence exist. The development of social and personal intelligences in Gardner’s (1993) theory outlined the potential of emotional knowledge as a type of intelligence. Coupled with the adaptive value of emotions discussed previously, the juxtaposition of emotional intelligence describes an aptitude for acquiring emotional information and a highly effective system for processing and operating on that emotional knowledge in order to facilitate functional outcomes relevant to an individual’s success within the environmental context (Kornhaber & Gardner, 1991).
2.2 Theoretical Evolution and Defining Frameworks

2.2.1 The Mayer-Salovey Models of Emotional Intelligence

Salovey and Mayer (1990) presented the first comprehensive framework for emotional intelligence as a subset of Gardner’s (1993) social or personal intelligences, and are often credited with labelling the construct despite some earlier disparate references in the literature (e.g. Leuner, 1966; Payne, 1986). In this conceptualisation, emotional intelligence was operationally defined as “the ability to monitor one’s own and others’ feelings and emotions, to discriminate among them, and to use this information to guide one’s thinking and action” (Salovey & Mayer, 1990, p. 189). Accordingly, emotional intelligence essentially reflects individual differences in skill applied to the processing of affective information embedded in life tasks (Salovey & Mayer, 1990).

The Salovey and Mayer (1990) classification of emotional intelligence reveals a process-oriented approach, focused on the functional aspects of emotion integrated with cognition and behaviour. As a subset of intelligence, it aligns with the emerging viewpoint that emotions are the conductor of cognitive and physiological processes, adaptively motivating and directing human activity towards individual pursuits (Leeper, 1948). Emotions were conceived as organised responses to internal or external events, designating positive or negative value meanings to experiences, and primarily facilitating adaptive responding within the environment. Emotional intelligence was the ability to recognise and utilise these emotional states in the self and others as a means of goal-directed problem solving and behaviour regulation to successfully navigate the social world (Salovey & Mayer, 1990; Salovey & Mayer, 2004). The Salovey and Mayer (1990) emotional intelligence model delineated a skillset comprising three branches of adaptive emotional abilities as
shown in Figure 1.1. The basic branches include emotional appraisal and expression, emotion regulation, and emotion utilisation to facilitate flexible thinking and motivate action.

![Diagram of Emotional Intelligence](image)

*Figure 2.1. Salovey and Mayer conceptualisation of emotional intelligence.*


The three main branches of emotional intelligence each contain sub-levels of emotional skills. The first branch for emotion appraisal and expression includes verbal and non-verbal components in relation to the self, and non-verbal perception and empathy applied to others (Salovey & Mayer, 1990). This primary skill branch describes the basic identification and recognition of emotion, which is an essential element underlying intelligent use of emotions across the spectrum. Detecting emotional signals through facial expressions or body postures can aid in the selection of socially adaptive behaviours. For example, a lecturer may perceive students’ loss of interest in an oral presentation through various non-verbal behaviours (e.g., fidgeting or wandering eye gaze) and an empathic understanding of
these responses could lead to an adjustment in content or presentation style to reinvigorate the audience.

The second emotion regulation branch refers to emotional management in the self and others. Emotionally intelligent individuals theoretically acquire an extensive and accurate knowledgebase on the causes and consequents of various emotions through repeated learning history (Salovey & Mayer, 1990). This information can be used to engage in behaviours or situations that facilitate a desired emotional experience in the self or others, implying that emotion regulation is substantially goal-driven. For example, an emotionally intelligent individual can use this skill branch to adaptively manipulate the affective responses of work colleagues in order to foster a favourable impression or strategically motivate action towards achieving team goals (Salovey & Mayer, 1990; Hochschild, 1983).

The third branch for emotion utilisation incorporates four subcomponents: flexible planning, creative thinking, redirected attention, and motivation (Salovey & Mayer, 1990). Flexible planning involves the use of mood transformations to shift mindsets, expanding consideration of possible actions and outcomes, thereby maximising the potential to plan for and seize future opportunities. Creative thinking denotes the use of positive moods to facilitate cognitive integration and categorisation of information that assists in problem solving. Utilisation of emotion relies on aspects of attentional control; using emotion adaptively to redistribute attentional resources in response to situational demands. For example, individuals sensitive to emotionally-potent stimuli can redirect attention to the most salient features of their environment, devoting finite personal resources to information relevant for successful functioning. Finally, emotion utilisation has a motivating purpose; emotionally intelligent individuals use moods to motivate persistence towards personally-held values or goals. For example, performance anxiety preceding exam situations may motivate prolonged study sessions resulting in better grades (Alpert & Haber, 1960). Implicit
within all branches of the Salovey and Mayer (1990) framework is the idea that emotionally intelligent individuals acquire and use a vast skillset of emotional abilities to adapt to environmental demands and enhance the potential to achieve personally-valued outcomes.

Mayer and Salovey (1997) later revised their original framework for emotional intelligence, extending it to a four-branch model emphasising cognitive processes and growth potential. The scope of the operational definition was re-specified as:

the ability to perceive accurately, appraise, and express emotion; the ability to access and/or generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth. (Mayer & Salovey, 1997, p. 10)

Self-actualisation of the potential for emotional intelligence involves the acquisition of staged ability levels underlying each of the four branches in the model: (1) emotional perception in self/others, (2) emotional facilitation in decision making, (3) emotion understanding, (4) emotion regulation in self/others (Schutte, Malouff, Thorsteinsson, Bhullar & Rooke, 2007). Further, the model is hierarchical in nature, extending from the development of basic processes at the lowest level of perception, appraisal and expression of emotion towards more complex processes involved in reflective regulation of emotions. For example, at the lowest level of emotion processing, a student may perceive anxiety when choosing subject majors. Identification of this emotion can help prioritise thinking at the next level and direct energy towards problem-solving the various choices in the decision-making process. At the third level, emotional attributions can be assigned against various choices to anticipate each option’s potential for satisfying personal needs, facilitating accurate analysis and decision-making. Finally, any residual anxiety from the process can be moderated through healthy regulation at the fourth level of emotional intelligence, mitigating the negative
impacts that anxiety can have on physiological arousal and health (e.g., Amiri, Monzer, & Nugent, 2012; Barger & Sydeman, 2005).

2.2.2 Expanded or Mixed Emotional and Social Models

While the Mayer and Salovey (1990, 1997) model of emotional intelligence provided one of the first comprehensive models for the construct, many other conceptual frameworks for emotional intelligence now exist. Researchers in the area generally note that alternative models for emotional intelligence do not necessarily contradict each other, but contribute different perspectives to the overall understanding of the concept (Schutte et al., 1998). Goleman’s (1995) popular book Emotional Intelligence made the concept widely accessible to the general community, describing the culmination of various research perspectives on the topic, including Bar-On’s (2006) emotional-social intelligence framework.

Bar-On’s (2006, p. 3) conception of emotional intelligence is a “cross-section of interrelated emotional and social competencies, skills and facilitators that determine how effectively we understand and express ourselves, understand others and relate with them, and cope with daily demands”. Practically, Bar-On’s (1997; 2006) model is based on a foundation of intrapersonal self-awareness, an understanding of individual strengths and weaknesses, as well as capacity for constructively expressing feelings. Interpersonally, it involves external awareness of the emotional expressions and needs of others that nurtures the formation of mutually beneficial social relationships. The key outcome attributed to high levels of Bar-On’s (1997; 2006) emotional-social-intelligence is the ability to manage and adapt to change, whether personal, social or environmental. In this model, high emotional intelligence reflects capable and flexible responding to situational demands using the emotional-social-intelligence competencies for effective problem solving and decision making (Bar-On, 2006).
This means managing emotions to achieve desired outcomes and maintain optimism, positivity and motivation. The five dimensions underlying Bar-On’s (2006) model demonstrate a broadened scope of emotional intelligence, reflecting its social intelligence origins and combining a variety of personality traits into the construct: intrapersonal, interpersonal, adaptability, stress management and general mood (Van Rooy & Viswesvaran, 2004). Models of emotional intelligence featuring broader applications and social contexts contributed to a theoretical divide in the literature.

2.2.3 Defining Emotional Intelligence as an Ability or a Trait

The expanding field of emotional intelligence informed by multiple perspectives resulted in fundamentally different approaches to defining and measuring the concept. The primary models defined emotional intelligence as a set of pure abilities (Ciarrochi, Chan & Caputi, 2000; Mayer & Salovey, 1997), while other researchers approached it from a characteristic personality trait perspective (e.g., Bar-On, 1997; Goleman, 1995; Petrides & Furnham, 2000; Schutte & Malouff, 1999). Ability models attempted to define emotional intelligence using traditional criteria for establishing a legitimate form of intelligence that is conceptually related to other mental abilities and develops of over the lifespan (Mayer, Caruso, & Salovey, 1999). The literature generally supports emotional intelligence as a distinct intelligence domain (e.g., MacCann, 2010), viewing it as an information processing aptitude operating on an accumulated repository of emotional knowledge. Ability models represent a narrow specification of the construct concerned with emotional recognition and control, and the integration of these abilities with cognition. Accordingly, ability assessments are generally based on maximal performance across a series of tasks designed to objectively demonstrate emotional capabilities as a form of intelligence.
In contrast, conceptualisations often referred to as trait models of emotional intelligence (or mixed, where broadly specified) typically combine emotional abilities with personality features in the construct. Emotional intelligence is viewed as an innate characteristic incorporating an array of intellect, personality and affective components such as motivation, positivity, optimism and impulsivity (Petrides & Furnham, 2001; Petrides et al., 2016). Trait models concerned with typical functioning, or behavioural consistency across situations, are more appropriately assessed through validated self-report inventories, essentially capturing aggregate emotional self-efficacy. Figure 1.2 displays the intersection of emotion with intelligence and the broader features associated with some mixed models.

![Figure 2.2](image.png)

*Figure 2.2. The scope of emotional intelligence for integrated ability and mixed models.*

Reviews synthesising the various streams of emotional intelligence research view the construct as a tripartite model, consisting of crystallised emotional knowledge, the ability to use that knowledge, and typical behaviours that reflect how we generally implement emotional knowledge and abilities as a characteristic personality trait (Mikolajczak, Petrides, Coumans, & Luminet, 2009; Petrides et al., 2016). This reconciliation of divergent perspectives concords with the idea that research endeavours investigating ability, trait or mixed models provide a complementary understanding of the construct (Schutte et al., 1998, 2009). Ability and trait literatures demonstrate similar empirical support for a wide range of beneficial outcomes.
2.3 The Benefits of Emotional Intelligence

Various models of emotional intelligence converge on functional aspects, involving the intelligent deployment of emotional abilities to facilitate flexible and adaptive responding to situational demands. In particular, multiple frameworks stress the role of emotional intelligence for effective decision making (e.g. Bar-On, 2006). Explanation of Mayer and Salovey’s (1997) model incorporated a decision-making example spanning all four branches of emotional abilities. In addition, emotional intelligence research generally investigates the construct from an individual difference approach, examining variations in emotional abilities or traits and how these differences impact outcomes across life domains (Peña-Sarrionandia, Mikolajczak, & Gross, 2014). Research efforts emphasise the role of emotional intelligence in health and workplace settings (Martins, Ramalho, & Morin, 2010; O’Boyle, Humphrey, Pollack, Hawver, & Story, 2011). Furthermore, emotional intelligence is increasingly recognised as a platform for building additional individual strengths that contribute to positive outcomes in these areas (e.g., Schutte & Loi, 2014).

2.3.1 Emotional Intelligence in Decision Making

The role of emotional intelligence in decision making has potentially wide-ranging impacts, given the proliferation of choice and decision points permeating most realms of daily functioning. The majority of emotional intelligence models emphasise the use of emotions to guide thinking and behaviour necessary for effective decision making (Bar-On, 2006; Mayer & Salovey, 1990; Salovey & Mayer, 1997). For example, the second branch of Mayer and Salovey’s (1997) model specifically relates to emotional facilitation of decision making. Emotionally-assisted decision-making incorporates somatic markers as informational stimuli to aid judgment when evaluating decision options (Bartol & Linquist, 2014; Damasio,
Learning history builds a range of emotional associations that trigger a physiological response in anticipation of decision-making. Emotionally intelligent individuals can use these somatic markers to inform choice, avoiding or approaching certain options depending on whether the somatic response is positive or negative (Bartol & Linquist, 2014; Damasio, 2008). Emotional information, conveyed partially through these physiological sensations, is integrated with cognitive evaluations pertinent to the available choices to facilitate decision making.

Neuropsychological findings support the facilitative role of emotional intelligence in decision-making. Bar-On, Tranel, and Bechara (2003) tested individuals with neural damage to somatic marker circuitry. These patients exhibited significantly lower emotional intelligence and pervasive patterns of poor judgement in decision-making compared to patients with lesions in other brain regions, despite normal levels of cognitive intelligence and absence of DSM-IV psychopathology (Bar-On et al., 2003). These findings support the theory that emotions heuristically assist in the efficient analysis and accuracy of decision-making.

The benefits of emotional intelligence in decision-making may extend beyond the decision process itself. Suboptimal decision-making can instigate negative emotionality and cognitive evaluations such as rumination and regret, particularly for individuals with a tendency for decision maximisation (a personality disposition to seek the optimal choice in any situation, regardless of the search costs or personal resources involved; Schwartz et al., 2002). A capacity to reflectively regulate emotions should assist in detaching from negative emotions and ruminative thought patterns, prompting transitions into more positive and adaptive states. Research indicates that emotionally intelligent individuals use emotions to mindfully deploy attention towards a non-judgmental awareness of the present moment (Brown & Ryan, 2003; Schutte & Malouff, 2011), demonstrating less ruminative focus on
suboptimal past decisions than individuals with lower levels of emotional intelligence (Petrides, Pérez-González, & Furnham, 2007; Salovey, Stroud, Woolery, & Epel, 2002). Through these mechanisms, emotional intelligence may contribute to improved outcomes in decision-making.

2.3.2 Determinant of Health

High emotional intelligence is associated with improved mental and physical health (e.g., Sánchez-Álvarez, Extremera, & Fernández-Berrocal, 2015). Accurate perception, understanding, utilisation, and regulation of emotion theoretically protects against the manifestation of maladaptive emotional states (Schutte, Malouff, Thorsteinsson, Bhullar, & Rooke, 2007), which occur when inappropriate emotions arise with respect to content, timing, or intensity (Peña-Sarrionandia, Mikolajczak, & Gross, 2014). Many mental health disorders are characterised by maladaptive emotional states, implying that emotional intelligence may mitigate the risk of these conditions developing (Matthews, Zeidner, & Roberts, 2002; Zeidner & Matthews, 2016). The influence of emotional intelligence may extend into physical realms through psychosocial factors. For example, better interpersonal functioning generates greater social support, which can be used as a resource and buffer against physical illness (Brown & Schutte, 2006; Schutte et al., 2007; Zeidner & Matthews, 2016).

Intrapersonal features associated with high emotional intelligence, such as optimism and motivation, may foster medical compliance and positive health behaviours, further attenuating physical illness (Brown & Schutte, 2006; Fernández-Abascal & Martín-Díaz, 2015; Schutte et al., 2007). Consistent with these predictions, tobacco, alcohol and illicit drug use are inversely related to emotional intelligence, controlling for cognitive intelligence and
personality variables (Abdollahi, Talib, Yaacob, & Ismail, 2016; Bracket, Mayer, & Warner, 2004; Trinidad & Johnson, 2002).

Meta-analyses statistically combining comparable results potentially provide the most accurate estimation for the predictive validity of emotional intelligence towards beneficial outcomes (Van Rooy & Viswesvaran, 2004), particularly given that the research field encompasses multiple conceptualisations and measurement methods. Schutte et al. (2007) performed the first comprehensive meta-analysis examining the relationship between emotional intelligence and health. Emotional intelligence demonstrated a significant relationship with physical health, mental health, and psychosomatic health, following analysis of 44 weighted effect sizes from 7,898 participants. Martins, Ramalho, and Morin (2010) subsequently confirmed these findings in a meta-analysis including 105 effect sizes from 19,815 participants. Emotional intelligence demonstrated medium associations with physical health ($r = .27$), mental health ($r = .36$), and psychosomatic health ($r = .33$). Cumulative analysis indicated that these results are stable and sufficient; a significant positive relationship between emotional intelligence and health is well-established and additional research in the area should not materially alter the findings (Martins et al., 2010; Mullen, Muellerleile, & Bryant, 2001). This literature strongly supports the value of emotional intelligence as a predictor of various health domains.

### 2.3.3 Workplace Functioning

The benefits of emotional intelligence are not limited to health. Various theoretical reasons exist to support a positive relationship between emotional intelligence and workplace functioning. Emotion regulation abilities can be used to induce positive affective states that benefit individual and organisational outcomes (Martins et al., 2010). Individuals high in
emotional intelligence typically exhibit more positive mood states and efficient mood repair following negative inductions (Schutte, Malouff, Simunek, Hollander, & McKenley, 2002). Positive emotions broaden attentional scope, behavioural repertoires and flexibility (Fredrickson, 2001), potentially contributing to improved job performance. Some models show that positive affect predicts work performance through interpersonal and motivational processes, generating social support between co-workers, perceived efficacy in work tasks and task persistence (Tsai, Chen, & Liu, 2007). The importance of emotional intelligence in the workplace may be further heightened in roles with high emotional labour such as the service sector, where employees are required to regulate emotional expression in conformance with (usually positive) display codes (Grandey, 2000). This role requirement may be less strenuous for emotionally intelligent individuals to fulfil, leading to improved performance and perhaps fewer of the negative outcomes associated with excessive attempts to comply with emotional labour such as burnout (Joseph & Newman, 2010; Hochschild, 1983; Grandey, 2000).

A cascading model of emotional intelligence theorises a stepwise progression through the Mayer and Salovey (1997) four-branch emotional intelligence hierarchies towards improved job performance (Joseph & Newman, 2010). Attention, appraisal and response in relation to work situations correspond to perception, understanding and regulation of emotion, respectively (Joseph & Newman, 2010). In this model, perception of emotional cues in the work environment leads to a larger reservoir of emotional information available for accurate appraisal and consequently appropriate response formation, ultimately facilitating improved functional and adaptive performance (Joseph & Newman, 2010). Accordingly, emotional intelligence may promote job performance through multiple affective, emotion perception, comprehension, and regulation processes.
Van Rooy and Viswesvaran (2004) conducted the first meta-analysis investigating the operational validity of emotional intelligence for predicting performance in employment, academic and life settings, respectively. The predictive validity of emotional intelligence was positive across all performance settings. Moreover, emotional intelligence demonstrated substantial incremental validity in predicting performance above the common big five personality traits, as well as some incremental validity over general mental ability, providing robust support for emotional intelligence as a distinct and valuable construct (Van Rooy & Viswesvaran, 2004). The authors concluded that emotional intelligence is an important predictor of work performance and shows more validity than traditional workforce selection methods (such as referee reports).

O’Boyle, Humphrey, Pollack, Hawver, and Story (2011) subsequently capitalised on continued research in the area to confirm the original findings in a meta-analysis with more than double the sample size of the Van Roy and Viswesvaran (2004) study. Various conceptual streams of emotional intelligence (e.g., performance, ability and self-reported trait) equally predicted job performance. The authors conducted rigorous epsilon rated dominance analysis to determine the relative importance of emotional intelligence in predicting job performance against traditional cognitive and personality factors. More than 13% of the variance in job performance was attributable to emotional intelligence (O’Boyle et al., 2011). This is a substantial finding given the conservative estimates applied to the relationship between cognitive intelligence and job performance (based on Schmidt, Schaffer, & Oh, 2008). As a construct, emotional intelligence demonstrated a significant incremental contribution to work performance, exceeding the high threshold of cognitive intelligence and the big five personality traits. These results are less susceptible to common method variance criticisms (i.e., where significant correlations stem from response biases) given the job performance criterion variable was rated by others (e.g., peers, supervisors, followers) rather
than self-reported. This meta-analysis provides compelling support for the benefits of emotional intelligence in the workplace, suggesting that the value of the construct extends beyond other factors already contributing a large portion of variance in work performance (O’Boyle et al., 2011).

The importance of emotional intelligence in the organisational context is further supported in a meta-analysis of leadership styles (Harms & Credé, 2010), which evaluated claims that emotional intelligence competencies determine up to 90% of the distinguishing features in outstanding leaders (Kemper, 1999). While the meta-analysis found that claims of emotional intelligence advocates were somewhat overstated, it did support the contribution of emotional intelligence to positive leadership styles and demonstrated negative correlations with poor leadership. For example, transformational leadership is widely considered to predict heightened managerial effectiveness and performance, contributing to team motivation and satisfaction (Judge & Piccolo, 2004; Miao, Humphrey, & Qian, 2016). Transformational leaders are characterised by confidence, commitment, values-driven action, collegial support, mentoring, and motivational and inspirational influences that promote team engagement (Harms & Credé, 2010). The Harms and Credé (2010) meta-analysis found a moderately strong validity estimate of .41 between overall emotional intelligence and transformational leadership across all samples. In contrast, emotional intelligence demonstrated a moderately strong inverse relationship with absent or laissez-faire leadership styles, where managers avoid decision making, action, responsibility, and accountability (Harms & Credé, 2010). The accumulating meta-analytic evidence shows that emotional intelligence may be a valuable facilitator of work performance and provide a compounding effect through increased leader effectiveness in organisational settings.
2.3.4 Emotional Intelligence as a Foundation for Individual Strengths

The preceding discussion highlights the functional benefits of emotional intelligence in decision making, health and workplace domains. In addition to these direct outcomes, emotional intelligence may serve as a foundation for building further individual strengths. Schutte and Loi (2011) demonstrated that emotional intelligence is a platform for strengths-building in relation to workplace social support and perception of power, which predicted improved work engagement as an indicator of workplace flourishing. Emotional intelligence may build further strengths through affective components. For example, emotion regulation abilities may aid the development and maintenance of positive emotional states. Emotional intelligence is associated with the characteristic experience of positive mood and transient state positive affect (Schutte, Malouff, Simunek, & Hollander, 2002). The adaptive value of positive emotion was highlighted in broaden-and-build theory as a mechanism for growth potential and the accumulation of personal resources (Fredrickson, 2001). Accordingly, the capacity for emotionally intelligent individuals to experience greater levels of positive emotion across situations may culminate in a variety of additional personal resources, including the acquisition of individual strengths. Psychological flexibility is one such strength that emotional intelligence may promote through positive affect and numerous other mechanisms inherent in emotional intelligence competencies.
Chapter 3

The Potential Contribution of Emotional Intelligence to Psychological Flexibility

3.1 Defining Psychological Flexibility

Psychological flexibility is a broad construct, representing the culmination of multiple research fields including emotion regulation, mindfulness and acceptance, neuropsychology, social, personality and developmental psychology (Kashdan & Rottenberg, 2010). A review synthesising prior research on the topic formulated an all-inclusive definition conceptualising psychological flexibility as:

a range of human abilities to: recognize and adapt to various situational demands; shift mindsets or behavioural repertoires when these strategies compromise personal or social functioning; maintain balance among important life domains; and be aware, open, and committed to behaviours that are congruent with deeply held values. (Kashdan and Rottenberg, 2010, p. 865)

Psychological flexibility is increasingly featured as a fundamental aspect of health, and the vast adaptive abilities encapsulated in the concept provide substantial benefits to individuals navigating the social environment (Kashdan & Rottenberg, 2010).

3.2 The Benefits of Psychological Flexibility in Decision-Making and Workplace Functioning

Psychological flexibility offers a unique perspective on the dynamic interaction between people and their environment or social transactions (e.g., Kashdan & Rottenberg, 2010). The modern world is a highly stimulating, constantly fluctuating environment, and the
ability to adapt when confronted with these circumstances is considered important for psychological health and well-being (Kashdan & Rottenberg, 2010). The adaptive abilities inherent in psychological flexibility can be determinative of outcomes across a variety of situational contexts such as decision-making and workplace functioning.

From the Acceptance and Commitment Therapy (ACT) tradition in psychopathology, psychological flexibility denotes a capacity to accept internal subjective experiences (e.g., cognitions, emotions, and physiological sensations) in order to maintain attention and action towards valued goals afforded within the situational context (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). This process equips individuals with the ability to devote finite personal resources (e.g. attention and energy) towards meaningful pursuits as opposed to inwardly-focusing on regulatory attempts to deal with internal phenomena (Kashdan & Rottenberg, 2010). ACT interventions use mindfulness-based exercises to promote awareness of the present moment and acceptance of internal cognitions, emotions, or sensations, without rumination (Seligman & Reichenberg, 2012). The absence of psychological flexibility is linked to pathological processes of rumination and behavioural perseveration (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). In the previous discussion of emotional intelligence, rumination was identified as a potential feature in circumstances of suboptimal decision-making, particularly for individuals who may display personality traits with a desire to maximise decision outcomes (Schwartz et al., 2002). Accordingly, high levels of psychological flexibility may attenuate the effects of maximisation on rumination in decision situations, which are commonly encountered as an aspect of daily life.

In the workplace domain, psychological flexibility is associated with behavioural effectiveness and positive outcomes such as increased organisational awareness and perceived job control (Bond, Flaxman, & Bunce, 2008; Hayes et al., 2006). Operationalised using ACT models, psychological flexibility is measured on the Acceptance and Action
Questionnaire (AAQ-II; Bond et al., 2011), which scores self-reported global flexibility levels averaged across contexts (Bond, Lloyd, & Guenole, 2013). High levels of psychological flexibility on this measure have positively predicted task performance, job motivation, and work engagement comprising vigour, dedication and absorption dimensions on the Utrecht Work Engagement Scale (UWES; Schaufeli, Bakker & Salanova, 2006; Bond et al., 2013). In addition, high psychological flexibility scores on AAQ-II were negatively related to job absenteeism and general measures of psychological distress (Bond et al., 2013). Longitudinal research shows that ACT interventions targeting psychological flexibility generate positive workplace outcomes, including improved mental health of employees (Flaxman & Bond, 2010), organisational innovation (Bond & Bunce, 2000), and reduced burnout (the conceptual opposite of work engagement; Lloyd, Bond, & Flaxman, 2013).

A context-specific version of the AAQ-II demonstrates similar findings with additional sensitivity to workplace outcomes. In particular, the Work-related Acceptance and Action Questionnaire (WAAQ; Bond et al., 2013) demonstrated correlations of greater magnitude between psychological flexibility and the UWES dimensions of work engagement than the AAQ-II (Bond et al., 2013). Measurement methods utilising context-specific instruments acknowledge the contextually-bound nature of psychological flexibility. Individual differences in psychological flexibility manifest both interpersonally and intrapersonally; variations in psychological flexibility can occur for the same individual across situations (Kashdan & Rottenberg, 2010; Bond et al., 2013). Therefore, contextual approaches represent a more accurate method for assessing the relationship between psychological flexibility and other variables like emotional intelligence.

In Chapter 2, it was proposed that emotional intelligence may provide a solid foundation for building strengths such as psychological flexibility. Exploration of the conditions under which psychological flexibility may be enhanced seems warranted on the
basis of the associated positive outcomes in terms of health benefits, adaptive coping, and functional success in decision making and workplace flourishing. Theoretically, the individual difference of emotional intelligence may contribute to the development of psychological flexibility as a personal resource through a number of mechanisms. In particular, the set of emotional competencies underlying models of emotional intelligence, and the characteristic experience of positive affect, may facilitate psychological flexibility.

### 3.3 Relating Psychological Flexibility to Emotional Intelligence Competencies

Understanding the potential contribution of emotional intelligence towards psychological flexibility is aided through examination of its various conceptual incarnations across decades of research and theoretical perspectives. Psychological flexibility has been studied under closely synonymous names, including self-regulation, response modulation, executive control, and ego-resiliency, among others (Kashdan & Rottenberg, 2010). Each of these fields contributes a unique understanding to the range of processes that manifest as psychological flexibility.

#### 3.3.1 Self-regulation

Self-regulation involves the ability to control emotions and behaviour as a situation warrants, and can be conceived either as a stable trait or state feature. A popular example of self-regulation involves delayed gratification research. In one study, children were presented with the opportunity to win additional treats if they could delay immediate gratification or consumption of the first treat (Mischel, Shoda, & Peake, 1988). Children who successfully delayed gratification, a demonstration of self-regulatory behaviour, scored higher on
subsequent measures of academic success than their more impulsive peers. This longitudinal research implies that a minimal level of behavioural control is important for achieving optimal and adaptive outcomes. Goleman (1995) described emotional self-control or delayed gratification, as essential to accomplishment of all kinds, and included the ability to restrain impulsivity in a broad conceptualisation of trait emotional intelligence (Carver & Scheier, 1998; Muraven & Baumeister, 2000). This suggests that psychological flexibility, informed from self-regulation research, and emotional intelligence may be somewhat overlapping constructs. Emotional and behavioural control through self-regulation can be achieved via a number of strategies.

An individual can employ a variety of self-regulation strategies such as acceptance, cognitive reappraisal or suppression. While certain strategies are generally considered superior to others (Gross & John, 2003), some researchers suggest that the benefits of particular strategies are contingent upon the situation and goals (Kashdan & Rottenberg, 2010; Peña-Sarrionandia, Mikolajczak, & Gross, 2014). Flexibly modifying a strategy to align with the context, rather than selecting a universal strategy, may impart greater benefits across a variety of situations, depending on what the individual aims to achieve. For example, in a hypothetical social scenario, participants role-played landlords questioning tenants over a missed rental payment (Tamir, 2009; Tamir, Mitchell, & Gross, 2008). Researchers instructed participants to either achieve quick payment (confrontational goal) or maintain a constructive long-term relationship (collaborative goal). Participants in the confrontational condition who engaged in anger-inducing activities prior to the social interaction outperformed participants experiencing more pleasant hedonic tone. In contrast, participants in the collaborative condition engaged in strategies to enhance positive mood to encourage a more positive encounter.
The findings suggested that improved performance hinged upon the strategic facilitation of emotion (positive or negative) conducive to the applied situational goal. In this way, an awareness of the functional features of emotion and how to generate emotional states in the self was important to self-regulation and flexible responding, ultimately dictating performance within the social context (Barrett, Gross, Conner, & Benvenuto, 2001; Farb, Anderson, Irving, & Segal, 2014). Therefore, emotional intelligence competencies may be fundamental to the self-regulatory aspects of psychological flexibility. To this extent, Kashdan and Rottenberg (2010) identified that education on the functional value and advantages of various types of positive and negative emotions, including appropriate magnitude and expression, “explicitly addresses psychological flexibility” (p. 867). Accordingly, interventions to enhance emotional intelligence, particularly building repertoires of emotional knowledge and their associated utilities, may directly impact psychological flexibility.

### 3.3.2 Response Modulation

The flexible deployment of emotion through self-regulation is somewhat related to the concept of response modulation. The response modulation hypothesis (Patterson & Newman, 1993) proposes that the self has a dominant response set to particular situations. In some circumstances, successful functioning may depend on an individual’s ability to adapt or modulate their default emotional or behavioural responses. Deficits in the response modulation system result in behavioural perseveration in response to changing circumstances, denoting a decreased ability to inhibit innate patterns of responding.

In a novel study investigating emotional response modulation, participants viewed a series of evocative images and were periodically instructed to express or suppress emotional
reactions (Bonanno et al., 2004). Trained observers rated the participants’ ability to follow either strategy. Students with response modulation sets biased against the expression of positive emotion (i.e. low aptitude to express coupled with high aptitude to suppress positive emotions), experienced more distress in the three months following 9/11, partially suggesting that positive emotionality may be protective of healthy adjustment and well-being. However, combining observer ratings for performance in both expression and suppression strategies, showed that higher scores on this index of psychological flexibility predicted greater levels of adjustment for close to two years following the study (Bonanno, Papa, Lalande, Westphal & Coifman, 2004). Consistent with this finding, daily diary studies examining stressors in naturally arising contexts found that variability in appraisals and coping strategy profiles (e.g., problem-focused or emotion-focused coping; active- or passive-focused) was positively correlated with effective adjustment and negatively correlated with symptoms of psychopathology (Cheng, 2001; Cheng, 2003). In these cases, the ability to flexibly apply different types of emotional response modulation strategies facilitated health outcomes in laboratory and ecological settings.

While emotional intelligence is generally associated with characteristic positive mood and accurate emotional expression (Schutte, Malouff, Simunek, McKenley, & Hollander, 2002), the underlying emotional competencies incorporate the ability to monitor and reflectively engage or detach from emotion as needed (Salovey & Mayer, 1990; Mayer & Salovey, 1997). This implies that high emotional intelligence may promote flexible response modulation, at least in relation to emotional content. The response modulation hypothesis theorised that individuals with deficits in this system are not sensitive to environmental cues that signal a need to adjust the dominant response (Patterson & Newman, 1993). The inability to shift attention towards environmental cues necessary to inform corrective action results in
a persisting maladaptive response. This process implicates attentional control, a feature of executive functioning, in psychological flexibility.

### 3.3.3 Executive Function and Control

Executive functioning is considered an essential element of psychological flexibility, comprising the ability to prioritize and integrate cognitive capacities such as shifting mindsets and attention in response to changing contexts and stimuli (Kashdan & Rottenberg, 2010; Posner & Rothbart, 1998). The ability to adjust mental states is fundamental to cognitive and behavioural adaption to fluctuating situational demands which commonly occur in fluid, natural environments. Executive control specifically involves the cognitive capacity to rapidly shift attention toward a desired object or task as well as narrow or broaden focus from local to global elements. The attentional focus provided by executive control is critical to recognition of task requirements and self-regulatory behaviours towards desired goal-pursuits, consistent with psychological flexibility (Goldberg, 2001).

Emotions are also credited with broadening attention to global features (Fredrickson & Branigan, 2005) and facilitating attentional shifts by directing attention to the salient features of the environment (Mayer & Salovey, 1997). An initial global focus could assist emotionally intelligent individuals in detecting salient inputs, facilitating later attentional re-direction towards appropriate, personally-relevant information (Salovey & Mayer, 1990; Mayer & Salovey, 1997). Utilisation of the emotional skill component of the Mayer-Salovey models of emotional intelligence relies on aspects of attentional control; using emotion adaptively to prioritise thinking and redistribute attentional resources in response to situational demands. Consequently, the adaptive emotional functioning inherent in emotional intelligence may facilitate executive control and thereby psychological flexibility.
Cortical structures for executive functioning are shared with somatic marker circuitry; the emotional-physiological inputs that are hypothesised to guide behaviour and decision making (Bar-On, Tranel, Denberg, & Bechara, 2003). To some degree, this suggests that emotional intelligence and the executive functioning aspects of psychological flexibility may be neurologically linked. Developmental studies examining emotional learning in schools provide some support for this theoretical connection. Administration of a specialised social and emotional learning curriculum showed development in neural circuitry specific to executive function in the prefrontal cortex (Goleman, 1995). The academic achievements associated with the program were attributed to improved attention and working memory (Greenberg, Kusché, Cook, Quamma, 1995). The emotional learning experience generated brain neuroplasticity towards flexibility and impulse control, key features of psychological flexibility.

3.3.4 Ego Resilience

Ego resiliency has been defined as the ability to respond adaptively to situational challenges confronted throughout the lifespan (Block & Block, 2006). It confers the ability to reduce or increase behavioural control, and expand or narrow attention as the situation warrants (Block & Block, 2006). Accordingly, it incorporates features of executive control, self-regulation and response modulation. People with low ego resilience demonstrate limited flexibility, anxiety and perseveration in response to novel or conflicting demands (Block & Block, 2006). For example, behaviours associated with low ego-resilience include rigid adherence to coping strategies, inappropriate emotional expressiveness and negative emotional reactions in response to environmental demands. In contrast, high ego-resiliency is
associated with high-levels of social functioning and emotional expressiveness, and positive emotional reactions and recovery following stressful events (Gjerde, Block, & Block, 1986).

Features of ego resiliency represent emotional intelligence competences. Ego-resilient children actually demonstrate biological resilience in negative home environments, with attenuated physiological reactions along the hypothalamic–pituitary–adrenal (HPA) axis compared to children with less ego-resilience (Smeekens, Risksen-Walraven, & Bakel, 2007). Given that emotions co-ordinate physiological responses to stress, it is possible that a requisite of level emotional intelligence assists adaptation to negative emotional experiences, enhancing healthy outcomes. Studies explicitly examining the role of emotional intelligence in ego-resiliency found that adaptive ego defence styles (e.g., sublimation) were correlated with overall emotional intelligence (Pelleteri, 2002; Mayer, Saolvey, Caruso, 2004), providing some support for the proposition that emotional intelligence facilitates ego-resiliency and therefore psychological flexibility.

### 3.3.5 Positive Affect as a Building Block of Psychological Flexibility

Individuals with high emotional intelligence experience greater levels of transient state positive affect and display enduring characteristic positivity, theoretically due to heightened emotion regulation abilities or sensitivity to positive stimuli in the environment (Schutte et al., 2002). Positive emotional states have been shown to broaden the scope of attention and the size of thought-action repertoires (Fredrickson & Branigan, 2005). Using emotions to direct attentional resources is a defined feature of emotional intelligence (Salovey & Mayer, 1990), and is critical to flexible executive control which underpins psychological flexibility. Appropriate attentional focus may facilitate identification of situational demands as a perquisite to effective behavioural adjustment. Further, broadened
thought-action urges stimulate a wider behavioural set, potentially prompting selection of a more adaptive response in the circumstances. Consequently, expansion of these cognitive and behavioural components may contribute to effective recognition and adaptation to situational demands, while helping shift repertoires appropriate to the situation. In this way, emotional intelligence may influence major branches of the human abilities underlying psychological flexibility primarily through positive emotion. These considerations informed the process variables identified in Figure 1.1, conceptualising the hypothesised relationship from emotional intelligence to psychological flexibility through positive affect.

3.4 Arguments Implying an Inverse Relationship between Emotional Intelligence and Psychological Flexibility

In the Acceptance and Commitment (ACT) model, psychological flexibility involves a mindful awareness of thoughts and feelings, and the ability to persist or change behaviour to achieve valued goals, depending on the situational affordances (Hayes, Strosahl, & Wilson, 1999). It involves open acceptance of emotional experiences and committed values-driven action even in the face of substantial challenges that may invoke negative emotion. From this perspective, it is important that an individual does not devote resources to emotional control in relation to negative thoughts or feelings; a process that interferes with active engagement towards meaningful goal-pursuits (Kashdan, Breen, & Julian, 2010). Self-control is a potentially depletable resource and tasks which require substantial levels of control disrupt executive functioning for subsequent activities (Muraven & Baumeister, 2000). Consequently, excessive attempts to self-regulate emotion are considered counterproductive to mindful engagement with the environment and psychological flexibility (Kashdan et al., 2010). Given that emotional self-regulation is a core component of emotional intelligence, it
could interfere with psychologically flexible responding. However, this viewpoint can be disputed on a number of grounds.

Emotion regulation does not imply over-control or suppression and is related to the healthy expression or dilution of negative emotion in constructive ways (Van Rooy & Viswesvaran, 2004). In fact, emotionally intelligent individuals exert less effort as indicated in brain activity when regulating and solving emotional problems (Jausovec, Jausovec, & Gerlic, 2001; Jausovec & Jausovec 2005). Furthermore, suppression of emotional expression is not a regulation strategy commonly employed by emotionally intelligent individuals (Peña-Sarrionandia, Mikolajczak, & Gross, 2014). Suppression alters the behavioural manifestation of emotion but not the emotional content itself. High emotional intelligence involves the ability to transform emotional states, making suppression somewhat unnecessary. Given that suppression has a tendency to increase the internal experience of the emotion being suppressed, impacting physiological arousal systems, it may be a nominally maladaptive strategy. The fact that emotionally intelligent individuals tend to employ regulation strategies other than suppression indicates higher levels of adaptive psychological flexibility. In addition, these individuals do not need to rely on emotion regulation strategies to the extent of individuals with lower levels of emotional intelligence.

Emotional labour reflects emotional control consistent with organisational display codes (Hochschild, 1983). Employees can utilise a variety of strategies to regulate emotion, including surface acting (expressing an emotion inconsistent with feelings) or deep acting (transitioning emotional content into acceptable expressions; Hochschild, 1983). While emotional intelligence might theoretically be related to deep acting, given the strategy relies on emotional skill, research actually indicates that emotional intelligence facilitates an alternative strategy named positive consonance; synchrony between felt emotion and condoned expression (Mikolajczak, Menil, & Luminet, 2007). This means emotional
intelligence mitigates the need for active emotional control, freeing personal resources for meaningful engagement with goals.

Individuals with high trait emotional intelligence also show more mindful awareness and greater non-judgmental attention to the present moment (Brown, George-Curran, & Smith, 2003). These individuals are open to positive and negative aspects of internal experience (Mayer and Salovey, 1997; Salovey & Mayer, 1990), rather than demonstrating experiential avoidance characteristic of psychological inflexibility (Kashdan & Rottenberg, 2010, Bond et al., 2011). In this way, emotionally intelligent individuals confront difficult situations and experiences in order to realise long-term benefits congruent with their goals (Bastian et al., 2005), consequently using less avoidant coping strategies (Gerits, Derksen, & Verbruggan, 2004; Petrides et al., 2007; Mikolajczak et al., 2009) and demonstrating higher levels of psychological flexibility.

In summary, criticisms around the influence of emotional intelligence on psychological flexibility may be unfounded. Further, the balance of facilitative emotional intelligence competencies potentially contributing to psychological flexibility may outweigh any negative inputs. However, it is important to note that a positive relationship between emotional intelligence and psychological flexibility may be context-dependent. For example, findings relating to emotional labour may not extend to organisational roles requiring negative emotional expression (e.g. funeral director, law enforcement officers or security guards). In these cases, positive consonance is unhelpful, and emotional intelligence may increase the depth of negative emotional experience to dysfunctional proportions. Some researchers (e.g., Mikolajczak et al., 2007) have noted that studies examining emotional intelligence as a personality trait must consider the specific circumstances in which it may be adaptive. In the preceding discussion, emotional intelligence was identified as adaptive in decision making and workplace settings, two areas which functionally benefit from
psychological flexibility. Consequently, examination in these contexts may present an ideal opportunity for understanding the relationship between emotional intelligence and psychological flexibility. The following experimental chapters highlight investigation into the relationship between emotional intelligence and psychological flexibility within decision making and workplace settings.

Figure 3.1. Input-context-output model of hypothesised relationships.
3.4.1 Operational Measurement for the Primary Variables in the Thesis

The following section briefly highlights the rationale for operationalizing the primary variables across all four studies. The variety of available measurement approaches for emotional intelligence and psychological flexibility warrants considered selection. Emotional intelligence will be operationalised using the original Salovey and Mayer (1990) model which captures dimensions of emotional development encompassed in most frameworks and provides an accurate reflection of current emotional functioning (e.g., Schutte et al., 1998). The third emotion utilisation branch of this model closely reflects adaptive processes underlying psychological flexibility (i.e. attentional control, expanded or creative thinking, and flexible planning), providing a sensitive measure of emotional competencies that may facilitate a range of adaptive abilities. This model is primarily assessed through performance measures such as the Multifactor Emotional Intelligence Scale (MEIS; Mayer, Caruso, & Salovey, 1999), and the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer, Salovey, Caruso, 2002), now in its second version (MSCEIT v2.0; Mayer, Salovey, Caruso, Sitarenios, 2003). Use of these tests is tightly controlled, requires specialised training and can be lengthy and costly to administer, particularly for large samples.

Alternatively, the Schutte Emotional Intelligence Scale (SEIS; Schutte et al., 1998) is a brief, reliable and validated measure based on the Salovey and Mayer (1990) emotional intelligence model. This self-report instrument comprises 33 items assessing each branch of the model. Psychometric validation of the SEIS demonstrated significant correlations with less alexithymia, greater attention to and clarity of feelings, and empathic perspective-taking (Schutte et al., 1998), features of Salovey and Mayer’s (1990) framework. The SEIS correlates with other emotional intelligence measures, including the traditional MSCEIT test (Bracket & Mayer, 2003), and predicts theoretically-related outcomes such as fewer maladaptive emotional states (such as depressed affect; Schutte et al., 1998; Oginska-Bulik,
Accordingly, the SEIS represents an appropriate, accessible, valid and reliable approach for measuring the selected conceptualisation of emotional intelligence and its relationship with psychological flexibility.

Psychological flexibility is conceptualised using the Kashdan and Rottenberg (2010) definition quoted in section 2.1, which is a coverall of current understanding in psychology for the construct. Comprehensive measures operationalizing the broad concept of psychological flexibility can be resource-intensive, involving prolonged behavioural observation and performance assessments across situations to capture temporal and contextual fluctuations in abilities. The commonly used AAQ-II measure (Bond et al., 2011), in conjunction with the more recent WAAQ work-related version for the workplace study (Bond et al., 2013), will be utilised throughout this thesis as the measurement tool for psychological flexibility. As discussed, these instruments are linked to outcomes in the primary areas of research interest and represent accessible self-report approaches to measurement that can be consistently maintained across the multiple studies, ensuring replicable and comparable findings.

Psychometric analysis of the AAQ-II demonstrated concurrent, longitudinal and incremental validity applied to theoretically-related health and workplace outcomes (e.g., absenteeism; Bond et al., 2011). The WAAQ demonstrated similar features, correlating with workplace variables at higher magnitudes (e.g. work engagement; Bond et al., 2013). Consequently, these measures are considered sufficient for testing the hypothesised relationship with emotional intelligence and associated outcomes in restricted decision making processes and workplace contexts considered in the following sections.
Chapter 4

Decision Maximization: How Psychological Flexibility and Emotional Intelligence Influence Ruminative Outcomes
Abstract

Two studies explored how a maximizing personality trait interacts with psychological flexibility to predict ruminative outcomes in the context of decision making. The studies also investigated the influence of emotion in decision making and how emotional intelligence may promote psychological flexibility. Study 1 found preliminary correlational support for the hypothesised relationships between rumination, maximization, psychological flexibility, emotional intelligence and positive and negative affect. Study 2 extended Gilbert and Ebert’s (2002) decision changeability paradigm to manipulate ruminative change as a function of maximizing tendency. Results suggest that interventions to increase emotional intelligence may foster positive affect leading to improved psychological flexibility which, in turn, could mitigate ruminative outcomes associated with maximizing personality styles. Future research is recommended investigating the causal relationship between emotional intelligence and psychological flexibility using experimental intervention.
4.1 Introduction

Rational choice theory suggests that people respond logically to choices afforded in the environment, evaluating options against set preferences, in order to optimise decision-making (von Neumann & Morgenstern, 1944). However, in the complexity of real-life decision-making, it is rare that an individual has the resources to exhaustively gather information relevant to a choice. Therefore, while decision maximization is appealing, it is a virtually unachievable goal. Instead, Simon (1955, 1956) suggested that individuals ‘satisfice’; choose an option if it satisfies a set of criteria imposed on the decision. The search for better options terminates as soon as the threshold of acceptability is exceeded. Schwartz et al. (2002) proposed that response tendencies to decision making can be characterised as a personality trait measured on the spectrum between satisficing and maximizing. Further, the extent to which individuals maximize their decision goals has consequences for health (Schwartz et al. 2002; Schwartz, 2004).

4.1.1 Decision Styles and Negative Outcomes

A number of post-decisional processes are implicated in the negative outcomes associated with maximization, such as depression, unhappiness and lower optimism (Schwartz et al., 2002). Schwartz et al. (2002) proposed that high maximizers constantly evaluate choices, particularly through social comparison, and tend to experience regret when choices are deemed suboptimal. Zeelenberg and Pieters (2007) defined regret as a “comparison-based emotion of self-blame, experienced when people realize or imagine that their present situation would have been better had they decided differently in the past” (p. 6). Embedded in this process of regret is the concept of counterfactual thinking, imagining alternate outcomes to past events. Schwartz et al. (2002) found that maximization predicts
regret and counterfactual thinking. Further, regret partially mediated the relationship between maximization and depression, explaining to some extent the pathway to negative outcomes.

Regret and counterfactual thinking are outcome-focused variables that emphasise a temporal orientation for past events; that is, thought processes that evaluate what has happened as opposed to what will happen. These post-decisional cognitive processes are an important feature in the relationship between maximization and negative outcomes given the mediating role of regret between maximization and depression (Schwartz et al., 2002). However, viewing decision styles through a process-focused approach, independent of temporal orientation, may further contribute to understanding the relationship between maximization and negative outcomes by spanning the range of anticipated and experienced regret.

Rumination offers a process-oriented analogue to regret and counterfactual thinking. While rumination is most commonly defined as a repetitive focus on the symptoms of depression, and possible causes, meanings and consequences (Nolen-Hoeksema, 1991), broader conceptualisations have emerged which define rumination as a past and future-oriented thought style (Brinker & Dozois, 2009). This definition of rumination includes components of experienced regret and counterfactual thinking, as well as forward thinking anticipated regret. Viewing and measuring rumination as a stable disposition towards repetitive, recurrent, intrusive, and uncontrollable thinking without bias from temporal orientation, valence, or content, will enable broader investigation of the effects of maximization on negative outcomes. This operationalisation encompasses a greater range of cognitive processes while avoiding potential confounding, for example, with depressive symptomatology, which should assist in clarifying the causative pathways.
Similar to the link between maximization, counterfactual thinking and regret, it is
anticipated that high maximizers will demonstrate high levels of rumination. Maximizers
engage in a process of constant choice re-evaluation and outcome comparison. It seems
difficult for maximisers to distract from intrusive and recurring thoughts in anticipation of,
and in response to, decision making. These thinking patterns at the core of a maximizing
personality trait share the essential features of ruminative thought styles, suggesting that
maximization may engender rumination in decision situations. Given the negative outcomes
associated with ruminative thought styles, such as depression (Nolen-Hoeksema et al., 2008),
investigating the role of maximization on ruminative thinking is warranted.

4.1.2 Decision Styles and Adaptive Processes

Importantly, maximization is not always associated with negative outcomes. Schwartz
et al. (2002) discussed maximization as an adaptive strategy, noting that outcomes are
contextually-dependent; maximization could equally lead to adverse consequences or
improved outcomes depending on the circumstances. In fact, negative and positive outcomes
may occur simultaneously, with high maximizers achieving better objective outcomes (such
as better jobs) while subjectively experiencing more regret associated with post-decisional
evaluative processes (Polman, 2010). This complicates identification of the point at which
maximization may become pathological.

The inability to switch from maximizing to satisficing strategies in response to
situational demands may be relevant to explaining the negative outcomes associated with
high levels of maximizing tendencies. For example, Wieczorkowska and Burnstein (1999)
posed that either narrow or broad decision strategies are adaptive depending on the search
costs and number of opportunities available in the environment. In this way, adjusting search
strategies consistent with environmental demands is key to adaptive decision functioning. Schwartz et al. (2002) noted that higher scores on the maximization scale may actually reflect the number of domains impacted by maximizing tendencies; that is, individuals scoring highly on the maximisation scale display choice maximization across a variety of decisions contexts, potentially spanning more important as well as mundane decision making situations. This suggests that high scores on the maximization scale reflect a less adaptive deployment of decision making strategies across situations. Therefore, it is proposed that the rigid application of maximizing strategies across multiple domains is likely related to the associated negative outcomes, such as regret and depression, rather than the potentially warranted use of a maximizing strategy in isolated situations.

Given that high levels of maximization may indicate inflexible decision strategies applied in multiple domains, it follows that maximization may impede adaptive abilities (i.e., psychological flexibility) in decision situations. Psychological flexibility is “a number of dynamic processes…reflected by how a person: (1) adapts to fluctuating situational demands, (2) reconfigures mental resources, (3) shifts perspective, and (4) balances competing desires, needs, and life domains” (Kashdan & Rottenberg, 2010, p.866). The desire to maximize at extremely high levels could override the ability to be psychologically flexible in decision contexts. In this case, a maximizing decision strategy is employed without sensitivity to the situational demands, demonstrating an inability to shift mindset from maximizing to satisficing and balance the need for maximization with more functional outcomes.

Importantly, these processes are likely bi-directional in nature; high psychological flexibility may facilitate a shifting of decision strategy in the face of conflicting situational pressures. This suggests that maximization and psychological flexibility may demonstrate interaction effects in decision contexts that influence ruminative and related outcomes. For example, low levels of psychological flexibility are associated with rumination and
depression (e.g., Cribb et al., 2006; Rawal, Park, & Williams, 2010; Moulds, Kandris, Starr & Wong, 2007), while maximization is proposed to impede flexibility and engender rumination. This warrants an exploration of the relationship of maximization and psychological flexibility on ruminative outcomes in decision contexts.

4.1.3 The Role of Emotion in Decision Making and Psychological Flexibility

Emotion represents another factor that can play an integral and sometimes subconscious role in decision making. Damasio (2008) described the interdependence between emotions, physiology and decision making through the Somatic marker hypothesis. Learned emotional associations trigger a positive or negative physiological response in anticipation of decision making which is interpreted as an informational stimulus to guide future decisions and behaviours. The cognitive interpretation of the somatic marker informs choice and improves decision making efficiency. For example, anticipated regret can elicit strong emotional components that influence decision making. In situations with inherent risk, intense anticipatory emotions may bypass cognitive assessments to directly dominate choice and behaviour (Loewenstein, Hsee, Weber, & Welch, 2001).

In addition to the input of emotional stimulus during decision making, emotions may also serve adaptive processes. Fredrickson (2001) observed that negative emotions are an adaptive evolutionary mechanism, narrowing specific action tendencies and priming the fight or flight responses necessary for survival in adverse or dangerous situations. Extrapolating from this premise, Fredrickson’s Broaden-and-build theory (2005) proposed that it is evolutionarily adaptive in non-threatening situations for positive emotions to facilitate a broadening of thought-action repertoires that manifests in cognitive and behavioural expansion, promoting personal growth and resource acquisition. Consistent with this, it has
been demonstrated that positive affectivity has expanded the scope of attention and thought-action repertoires in laboratory experiments; key aspects of psychological flexibility (Fredrickson & Branigan, 2005). A wide attentional field improves recognition of situational demands, while a broadened repertoire of cognitive and behavioural (thought-action) responses enable selection of the most appropriate and adaptive decision or action in the circumstances. These findings are consistent with Kashdan and Rottenberg’s (2010) proposition that positive affect is a fundamental building block for psychological flexibility.

Emotional intelligence can be critical to the experience of positive affectivity. Emotional intelligence is the ability to adaptively perceive, understand, regulate, and harness emotions in the self and others (e.g., Salovey & Mayer, 1990). Schutte et al. (2002) found that higher emotional intelligence was associated with greater increases in positive affect during exposure to positive state inductions, controlling for prior emotional level. Further, higher emotional intelligence was associated with positive affect maintenance during negative state inductions. The ability of highly emotionally intelligent individuals to regulate and harness positive emotions may facilitate the broadening processes identified in Fredrickson’s theory and, consequently, promote psychologically flexible behaviours.

Exploring the role of emotional intelligence on psychological flexibility through mood regulation may assist in identifying valid treatment approaches to improved psychological flexibility and ultimately less rumination for maximizing individuals. Emotional intelligence can be increased through training (Schutte & Malouff, 2013) and may offer alternate, inexpensive methods for improving psychological flexibility. The importance of this relationship is further highlighted if the present study supports the role of psychological flexibility in reducing the negative outcomes associated with maximization, such as rumination. For example, high emotional intelligence could result in the experience
of greater levels of positive affectivity, promoting psychological flexibility, which in turn attenuates the effects of maximization on ruminative thinking.

4.2 Preliminary Investigation of Maximizing, Psychological Flexibility, Mood and Rumination (Study 1)

This study assessed the relationship of a maximizing personality trait and psychological flexibility with rumination. Further, the study examined the relationship of positive and negative affect and emotional intelligence with psychological flexibility. It is hypothesised that maximization and psychological flexibility will be negatively associated and together significantly predict rumination, with maximization and psychological flexibility demonstrating positive and negative relationships with rumination, respectively. Further, emotional intelligence will be positively associated with positive affect and negatively associated with negative affect. Psychological flexibility will be significantly positively predicted by emotional intelligence and positive affect and negatively predicted by negative affect.

4.3 Method

4.3.1 Participants and Procedure

A total convenience sample of 217 participants self-selected for the study. The sample consisted of 189 psychology students participating for research credit and 28 community members participating without incentive (Females 164, 75.6%; Males 52, 24.0%; Other 1, 0.5%). The mean (M) age of participants was 22.05 years (SD = 8.54 years, range 17-70
years). The ethnicity of the sample was 74.7% Caucasian and 12.0% Asian, with remaining participants (13.3%) representing a variety of ethnic groups.

Participants completed general demographic information followed by a survey battery measuring all variables of interest. Respondents accessed the questionnaire through Qualtrics online with an average completion time of approximately 40 minutes.

4.3.2 Materials

4.3.2.1 Decision styles and rumination.

The Brinker and Dozois (2009) Ruminative Thought Style Questionnaire (RTSQ; $\alpha = .93$ in the present study) measured the criterion variable of rumination. Participants rated 20 items on a 7-point Likert-type scale ($1 = \text{not at all like me}, 7 = \text{just like me}$) tapping repetitive, recurrent, intrusive and uncontrollable thinking (e.g., “I tend to replay past events as I would have liked them to happen”).

The Schwartz et al. (2002) Maximization Scale (MS; $\alpha = .75$ in the present study) assessed maximizing tendencies in decision making. The Maximization Scale is a 13-item self-report tool employing a 7-point Likert-type scale ($1 = \text{completely disagree}, 7 = \text{completely agree}$). Responses reflect relative endorsement of maximizing behaviours (e.g., “I never settle for second best”), with higher scores indicating a disposition to maximize decisions and lower scores representing satisficing.
4.3.2.2 Psychological flexibility.

The second version of the Acceptance and Action Questionnaire (AAQ-II; Hayes et al., 2004, Bond et al., 2011) was reversed scored to derive a measure of psychological flexibility (α = .88 in the present study). The scale was designed to capture a sense of mindfulness and ability to modify behaviour for effective goal-pursuit, “depending upon what the situation affords” (Hayes et al., 2006). Participants rated items such as “Worries get in the way of my success” on a 7-point scale (1 = never true, 7 = always true).

4.3.2.3 Emotions.

Emotional intelligence was assessed with the Schutte et al. (1998) 33-item Emotional Intelligence Scale (EIS; α = .90 in the present study). Participants rated their emotional abilities against behavioural descriptors such as “I use good moods to help myself keep trying in the face of obstacles” (from 1 = strongly disagree, 5 = strongly agree). Mood itself was assessed with the Positive and Negative Affect Schedule (PANAS; Watson, Clark, and Tellegen, 1988), comprising 10 items each to measure the extent to which participants generally experienced positive affect (α = .88) and negative affect (α = .89 in the present study).

4.4 Results

Incomplete data were deleted from the data set and one outlier was removed following scatterplot analysis, resulting in a total sample size of 201 participants. The distributions for age and negative mood were significantly positively skewed; however, non-
parametric equivalent analyses did not alter significance of tests involving these variables, therefore parametric results are reported.

T-tests indicated gender differences with respect to measures of negative affect, rumination and psychological flexibility, $t(198) = -2.41, p = .02, t(198) = -3.25, p = .001, t(198) = -2.80, p = .01$, respectively. Compared to males, females showed higher means for rumination ($M = 97.77, SD = 18.63$ vs $M = 87.86, SD = 19.21$), and negative affect ($M = 21.77, SD = 7.47$ vs $M = 18.88, SD = 7.13$) and lower psychological flexibility ($M = 31.11, SD = 7.91, M = 34.49, SD = 5.89$). Age differences were further noted for rumination, with younger participants demonstrating higher ruminative means than older participants, $r(199) = -.20, p < .01$. However, age and gender did not significantly predict rumination above maximization and psychological flexibility, and were excluded from analysis.

Preliminary bivariate correlations demonstrated a significant negative relationship between maximization and psychological flexibility as hypothesised, $r(199) = -.36, p < .001$. Further, emotional intelligence was significantly positively correlated with positive affect, $r(199) = .37, p < .001$ and negatively correlated with negative affect, $r(199) = -.16, p = .03$. Table 4.1 shows zero-order correlations for all variables investigated. The significance of bivariate correlations supported follow up regression analysis testing the hypothesised relationships.

A regression analysis showed that the linear combination of maximization and psychological flexibility significantly predicted rumination, $F(2, 198) = 53.96, p < .001$. Maximization and psychological flexibility accounted for approximately 35.3% of the variance in rumination (with a multiple correlation coefficient of .59). A second multiple regression analysis showed that the linear combination of positive affect, negative affect and emotional intelligence significantly predicted psychological flexibility, $F(3, 197) = 39.01, p$
<.001, accounting for approximately 36.3% of the variance (multiple correlation coefficient .61). These results support all predictions. The relative magnitude of the predictors for rumination and psychological flexibility are presented in Table 4.2 as bivariate correlations between each predictor and criterion variable and partial correlations controlling for all other predictors.

Table 4.1

*Pearson’s Zero-Order Correlations*

<table>
<thead>
<tr>
<th>Variable</th>
<th>MS</th>
<th>RTSQ</th>
<th>AAQ-II</th>
<th>PA</th>
<th>NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTSQ</td>
<td>.52***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AAQ-II</td>
<td>-.36***</td>
<td>-.45***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PA</td>
<td>.04</td>
<td>-.02</td>
<td>.22**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NA</td>
<td>.27***</td>
<td>.37***</td>
<td>-.54***</td>
<td>-.03</td>
<td></td>
</tr>
<tr>
<td>EIS</td>
<td>-.11</td>
<td>-.09</td>
<td>.34***</td>
<td>.37***</td>
<td>-.16*</td>
</tr>
</tbody>
</table>

*Note.* AAQ-II = Acceptance and Action Questionnaire version 2, 7-item single factor solution; EIS = Emotional Intelligence Scale; MS = Maximisation Scale; NA = Negative Affect subscale; PA = Positive Affect subscale; RTSQ = Ruminative Thought Style Questionnaire.

* p < .05, ** p < .01, ***p < .001
Notably, the partial correlation for negative affect was virtually unchanged in the regression predicting psychological flexibility, taking into account emotional intelligence and positive affect. This is explained in the literature; in addition to negative and positive affect being distinct dimensions, emotional intelligence purportedly does not play a significant role in regulating negative affect (Schutte et al., 2002; Watson et al., 1988; Diener & Emmons, 1984).

Table 4.2

**Bivariate and Partial Correlations of Predictors with Criterion variables**

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Zero-order correlation</th>
<th>Partial correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rumination (criterion)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximization</td>
<td>.52***</td>
<td>.43***</td>
</tr>
<tr>
<td>Psychological Flexibility</td>
<td>-.45***</td>
<td>-.33***</td>
</tr>
<tr>
<td>Psychological Flexibility (criterion)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive Affect</td>
<td>.22**</td>
<td>.14*</td>
</tr>
<tr>
<td>Negative Affect</td>
<td>-.54***</td>
<td>-.53***</td>
</tr>
<tr>
<td>Emotional Intelligence</td>
<td>.34***</td>
<td>.24***</td>
</tr>
</tbody>
</table>

* p < .05, ** p < .01, *** p < .001

The bivariate correlations in Table 4.1 showed a corollary result that maximization and negative affect were significantly related, \( r(199) = .27, p < .001 \). While not a focus of the present study, this supports the Schwartz et al. (2002) findings that maximizers tend to be less happy. In fact, the significant association between rumination and negative affect (\( r(199) = \)
might further suggest that the lower levels of happiness maximizers experience are partially generated through ruminative processes leading to negative affective states. A supplementary analysis testing the meditational role of rumination between maximization and negative affect utilising the bias-corrected procedure with 5,000 bootstrap resamples supports this theory. The total effect of maximization on negative affect was significant, $B = .19$, $SE = .048$, $t(199) = 3.00$, 95% CI[0.10, 0.29], while the indirect effect of maximization on negative affect was no longer significant accounting for rumination as mediator, $B = .08$, $SE = .055$, $t(199) = 1.44$, 95% CI[-0.03, 0.19] (Preacher & Hayes, 2008; Preacher, Rucker, & Hayes, 2007). This pathway is similar to the mediational role of regret between maximizing and depression supported in the original Schwartz et al. (2002) study.

**4.5 Discussion**

Maximization demonstrated a strong positive relationship with rumination. In their seminal article, Schwartz et al. (2002) found that maximization predicted social and product comparisons in relation to purchasing decisions, leading to experienced regret. The authors postulated that counterfactual thinking and ruminative thoughts were related to the regret experienced by high maximizers in their study. The present findings are consistent with this theory and unpublished data indicating that maximizers tend to ruminate more than satisficers (White, Lehman, & Schwartz, 2002). The findings also show that the effects of maximization extend into general rumination beyond the context of purchasing-related decisions. Schwartz et al. (2002) concluded that maximizing (always striving for the best) has paradoxical consequences, given its relationship with regret, and potentially counterfactual and ruminative thinking. In our study, the strength of the correlation between maximizing and rumination does suggest that a maximizing personality trait can have a profound effect on
negative thinking styles. These findings warrant further research investigating the links between maximization and rumination and how potential protective factors, such as psychological flexibility, influence the relationship in applied decision contexts.

Psychological flexibility was negatively associated with maximization and rumination as previously postulated (Kashdan & Rottenberg, 2010). This lends support to the proposition that psychological flexibility may facilitate the application of more adaptive decision strategies across multiple domains, potentially promoting a shift from maximizing to satisficing depending upon the situational demands. However, the causal direction of the relationship is unclear due to the limitations of the correlational research method. While high levels of flexibility could assist in down-regulating maximizing tendencies, and therefore ruminative outcomes, rumination could correspondingly impair psychological flexibility resulting in a bi-directional compounding effect. The perseverative thinking styles characteristic of rumination represent the antithesis of cognitive flexibility. For example, the passive inward focus inherent in ruminative tendencies, interferes with environmental engagement, essentially preventing the modification of thoughts or behaviours that allow strategic adaptation to a situation (Baumeister, 2002). Rumination has been found to impair attention at low and high levels of cognitive load (Brinker, Campisi, Gibbs & Izzard, 2013), as well as response inhibition, reaction time and set shifting (Brinker, Campisi, Gibbs & Izzard, 2013). More research is needed to assess the direction and nature of the relationship between maximization, psychological flexibility and rumination.

If psychological flexibility is determined to be a useful mechanism in combating the negative outcomes associated with maximization (such as rumination), further examination of factors promoting flexibility is warranted. While it was noted that emotions can serve as potent decision stimuli, the present study explored the role of emotional intelligence in positive affect regulation as a means of fostering psychological flexibility. Consistent with
previous research (Schutte et al., 2002), emotional intelligence was positively associated with positive affect, which itself demonstrated a positive (albeit weak) relationship with psychological flexibility. This supports the idea that emotional intelligence may regulate the experience of positive affect and hence contribute to improved psychological flexibility. The causal directions need to be teased out in future research, but these findings offer promising approaches to enhancing psychological flexibility. Emotional intelligence is sensitive to training effects and low cost, therapist-free interventions could be employed if proven effective for this purpose. Given the limitations of study 1, a second study was designed utilizing a decision situation to manipulate ruminative responding in high maximizers and differentiate the causal roles of the variables investigated in study 1.

4.6 How Maximizing, Psychological Flexibility, Affect and Emotional Intelligence Influence Ruminative Outcomes in Decision Making (Study 2)

In study 1, the focus was on the post-decisional process of rumination as a dependent variable implicated in the negative outcomes associated with maximization. In a novel study, Gilbert and Ebert (2002) showed how post-decisional processes can be manipulated by the changeability features of a decision. When a decision is made, people have a tendency to restructure their perceptions of the decision outcome towards more positive interpretations as a means of promoting satisfaction. Gilbert and Ebert (2002) labelled this strategy as a psychological immune system, which has the primary function of protecting “people from the emotional consequences of suboptimal outcomes” (p. 504). This form of emotion-based coping may be particularly important for protecting high maximizing individuals from experiencing regret or rumination, as these individuals frequently assess outcomes as suboptimal due to constant choice re-evaluation and social comparison. Gilbert and Ebert
(2002) noted that the psychological immune system, while fully operative in unchangeable decision circumstances, is impaired when the decision is changeable.

Choice changeability prevents activation of the so-called psychological immune system, or decision acceptance, and ultimately the satisfaction that generates. This system helps people find ways to accept and be satisfied with decisions that cannot be changed through a change in attitude similar to dissonance reduction (Gilbert & Evert, 2002). However, decisions that can be changed tend to bypass this process as individuals shift focus to re-considering or attempting to change the decision rather than generating satisfaction with a final decision (Gilbert & Ebert, 2002). If a decision is changeable, high maximizers in particular may be more likely to continue searching for better options and critically evaluate the current choice, focussing on negative features while attempting to decide if it really is the best choice. In this way, the ability to change decisions could potentially activate and prolong ruminative thought styles while preventing the ability to draw upon emotion-based coping strategies such as the psychological immune system. Satisficers may be less affected by this process than maximizers; post-decisional exposure to better options in the environment is less salient for satisficers where the decision goal is a choice that meets the threshold of acceptability as opposed to some amorphous best choice. The positive correlation between maximization and rumination in study 1 lends some support to this proposition, but the direction of causation could not be inferred.

It is anticipated that manipulating choice changeability in decision making may assist in extricating the causal components of the variables investigated in study 1. High maximizers are likely to be more susceptible to changeability features than satisficers and therefore demonstrate greater levels of ruminative change in response to the manipulation. Psychological flexibility may assist maximizers in functionally responding to changeable decision conditions and therefore be associated with lower ruminative change. However, as
explored in study 1, extremely high levels of maximization, as a tendency to deploy inflexible decision strategies across multiple domains, is likely to impede adaptability to the manipulation. It is therefore anticipated that maximization level will moderate the effects of psychological flexibility on ruminative change.

Finally, emotional intelligence may regulate positive affect in changeable decision conditions, by either boosting positive affect change or facilitating positive affect maintenance if the manipulation tends to lower affective states. In turn, positive affect change will, as a fundamental building block, enhance psychological flexibility, extending the findings from study 1 to determine causative pathways. In this way, positive affect change is expected to partially mediate the relationship between emotional intelligence and psychological flexibility.

This study applied Gilbert and Ebert’s changeable decision manipulation to extend the findings from study 1 and assess the causative relationships between a maximizing personality trait, psychological flexibility, positive and negative affect and emotional intelligence on rumination. It is predicted that high maximizers will be more sensitive to changeable decision situations than low maximizers, expressed through higher ruminative change. Psychological flexibility will negatively influence rumination, moderated by maximization. Finally, emotional intelligence will predict positive affect change, which will mediate its relationship with psychological flexibility.
4.7 Method

4.7.1 Participants

The sample consisted of 181 psychology students (Females 126, 69.6%; Males 55, 30.4%) opting to participate in the project through the online university research portal for receipt of course credit. The mean age of participants was 19.94 years ($SD = 3.69$, range 17-51 years). The majority of participants were Caucasian (77.9%), followed by Asian (14.4%) and a variety of ethnic groups (7.7%).

4.7.2 Procedure

The study was advertised as a project examining individual differences in art appreciation and choice. Prior to manipulation, all participants completed general demographic information and measures for maximization, psychological flexibility and emotional intelligence as described in study 1. The internal consistency for each measure in the present study was: AAQ-II, $\alpha = .93$; EIS, $\alpha = .89$; MS, $\alpha = .70$; RTSQ, $\alpha = .92$; PA, $\alpha = .90$; NA, $\alpha = .89$. Participants were randomly assigned to the changeable or unchangeable manipulation and contributed to either pre- or post-data on measures of rumination and positive and negative affect for between groups analysis.

All participants were presented a set of eight similar artworks and informed only one artwork could be submitted to a competition being held in one month’s time. The artworks used in this study were sourced, unaltered, from Wikimedia commons, as published under a Creative Commons license (ShareAlike 3.0 Unported) by the artists Tjaša Iris and Franz Marc, who in no way endorsed their use in this research. All artworks, and links to their
licenses, can be found at the following sites: [http://en.wikipedia.org/wiki/Tja%C5%A1a_Iris](http://en.wikipedia.org/wiki/Tja%C5%A1a_Iris) and [https://commons.wikimedia.org/wiki/Franz_Marc](https://commons.wikimedia.org/wiki/Franz_Marc).

Participants were instructed to “choose the artwork you decide has the best chance of performing well in terms of aesthetic appeal and technical quality”. In the changeable condition, participants were informed to “Please be aware that you can change your mind about which of these artworks is submitted to the competition. Submissions are only finalised just prior to the competition, so it's absolutely no problem if you change your mind at any time in the next month. Just let the experimenter know and they'll change the selection for you. Contact details are provided on the debrief page at the end of the survey.” In the unchangeable condition, participants were advised to “Please be sure about your choice because it is a final choice. Your selection is automatically submitted to the competition on completion of this survey.”

### 4.8 Results

The means, standard deviations and sample size for rumination scores as a function of decision manipulation and maximization level (median split into high and low) are presented in Table 4.3. Gender was excluded from analysis as no differences were observed for ruminative change, $t(85) = -1.14, p = .26$. This suggests that baseline gender differences in ruminative disposition ($t(92) = -.83, p < .01$; mean for males = 101.92, mean for females = 105.16) did not impact change measurements as a result of the manipulation, which may improve the utility of the results given the sample bias (69.6% female), potentially allowing generalisations that would ordinarily be limited to young females extend more broadly across the population.
Table 4.3

Mean Ruminative Scores for Unchangeable and Changeable Manipulations by Low and High Maximization Level

<table>
<thead>
<tr>
<th>Manipulation</th>
<th>Maximization</th>
<th>Mean rumination scores</th>
<th>Standard deviation</th>
<th>Sample size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
</tr>
<tr>
<td>Unchangeable</td>
<td>Low</td>
<td>95.87</td>
<td>87.58</td>
<td>16.13</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>114.52</td>
<td>105.96</td>
<td>14.86</td>
</tr>
<tr>
<td><em>Total</em></td>
<td></td>
<td>105.58</td>
<td>97.64</td>
<td>17.98</td>
</tr>
<tr>
<td>Changeable</td>
<td>Low</td>
<td>99.67</td>
<td>94.56</td>
<td>12.63</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>104.96</td>
<td>113.85</td>
<td>17.23</td>
</tr>
<tr>
<td><em>Total</em></td>
<td></td>
<td>102.89</td>
<td>103.13</td>
<td>15.65</td>
</tr>
</tbody>
</table>

A 2 X 2 ANOVA was conducted to evaluate the effects of the decision manipulation (changeable and unchangeable) and maximization level (median split into high and low) on ruminative change. As shown in Figure 1, the ANOVA indicated a significant interaction between decision manipulation and maximization level, $F(1, 83) = 5.03, p = .03$, partial $\eta^2 = .06$ as well as significant main effects for decision manipulation, $F(1, 83) = 10.53, p < .01$, partial $\eta^2 = .11$, and maximization, $F(1, 83) = 4.66, p = .03$, partial $\eta^2 = .05$.

Given the significant interaction between decision condition and maximization level, follow up analyses for pairwise comparisons were conducted, with alpha set at .0125 to control for Type 1 error. Differences in ruminative change between changeable and unchangeable decision conditions were only significant for high maximizers ($F(1, 83) = 14.99, p < .001$, partial $\eta^2 = .15$), as opposed to low maximisers ($F(1, 83) = .50, p = .48$).
There were no differences in ruminative change for the unchangeable condition between high and low maximizers, $F(1, 83) = .00, p = .95$. However, high maximizers showed significantly greater ruminative change in the changeable decision manipulation compared with low maximisers, $F(1, 83) = 10.01, p < .01$, partial $\eta^2 = .11$.

*Figure 4.1.* Mean ruminative change score for unchangeable and changeable manipulations by maximization level.
A moderation analysis using Hayes (2013) PROCESS macro was conducted to test the hypothesis that maximization would moderate the relationship between psychological flexibility and rumination. The continuous variables for maximization and psychological flexibility were mean centered to avoid multicollinearity issues (Aiken & West, 1991). Results of the PROCESS analysis are presented in Table 4.4. The conditional effects of maximization, psychological flexibility and their interaction were significant. The overall model predicted a significant proportion of variance in ruminative change, \( R^2 = .65, F(3, 41) = 26.78, p < .0001 \).

Table 4.4

<table>
<thead>
<tr>
<th>Conditional and Interaction Effects on Ruminative Change</th>
<th>B</th>
<th>SE</th>
<th>T</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>2.84</td>
<td>1.75</td>
<td>1.62</td>
<td>.11</td>
</tr>
<tr>
<td>Maximization</td>
<td>.75</td>
<td>.20</td>
<td>3.68</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Psychological flexibility</td>
<td>-1.10</td>
<td>.23</td>
<td>-4.89</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Maximization x Psychological flexibility</td>
<td>.05</td>
<td>.02</td>
<td>2.48</td>
<td>.018</td>
</tr>
</tbody>
</table>

A Johnson-Neyman analysis of the interaction indicated that psychological flexibility significantly negatively predicted ruminative change when maximization scores were less than 12.60 (mean centred). This equates to a total maximization score of 71.14 (or 5.47 composite score), showing that psychological flexibility predicted ruminative change for 86.7% of maximization scores in the sample. The simple slopes pick-a-point analysis (Rogosa, 1980) demonstrated a significant conditional relationship between psychological flexibility and ruminative change when maximization scores were held one standard
deviation below the mean (49.62), at the mean (58.84), and one standard deviation above the mean (68.07), $B = -1.54, SE = .34, p < .001; B = -1.10, SE = .23, p < .001$ and $B = -0.67, SE = .22, p = .004$, respectively. Figure 2 shows predicted ruminative change scores as a function of the pick-a-point analysis.

**Figure 4.2.** Mean ruminative change by psychological flexibility and maximization level for changeable decision condition.

Note: Total scores for ruminative change and psychological flexibility are mean centred.
The meditational role of positive affect between emotional intelligence and psychological flexibility was tested utilising the bias-corrected procedure with 5,000 bootstrap resamples (Preacher & Hayes, 2008; Preacher, Rucker, & Hayes, 2007). As shown in Figure 3, positive affect change significantly mediated the association between emotional intelligence and psychological flexibility, $F(2, 42) = 5.72, p < .01, R^2 = .21$. The total effect of emotional intelligence on psychological flexibility was significant ($B = .21, SE = .092, t(42) = 2.31, p = .03$), but its direct effect was non-significant ($B = .06, SE = .109, t(42) = 0.55, p = .59$), supporting full mediation by positive affect change in the model instead of partial mediation as hypothesised. Interestingly, the magnitude of the relationship between positive affect change and psychological flexibility is higher than shown in study 1. In fact, regulated positive affect change shows a stronger relationship with psychological flexibility in this decision making paradigm than baseline positive affect, $r(92) = .32, p < .01$). This highlights the inherent challenges in measuring context-dependent variables such as psychological flexibility; context can impact the relationships between variables compared with simple trait-based correlational studies.

![Figure 4.3](image)

_Figure 4.3. Model showing path from emotional intelligence to psychological flexibility through positive affect change as a mediator. Numbers represent standardised regression coefficients. N = 45. *p < .05, **p < .01, ***p < .001._
4.9 Discussion

Study 2 showed that a maximizing personality trait predicted high levels of ruminative change, particularly for changeable decision conditions. Psychological flexibility attenuated the effects of maximization on ruminative change, despite being progressively less effective at extremely high levels of maximization. The study further found that emotional intelligence predicted psychological flexibility, fully mediated by positive affect. These results are consistent with study 1 and support all predictions.

4.10 General Discussion

These studies extend Schwartz (2002) and Gilbert and Ebert’s (2002) findings, demonstrating that a maximizing personality trait entirely delineates the effects of choice changeability on rumination. That is, low maximizers maintain a fully functioning psychological immune system when exposed to changeable decision conditions, while high maximizers show impairments. This suggests that high maximizers are less capable than satisficers at restructuring their perceptions of decision outcomes towards more positive interpretations as a means of promoting satisfaction under conditions of choice changeability. Schwartz et al. (2002) postulated that high maximizers may prefer changeable decision options as a means of upgrading decisions when exposed to better options in the environment. Therefore maximizers may paradoxically seek out the conditions of choice changeability that impair the psychological immune system, or dissonance reduction processes, and engender rumination. This process could potentially lead to other negative consequences, given the associations between ruminative tendencies and depression (Nolen-Hoeksema et al., 2008).
4.10.1 Implications for Intervention

High psychological flexibility offers a saving grace for maximizers. Higher levels of psychological flexibility were associated with lower ruminative change in the changeable decision manipulation. Despite a desire to maximize, if an individual possesses sufficient psychological flexibility, alternative responses and decision styles, like satisficing, can be employed to achieve more functional outcomes. However, high psychological flexibility may not be effective for individuals scoring in the top 13.3% of maximizing tendencies. A maximizing disposition may need to be directly targeted in this subset of the population to mitigate negative outcomes. Some of the strategies Schwartz (2004) recommended for high maximizing individuals include: curtail social comparison, cultivate satisficing, seek out unchangeable decisions, and reflect on what decisions are really important before allocating substantial personal resources to the decision making process. Practically, these strategies could, for example, involve avoiding social media, a forum which inundates individuals with opportunities for social comparison. For the remaining majority of individuals on the maximizing spectrum, the studies show that interventions to improve psychological flexibility, which attenuates the effects of maximization on rumination, could offer substantial benefits for long-term health.

Acceptance and Commitment Therapy (ACT) is a traditional clinical intervention for enhancing psychological flexibility and thereby promoting health (e.g., Bond et al, 2013; Hayes, Strosahl, & Wilson, 1999). Randomized controlled trials support the efficacy of ACT for enhancing psychological flexibility and health outcomes (Bond & Bunce, 2000; Flaxman & Bond, 2010). In relation to maximizing tendencies, ACT could assist maximizing individuals to engage more in the present moment rather than inwardly focus on post-decisional ruminative thoughts. ACT also attempts to clarify what is inherently important and meaningful (i.e., values) to guide an individual’s actions toward these goals (Harris, 2006).
This is similar to Schwartz’ (2004) recommendation to reflect on the value of the decision before focusing unneeded time and energy towards maximization. In this way, individuals approach decision situations more consistently with their values and goals, discerning important from trivial decisions and deploying maximizing or satisficing strategies appropriately. While ACT seems viable as an intervention for maximizers and can be effective over brief time-spans (Bach & Hayes, 2002), the majority of delivery methods are therapist-led. For a variety of reasons this could deter potential consumers from seeking help; high maximizers may present with sub-clinical symptoms and prefer the anonymity and accessibility of self-administered interventions. The present studies identified alternative mechanisms for promoting psychological flexibility and lowering ruminative outcomes that may prove efficacious through suitable self-administered treatments.

Emotional intelligence demonstrated a promising avenue for indirectly facilitating psychological flexibility. High emotional intelligence predicted psychological flexibility, mediated by positive affect change. These findings suggest that interventions to increase emotional intelligence may promote positive affect and hence psychological flexibility. A number of emotional intelligence training interventions have supported efficacy (Schutte et al., 2013) and should be explored to determine whether experimental treatments improve functional outcomes and to test the causation relationship between emotional intelligence and psychological flexibility. For example, a journal writing intervention provided to workplace employees was effective at increasing emotional intelligence after only 3, 20 minute writing sessions (Kirk, Schutte, & Hine, 2011). Journal instructions offer a flexible delivery format and could be adapted for self-help interventions external to workplaces if proven efficacious. Given the finding that the effects of emotional intelligence on flexibility were fully mediated by positive affect, interventions solely focussed on directly increasing positive affect should demonstrate similar outcomes to emotional intelligence treatments.
Positive affect is widely considered to be a building block for psychological flexibility (Kashdan et al., 2010). A large body of positive psychology research supports the efficacy for numerous interventions to increase positive affect that are low-cost and self-administered (Bolier, Haverman, Westerhof, et al., 2013; Sin & Lyubomirsky, 2009). For example, just one week of keeping a daily gratitude journal, listing three good things each day and their subjective causes, has been shown to increase happiness and decrease depressive symptoms for 6 months (Seligman, 2005). While the present study suggests that engaging with self-help exercises to increase positive affect could enhance flexibility and decrease ruminative outcomes, emotional intelligence potentially improves an individual’s ability to derive positive affect from a variety of situations through emotion regulation (Schutte et al., 2002). Emotional intelligence may therefore offer a more enduring pathway to psychological flexibility, which could ultimately address some of the negative outcomes associated with maximization such as rumination.

4.10.2 Limitations and Future Research

The maximization scale used in the present study has been criticized for poor psychometric properties (e.g., Turner, Rim, Betz & Nygren, 2012; Diab, Gillespie & Highhouse, 2008), despite demonstrating acceptable alpha coefficients standards in the present study (Nunally, 1978). The newer Maximization Inventory (Turner et al., 2012) and Maximization Tendency Scales (Diab et al., 2008) were designed to address construct validity and reliability concerns. Notably, in the Maximization Inventory, satisficing is conceived as a separate dimension to maximization rather than spectrally opposed. The findings from the present studies should be replicated using these alternative measurement methods and conceptual frameworks to confirm the supported relationships.
Some results barely reached significance in the decision manipulation and may be anomalies influenced by small sample size. Ideally, the decision manipulation study should be replicated with a larger sample. Alternatively, more power could be achieved using a repeated measures design rather than between groups comparison employing briefer, state-based rumination measures. This methodology change could further clarify the unexpected ruminative mean decrease in the unchangeable condition, which may have been an artefact of the between groups design. Alternatively, it is possible that the decision process and topic (choosing and writing about art) actually facilitated a real decrease in rumination - the observed corresponding decreases in negative affect might support this proposition. Therefore, in addition to utilising a repeated measures design, future studies might consider varying the decision paradigm and further manipulate the number of decision options to examine how rumination varies as a function of choice expansion.

The present studies found that a maximizing personality trait is associated with greater ruminative tendencies. Further, the negative consequences of changeable decision-making, in terms of rumination, are generally attributable to high levels of maximization. Fortunately, individuals who possess sufficient psychological flexibility appear to be capable of attenuating the effects of maximizing on ruminative outcomes. Methods for increasing psychological flexibility were explored, with emotional intelligence presenting a promising avenue for future clinical applications and research. Emotional intelligence predicted psychological flexibility mediated by positive affect. These findings suggest that interventions to increase emotional intelligence may foster positive affect leading to improved psychological flexibility and ultimately mitigating ruminative outcomes. Further research is warranted in examining the causative role of emotional intelligence on psychological flexibility using established interventions and measurement techniques.
Chapter 5

The Effect of an Expressive-Writing Intervention on Emotional Intelligence,

Psychological Flexibility and Workplace Flourishing
Abstract

Emotional intelligence as a means for facilitating psychological flexibility and work engagement is explored through administration of the Kirk, Schutte and Hine (2011) writing paradigm. The sample comprised 44 Australian public servants (33 females, 11 males) aged 44.57 years, on average. Compared to controls, intervention participants showed significant increases in emotional intelligence, positive affect and work engagement, but not psychological flexibility as traditionally measured through the Acceptance and Action Questionnaire (AAQ-II; Bond et al., 2011). However, when noncompliant participants are excluded, psychological flexibility increased for the work-specific derivative of the AAQ-II (WAAQ; Bond, Lloyd & Guenole, 2013). Positive affect and work-specific psychological flexibility mediated the effects of emotional intelligence on work engagement at pre-test. Emotional intelligence interventions may promote individual strengths and workplace flourishing.
5.1 Introduction

Emotional intelligence refers to adaptive emotional functioning and the majority of operationalisations feature emotional perception, understanding and management in the self and others as key attributes (Mayer, Salovey, & Caruso, 2004; Nebauer & Freudenthaler, 2005). Measurement approaches for emotional intelligence vary between ability (e.g., Mayer, Salovey, & Caruso, 2008) and trait models (e.g., Petrides & Furnham, 2000), both of which are associated with positive outcomes. Meta-analytic studies have shown that high emotional intelligence is related to better mental and physical health in general (Schutte, Malouff, Thorsteinsson, Bhullar, & Rooke, 2007), as well as increased performance and productivity in the workplace (O’Boyle, Humphrey, Pollock, Hawver & Story, 2011; Van Rooy & Viswesvaran, 2004).

5.1.1 Emotional Intelligence and Workplace Functioning

Schutte and Loi (2014) examined how emotional intelligence supports workplace functioning from a positive psychology perspective. The positive psychology movement aims to promote ‘flourishing’; a scientific study of optimal functioning for individuals, communities and organisations (Gable & Haidt, 2005; Seligman, 2012). Positive psychology applied to the workplace emphasises the reciprocal nature of employee strengths and organisational culture for fostering employee engagement and productivity (Bakker & Schaufeli, 2008). Emotional intelligence is emerging as a core individual strength within the workplace environment (Joseph & Newman, 2010; O’Boyle et al., 2011; Schlaerth, Ensari, & Christian, 2013) and many organisations are beginning to endorse program delivery purporting to enhance it, particularly in the Australian public sector where emotional intelligence has been identified as a strategic priority for leadership development (Australian
Public Service Commission, 2014). A range of empirical research supports the value of emotional intelligence as an individual and collective organisational strength facilitating flourishing workplaces.

Emotional intelligence supports positive workplace functioning in various ways. Emotionally intelligent individuals demonstrate more co-operative behaviour (Schutte et al., 2001) and better interpersonal relations (Lopes et al., 2004); a transferable skillset to the situational demands of the workplace. Employees with high emotional intelligence demonstrate more effective leadership (Harms & Credé, 2010) and conflict resolution (Schlaerth et al., 2013), while emotional interventions have resulted in more courteous interactions between employees (Kirk et al., 2011). Interpersonal interactions in the workplace can be governed by emotional display codes, introducing the need to manage emotional expression through emotional labour, which is associated with burnout, often viewed as the diametric opposite of work engagement (Grandey, 2003; Mikolajczak, Menil, & Luminet, 2007).

For many professions, workplace display rules condone positive emotional expression. The characteristic experience of positive emotion and sensitivity to positive stimuli observed in individuals with high emotional intelligence promotes positive consonance, synchrony between felt, expressed and required emotion (Mikolajczak et al., 2007). This reduces the need for emotional labour and improves workplace outcomes such as less burnout and increased work engagement, which involves “a positive, fulfilling work-related state of mind that is characterized by vigor, dedication and absorption” (Schaufeli, Bakker, & Salanova, 2006, p. 702; Mikolajczak et al., 2007). Emotional intelligence further influences the selection of healthier long-term strategies to cope with emotional labour (Mokolajczak et al., 2007). Consequently, the characteristics of emotionally intelligent employees are associated with improved well-being, engagement with workplace
responsibilities and satisfaction with co-workers and supervisors (Martin & Hine, 2005), suggesting that emotional intelligence fosters positive workplace relations and constructive outcomes.

While emotional intelligence may directly influence positive work outcomes, Schutte and Loi (2014) theorised that it also provides a foundation for the development of further workplace characteristics or strengths that support flourishing employees and organisations. For example, emotional competencies improve interpersonal work relationships and thereby promote workplace social support, which bolsters overall work engagement and mitigates against stressors (Shirey, 2004; Duran, Extremera, & Ray, 2004). Likewise, the skillset of emotionally intelligent individuals fosters a sense of social power; the ability to influence colleagues and work outcomes, which may lead to further work engagement and improved performance (Schaufeli & Bakker, 2004). Schutte and Loi (2014) showed that satisfaction with workplace social support and perception of power in the workplace significantly mediated the connection between emotional intelligence and work engagement as an indicator of workplace flourishing.

These findings build upon a growing literature demonstrating the importance of trait emotional intelligence for work engagement. For example, one study assessing over 1,000 adult workers found that trait emotional intelligence was the strongest predictor of work engagement and demonstrated incremental validity in the prediction of engagement beyond demographic and general and occupational personality variables (Akhtar, Boustani, Tsivrikos, & Chamorro-Premuzic, 2014). This literature provides strong support for the conclusion that emotional intelligence is a platform for the emergence of positive workplace characteristics, both in the individual and work culture, that support thriving organisations and employees (Schutte & Loi, 2014). One positive characteristic that emotional intelligence may potentially foster in this way is psychological flexibility.
5.1.2 Emotional Intelligence as a Foundation for Adaptive Abilities and Flourishing Workplaces

Psychological flexibility is the ability to mindfully attend to the present moment and respond appropriately within the situation to achieve valued goals, despite challenging internal processes that may interfere with effective functioning (Bond et al., 2013; Hayes, Luoma, Bond, Masuda & Lillis, 2006). For example, an employee seeking promotion may need to overcome public speaking anxieties to demonstrate work-related capabilities. The essence of psychological flexibility is a commitment to act and achieve that goal, overcoming negative internal processes such as anticipatory rumination, negative emotion or anxiety-driven physiological sensations that may otherwise foster avoidance (Bond et al., 2013; Hayes et al., 2006). Instead, internal experiences are accepted and focus is diverted to the outward affordances enabling an individual the attentional and cognitive resources to act consistently with their goals. This adaptive ability, to reconfigure mental resources and activate approach behaviours towards growth opportunities, is an individual strength that may be related to emotional intelligence.

Emotional intelligence and psychological flexibility have demonstrated positive correlations in research collecting concurrent data, particularly when flexibility is operationalised using the revised Acceptance and Action Questionnaire (AAQ-II; e.g., Foster, Pammer, Schutte, & Brinker, 2016; Donaldson-Feilder, & Bond, 2004). A number of theories explain these findings. For example, the mindful awareness of internal experiences that underpins traditional definitions of psychological flexibility, also referred to as psychological acceptance (e.g., Bond et al., 2013), is synonymous with awareness of emotional states and physiological sensations associated with their experience. This perception and understanding
of emotions underlying psychological flexibility are emotional intelligence competencies. Further, the strategies individuals with high emotional intelligence employ to cope with emotional labour in the workplace involve redeployment of attention and cognitive shifting or reappraisal (Mikolajczak, 2007), which reflect features of psychological flexibility such as attentional control and the ability to shift mindsets (Kashdan and Rottenberg, 2010).

Another mechanism by which emotional intelligence could foster psychological flexibility and work engagement involves positive affect. Kashdan and Rottenberg (2010) identified positive affect as a fundamental building block for psychological flexibility. Studies have shown that individuals with high emotional intelligence are more adept at regulating positive affect than individuals with low emotional intelligence. Highly emotionally intelligent individuals may be more capable of deriving greater levels of positive affect from a variety of situations as well as being able to maintain positive affective states in the face of negative stimuli (Schutte, Malouff, Simunek, & Hollander, 2002). The broadening effect of positive affect engendered through emotional intelligence could enhance psychological flexibility as well as work engagement, either in combination with flexibility or independently through more general broadening effects (broaden-and-build theory; Fredrickson, 2001). Positive affect inductions have increased attentional span and thought-action repertoires (Fredrickson, 2005), indicators of enhanced psychological flexibility. Supporting this idea, the study undertaken in Chapter 4, examining psychological flexibility and emotional intelligence in a decision context, showed that positive affect mediated the effects of emotional intelligence on psychological flexibility. Therefore, enhancing emotional intelligence could provide a foundation for the development of psychological flexibility through positive affect, which may further enhance work engagement or workplace flourishing.
A range of findings support the proposition that psychological flexibility promotes effective workplace functioning. General measures of characteristic psychological flexibility, such as the AAQ-II, have predicted numerous work-related outcomes, including mental health, performance, job satisfaction, absenteeism and work engagement (e.g., Bond & Bunce, 2003; Bond et al., 2013). The Work-related Acceptance and Action Questionnaire (WAAQ; Bond et al., 2013), developed for increased context sensitivity, predicts work-related variables more strongly than the AAQ-II, including the three dimensions of work engagement operationalized in the Utrecht Work Engagement Scale: vigour, dedication and absorption (Schaufeli, Bakker & Salanova, 2006). As noted previously, emotional intelligence also predicts work engagement through mediating variables, such as satisfaction with workplace social support and perception of power in the workplace (Schutte & Loi, 2014). Given these findings, it is possible that psychological flexibility represents another mediator between emotional intelligence and work engagement, especially considering the relationship between emotional intelligence and psychological flexibility supported in the literature. It is therefore proposed that emotional intelligence, as a growth platform for positive workplace characteristics, may promote the development of psychological flexibility and thereby contribute to flourishing individuals and organisations.

The positive psychology framework, which focuses on the individual in context, provides a strong theoretical approach for examining the relationships between context-dependent variables like emotional intelligence and psychological flexibility. Given work engagement is an indicator of workplace flourishing that has demonstrated associations with both psychological flexibility and emotional intelligence, it offers a valuable criterion measure for evaluating the hypothesised causation relationship; that emotional intelligence builds psychological flexibility and thereby fosters positive work outcomes, as indicated by increased work engagement. Administering an experimental intervention to test the causation
relationships will address the methodological reliance on concurrent data collection evident in the previous research assessing the effects of emotional intelligence on workplace flourishing. Schutte and Loi (2011) suggested a number of empirically-tested emotional intelligence interventions as future research directions, including the application of an expressive writing paradigm within the workplace.

5.1.3 Trait Emotional Intelligence Expressive-Writing Intervention

Kirk et al., (2011) extended Pennebaker’s writing paradigm (Pennebaker & Beall, 1986) to a workplace training intervention in emotional self-efficacy and intelligence. The training was designed to enhance emotional self-efficacy beliefs based on Bandura’s social-cognitive theory (Bandura, 1986, 1997) and demonstrated increases in total mean scores for self-reported trait emotional intelligence relative to a control group (Kirk et al., 2011). Meta-analyses show that this expressive writing paradigm, which involves journaling thoughts or feelings stemming from life experiences for three or more consecutive days, is effective in promoting a range of positive outcomes (Frattaroli, 2006). The task itself can generate positive affect while exploration of emotional events and meanings may assist in cognitive restructuring, emotional and physiological desensitisation to negative internal experiences and help develop emotional mastery through training prompts (King, 2001; Kirk et al., 2011). The focus of this particular applied intervention may therefore address emotional competencies as well as promote psychologically flexible mindsets. In the original efficacy study, participants in the training condition showed increased emotional intelligence alongside increased positive affect and decreased workplace incivility perpetration (Kirk et al., 2011). Accordingly, this paradigm offers a useful method to test the causation
relationship between emotional intelligence and psychological flexibility in relation to workplace flourishing.

5.1.4 Aims of the Research

The aim of the present study was to provide more concrete support for the argument that emotional intelligence leads to positive workplace outcomes through experimental intervention. Further, the study aimed to clarify whether emotional intelligence is a foundation for strengths building, particularly psychological flexibility and positive affect, which in turn leads to workplace flourishing indicated by increased work engagement. It was hypothesised that emotional intelligence, positive affect, work engagement and psychological flexibility would increase for intervention participants compared with controls. In addition, psychological flexibility (and positive affect) would partially mediate the connection between emotional intelligence and work engagement.

5.2 Method

5.2.1 Participants

Of 62 employed adults who participated in the study, 51 completed the final survey, indicating a dropout of 17.7%. Cases for seven respondents were removed from the final dataset due to mismatching linkage codes, missing journal codes (which identified condition assignment), and substantial missing data or outliers, resulting in a total sample size of 44 participants. The 44 completed responses comprised 11 males and 33 females employed at 3 public sector agencies across Australia. Ages ranged from 22 to 64 years ($M = 44.57$, $SD =$
11.66) and participants were employed in their current workplace from a minimum of 3 months to a maximum of 25 years and 6 months ($M = 9.39$, $SD = 6.57$).

The sample demonstrated strong educational attainment, with the majority of participants holding bachelor or higher degrees; 6.8% school certificate, 15.9% technical college diploma, 52.3% bachelor degree, 22.7% graduate degree, 2.3% doctorate. Further, 40.9% of participants identified as being in a supervisory or management role. Following assignment, 21 and 23 participants were allocated to the control and training conditions, respectively, with gender equally represented across both groups (i.e., 5 males in the control and 6 males in training condition).

5.2.2 Procedure

Participants were recruited through direct organisational contact at Canberra and Adelaide sites. Workplace permission was obtained through multiple managerial levels at each site, sometimes requiring hierarchical approvals from unit, group and CEO-level delegates. The process was also impacted by high-level staffing changes and altered clearance protocols, extending the approvals and collection timeframe for the study up to 2 years. Data collection was staggered; participants commenced the initial survey battery at five separate time points over a six month period. All participants completed pre-measures for emotional intelligence, positive and negative affect, work engagement, psychological flexibility and work-specific psychological flexibility. Online survey links were emailed through a distribution list using blind carbon copy to maintain participant anonymity.

Journals were available for collection at all worksites following completion of the initial pre-measure survey. Participants were assigned to the emotional intelligence intervention or control condition at the time of journal collection. The journals were arranged
in alternating order for intervention and control conditions; participants were assigned to
either condition depending on the order in which they collected a journal from the pile. Each
journal was identifiable through a unique 3-digit alphanumeric code on the inside sleeve with
odd numbers attached to the control condition and even numbers representing the
intervention condition. Participants were instructed to input this condition code on
completion of the final survey for double blind assignment.

All journals instructed participants to write for at least 20 minutes a day over the next
three days consistent with the original paradigm (Pennebaker & Beall, 1986; Kirk et al.,
2011). In most instances, this time period fell during a working week from Tuesday to
Thursday, depending on when the initial survey was completed. Intervention participants
were instructed to write about and explore emotional experiences and outcomes related to a
recent or important workday in the past. Examples of writing content for common workplace
scenarios were provided to assist emotional learning, including:

(i) evaluating how personal experiences demonstrate effective perception, use,
understanding or regulation of emotions;
(ii) vicarious learning through observation of emotional mastery;
(iii) verbal persuasion encouraging effortful engagement in mastering emotional
competencies; and,
(iv) understanding the contribution of physiological states in managing emotion.

Control participants were instructed to write on any topic related to their non-workday
and provided with purely descriptive examples devoid of emotional content and exploration.
The privacy of the journal was emphasised during the recruitment phase and reiterated in the
journal instructions to address potential social desirability or self-presentation concerns that
might influence expressive writing. As such, journals were not collected or reviewed by the
researcher. However, compliance with the writing task was assessed using generic post-writing queries included in the final survey, asking how many days participants wrote in the journal for the full 20 minutes.

The post-measure survey was accessible 2 weeks following the final journal writing session to allow training processing to occur and to ensure measurement before substantial dilution of intervention effects, consistent with the original paradigm supporting training efficacy (Kirk et al., 2011). Delays in responding were followed up with email reminders. The majority of participants responded between 2-3 weeks following the writing sessions; however, 2 respondents (both in the control condition) completed the survey 3-4 weeks later. A linkage code was used to merge pre- and post-measures in the dataset. Participants were prompted to create this unique personal identifier using standard construction principles at both collections points.

5.2.3 Measures

5.2.3.1 Emotional Intelligence.

The 33-item Assessing Emotions Scale (Schutte et al., 1998; Schutte, Malouff, & Bhullar, 2009) measured characteristic emotional intelligence. Respondents rated their capacity to identify, understand, regulate and harness emotions in the self and others on a 5-point scale from 1 (Strongly disagree) to 5 (Strongly agree) against statements such as “I am aware of my emotions as I experience them”. At each measurement time, participants were instructed to rate typical emotional abilities referencing the past 2 weeks. Associations with self-reported emotional attention, clarity and repair on the Trait Meta Mood Scale support convergent validity of the measure (Bastian, Burns & Nettelbeck, 2005). The present study
demonstrated strong internal consistency for the general trait emotional intelligence factor with Cronbach’s alpha of .92 (pre-test) and .93 (post-test).

### 5.2.3.2 Positive and Negative Affect.

Mood was assessed using the 20-item Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). Subscales for positive and negative affect consist of 10 items each; sample items include ‘enthusiastic’ and ‘distressed’ for positive and negative affect, respectively. Participants rated the extent to which they felt each state over the past 2 weeks from 1 (Slightly) to 5 (Extremely). The present sample demonstrated stable internal consistency, with Cronbach’s alpha of .91 for the positive mood subscale and .85 for the negative mood subscale at both collection points, respectively.

### 5.2.3.3 Work Engagement.

The shortened 9-item version of the Utrecht Work Engagement Scale (UWES; Schaufeli et al., 2006) assessed the 3 dimensions of work engagement: vigour, dedication, and absorption. The UWES is a commonly used, peer-reviewed work engagement measure (Bakker, Albrecht, Leiter, 2011; Schaufeli & Bakker, 2010). Studies support both a one-factor total work engagement score and 3 factor structures. For the one factor solution in the present study, Cronbach’s alpha was .94 at pre-test and .93 at post-test. Validity of the scale is supported across several international populations, including Australia, North America, Asia, and Africa (Bakker, 2009). Respondents endorsed statements (e.g., “I am immersed in my work.”) using a 7-point scale ranging from 1 (Never true) to 7 (Always true), relating to the past 2 weeks.
5.2.3.4 Psychological Flexibility.

The AAQ-II (Bond et al., 2011) measured general psychological flexibility. Participants rated the accuracy of 7 items such as “worries get in the way of my success” from 1 (Never true) to 7 (Always true). Given the negatively keyed nature of this tool, all items were reverse scored so that higher scores indicate greater psychological flexibility. The AAQ-II demonstrated strong psychometric reliability, with Cronbach’s alpha of .92 at pre-test and .94 at post-test in the present study. A workplace-specific derivative of the AAQ-II was also administered; the Work-related Acceptance and Action Questionnaire (WAAQ; Bond et al., 2013). Compared with the AAQ-II, the WAAQ tends to correlate with work-specific variables at higher magnitudes (Bond et al., 2013) and may be more capable of detecting any treatment effects in the workplace context. Items are rated on the same likert-type scale as the AAQ-II and include statements such as “I am able to work effectively in spite of any personal worries that I have”. For the present study, the internal consistency of the WAAQ as measured by Cronbach’s alpha was .89 and .93 at pre- and post-test, respectively. Criterion-related validity is indicated by improved workplace functioning, for example, increased observer-rated task performance and work engagement (Bond et al., 2013). In the present study, both psychological flexibility scales asked participants to respond referencing the past two weeks.

5.3 Results

5.3.1 Preliminary Analyses

Gender differences were noted for emotional intelligence, $F(1, 42) = 8.77, p < .01$, partial $\eta^2 = .17$. Females ($M = 128.12, SD = 13.81$) scored higher than males ($M = 112.91, SD = 13.81$).
on emotional intelligence at pre-test; however, these differences were not significant at post-test, $F(1, 42) = 4.06, p > .05$, partial $\eta^2 = .09$. Likewise, older participants reported significantly greater levels of global psychological flexibility, $r(44) = .30, p = .05$; but the relationship was not significant following the training intervention, $r(44) = .26, p = .09$. No significant differences were observed between control and training participants on any demographic variables, including sex age, education, English-speaking background, number of years employed and whether the participant was in a supervisory or management role.

Of the 44 participants who responded to post-writing compliance queries, 27 (61.4%) indicated writing in the journal for the full 20 minutes over a minimum of three days. Another 10 (22.7%) participants managed to write for 20 minutes over two days, while 7 (15.9%) wrote for only one day. Crosstabs revealed that compliance with journal writing sessions did not significantly differ between groups, $\chi^2 = 5.27, p = .26$. Analysis proceeded with an intention to treat approach, including all 44 participants irrespective of compliance with the training instructions.

5.3.2 Main Analyses

Group means showing pre- and post-test scores (and standard deviations) for all analysis variables are presented in Table 1. Zero-order correlations between all main variables at both time points are shown in Table 2.
Table 5.1

*Means and Standard Deviations for Control and Intervention Groups on Pre and Post-Test Measures*

<table>
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<tr>
<th>Condition</th>
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<th></th>
<th>Post-test</th>
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<td>$SD$</td>
<td>$M$</td>
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Table 5.2

Zero-order correlations between main variables \((n = 44)\)

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<th>U-Ded</th>
<th>U-Abs</th>
<th>AAQ-II</th>
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<td>.71***</td>
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<td></td>
<td>-.43**</td>
<td>-.50***</td>
<td></td>
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</tr>
<tr>
<td>UWES</td>
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<td>.53***</td>
<td>.62***</td>
<td>-.35*</td>
<td></td>
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<tr>
<td>U-Vig</td>
<td></td>
<td>.55***</td>
<td>.66***</td>
<td>-.34*</td>
<td>.91***</td>
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<tr>
<td>U-Ded</td>
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<td>.60***</td>
<td>-.37*</td>
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<td>.82***</td>
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<td>.84***</td>
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<td>.49***</td>
<td>.34*</td>
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<td>.48***</td>
<td>-.41**</td>
<td>.61***</td>
<td>.53***</td>
<td>.56***</td>
<td>.55***</td>
<td>.70***</td>
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</table>
Individual ANCOVA’s assessed the efficacy of the intervention for increasing emotional intelligence, positive affect, work engagement, psychological flexibility, and work-specific psychological flexibility, with pre-test scores on each measure entered as covariate. ANCOVA was chosen over ANOVA of change analysis to increase power given the small sample size. Quasi-random allocation combined with the absence of baseline differences between groups implied a lack of bias, supporting the use of ANCOVA (Van Breukelen, 2006). The homogeneity of regression slopes was met for all analyses. Table 5.3 summarises the results of covariance analyses with associated effect sizes and adjusted post-test means, controlling for pre-test scores.

Participants undertaking the intervention scored significantly higher than controls on emotional intelligence, positive affect, and work engagement when controlling for pre-test scores. While the higher order factor for work engagement was significant, a subscale analysis revealed that dimensions of absorption \( (F(1, 41) = 4.99, \ p = .03, \ \text{partial} \ \eta^2 = .11) \) and dedication \( (F(1, 41) = 5.44, \ p = .03, \ \text{partial} \ \eta^2 = .12) \) contributed to the significant group differences, with the vigour subscale showing no significant treatment effect \( (F(1, 41) = .85, \ p = .36, \ \text{partial} \ \eta^2 = .02) \). Likewise, no group differences were observed on measures of negative affect, psychological flexibility or work-specific psychological flexibility.

Removing the 7 (15.9%) participants who wrote in the journal for only 1 day (one third compliance with training protocols) from the dataset revealed largely the same findings.
with greater mean differences between groups. However, the work-specific psychological flexibility measure (WAAQ) showed significantly higher scores in the intervention group compared with controls, $F(1,34) = 5.80, p = .02, \eta^2 = .15$ (control adjusted $M = 34.58, SE = .85$; intervention adjusted $M = 37.61, SE = .92$). Despite this finding, the general psychological flexibility measure (AAQ-II) remained non-significant.

Table 5.3

ANCOVAs of Training Effect on Post-test Variables, Controlling for Pre-test scores, with Post-test Adjusted Means and Standard Errors for Control and Intervention Groups

<table>
<thead>
<tr>
<th>Measure</th>
<th>Control group ($n = 21$)</th>
<th>Experimental group ($n = 23$)</th>
<th>$F$-value</th>
<th>Partial $\eta^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional intelligence</td>
<td>122.83 1.82</td>
<td>128.72 1.74</td>
<td>5.47*</td>
<td>.12</td>
</tr>
<tr>
<td>Positive affect</td>
<td>30.73 1.12</td>
<td>34.77 1.07</td>
<td>6.75**</td>
<td>.14</td>
</tr>
<tr>
<td>Negative affect</td>
<td>18.74 1.03</td>
<td>17.60 0.98</td>
<td>0.63</td>
<td>.02</td>
</tr>
<tr>
<td>Work engagement</td>
<td>40.12 0.95</td>
<td>42.89 0.91</td>
<td>4.44*</td>
<td>.10</td>
</tr>
<tr>
<td>Vigour</td>
<td>11.94 0.43</td>
<td>12.49 0.41</td>
<td>0.85</td>
<td>.02</td>
</tr>
<tr>
<td>Dedication</td>
<td>13.71 0.42</td>
<td>15.09 0.40</td>
<td>5.44*</td>
<td>.12</td>
</tr>
<tr>
<td>Absorption</td>
<td>14.40 0.32</td>
<td>15.38 0.30</td>
<td>4.99*</td>
<td>.11</td>
</tr>
<tr>
<td>Psychological flexibility</td>
<td>36.04 1.07</td>
<td>37.49 1.02</td>
<td>.96</td>
<td>.02</td>
</tr>
<tr>
<td>Work-specific</td>
<td>34.24 0.96</td>
<td>36.34 0.92</td>
<td>2.50</td>
<td>.06</td>
</tr>
</tbody>
</table>

*p < .05. ** $p < .01$. *** $p < .001$.  

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Pre-score mediation analyses (Preacher & Hayes, 2008) for all participants showed that work-specific psychological flexibility partially mediated the effects of emotional intelligence on work engagement, while positive affect fully mediated the effects of emotional intelligence on work engagement. The total effect of emotional intelligence on work engagement was significant, $B = .22$, $SE = .073$, $t(42) = 3.00$, 95% CI[0.07, 0.37], and the indirect effect of emotional intelligence on work engagement remained significant accounting for work-specific psychological flexibility as mediator (Figure 1), $B = .12$, $SE = .061$, $t(41) = 2.03$, 95% CI[0.00, 0.25]. The indirect effect of emotional intelligence on work engagement became non-significant accounting for positive affect as mediator (Figure 2), $B = .01$, $SE = .069$, $t(41) = 0.21$, 95% CI[-0.12, 0.15]. This provides concurrent data support suggesting that emotional intelligence potentially builds the individual strengths of psychological flexibility and positive affect, and ultimately promotes work engagement.

*Figure 5.1. Model showing path from emotional intelligence to work engagement through psychological flexibility as a mediator. $N = 44$. *$p < .05$, **$p < .01$, ***$p < .001$.*

The causation effect between variables was assessed using a sequential mediation analysis and change scores for all participants who were generally compliant with the training instructions (i.e., completed a minimum of 2 journal writing sessions). Experimental
condition was entered as the independent variable, emotional intelligence change as the first mediator followed by work-specific psychological flexibility change as the second mediator and work engagement as the dependent variable. The sequential mediation model did not reach significance, $B = 2.58$, $SE = 1.704$, $t(35) = 1.51$, 95% CI[-0.88, 6.03], $R^2 = .25$. Accordingly, the indirect effects of experimental condition on work engagement through emotional intelligence change and work-specific psychological flexibility change were not significant, $B = .03$, $SE = .100$, $t(33) = .29$, 95% CI[-0.18, 0.23] and $B = .24$, $SE = .233$, $t(33) = 1.04$, 95% CI[-0.23, 0.72], respectively. The sequential mediation analysis was repeated for the full sample with positive affect change replacing work-specific psychological flexibility as the second mediator. The analysis returned similar results with non-significant findings for the total model, $B = 2.43$, $SE = 1.445$, $t(42) = 1.68$, 95% CI[-0.49, 5.35], $R^2 = .25$, and indirect effect of experimental condition on work engagement though emotional intelligence and positive affect change, $B = .03$, $SE = .100$, $t(33) = .29$, 95% CI[-0.18, 0.23] and $B = .24$, $SE = .233$, $t(33) = 1.04$, 95% CI[-0.23, 0.72], respectively.

![Diagram](image)

*Figure 5.2.* Model showing path from emotional intelligence to work engagement through positive affect as a mediator. $N = 44$. *$p < .05$, **$p < .01$, ***$p < .001*. 

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5.4 Discussion

The present study examined the proposal that emotional intelligence supports workplace flourishing, partly through the development of further strengths that contribute to positive workplace outcomes. Psychological flexibility was assessed as a potential individual strength developed through emotional intelligence competencies that might facilitate workplace flourishing as indicated by increased work engagement. This study extends on the Schutte and Loi (2014) investigation of emotional intelligence as a foundation for workplace flourishing through administration of the Kirk et al. (2011) emotional intelligence intervention. The present study design extended the original investigation by addressing causation relationships, operationalising work engagement using an alternative measure to capture dimensions of vigour, dedication and absorption (UWES), and explored the influence of emotional intelligence training on the previously unassessed individual strength of psychological flexibility, as a potential mediating variable between emotional intelligence and work engagement.

The findings from the original Kirk et al. (2011) emotional intelligence training study and Schutte and Loi (2014) investigation of emotional intelligence as a source for workplace flourishing were largely confirmed. The emotional intelligence training intervention promoted increased emotional intelligence, positive affect, and work engagement, relative to controls. Increases to work engagement were demonstrated across dedication and absorption dimensions, extending previous research examining the influence of trait emotional intelligence on engagement as a one-dimensional construct (Akhtar et al., 2014). In addition, the intervention facilitated increased work-specific psychological flexibility for participants generally compliant with the training instructions. Results from the present study show that a
low-cost, self-administered, journal writing training program can be effective in promoting positive workplace characteristics.

Consistent with Kirk et al.’s (2011) finding, building confidence in emotional self-efficacy through expressive writing resulted in better emotional functioning; however, the intervention demonstrated a lower effect size in the present study (training accounted for 12% of the variance in post-test emotional intelligence scores versus 31% in the original efficacy study). This difference could reflect lower levels of compliance with the training instructions observed in the present study as well as individual difference features in the participant pool. Pre-training emotional intelligence means were higher in the present Australian public sector sample than the Kirk et al. (2011) study, and likely resulted in a ceiling effect preventing the training from stimulating as much change and ultimately limiting effect sizes and statistical significance. Future research should consider extending recruitment beyond Australian public sector agencies in order to access a greater participant pool for increased power as well as participants with more varied individual difference characteristics, which might improve training responsiveness and generalizability of findings.

The hypothesis that psychological flexibility would mediate the relationship between emotional intelligence and work engagement was partially supported. Higher employee emotional intelligence prior to intervention was significantly related to greater work-specific psychological flexibility and work engagement. Testing of the mediation model found that work-specific psychological flexibility partially mediated the relationship between emotional intelligence and work engagement as hypothesised at pre-test. Similarly, positive affect fully mediated the effects of emotional intelligence on work engagement, consistent with the broaden-and-build hypothesis (Fredrickson, 2001). However, both mediation models failed to reach significance when tested after the emotional intelligence training intervention using change scores for these variables. It is likely statistical power impacted the ability of the
change score mediation model to detect a significant result due to dropout and non-compliance with training instructions limiting the number of cases available for analysis. Further, the magnitude of the relationships between variables assessed through change scores appeared to be slightly lower than the magnitude suggested in the pre-intervention mediation model. This may imply that the relationship between emotional intelligence, work-specific psychological flexibility (and positive affect) and work engagement is strengthened when developing naturally over longer time frames as demonstrated in the pre-score mediation analyses. In contrast, a time-limited intervention may have a smaller effect size and therefore less chance of detecting significance in a similar size sample.

It is somewhat anomalous that the emotional intelligence training fostered work-specific psychological flexibility but not global psychological flexibility, particularly given previous findings that both the AAQ-II and WAAQ predict work engagement as operationalised by the UWES (Bond et al., 2013), which did increase. The additional context-sensitivity of the WAAQ may explain this finding coupled with limited power to detect changes in global AAQ-II. Further, the necessity to reverse-key the AAQ-II to derive a measure of psychological flexibility may be inherently flawed; the presence of inflexibility may not necessarily imply the presence of flexibility (e.g. Grossman, 2011). Given the WAAQ includes positively-worded items, this conceptual variation may explain the positive findings for the WAAQ and limited sensitivity of the AAQ-II for detecting increases in psychological flexibility. Alternatively, given the emotional training focus on work scenarios, it is possible that global psychological flexibility was not improved and broader emotional intelligence training interventions are required to facilitate this strength more generally. In fact, given the different focus of the training instructions (work in experimental and non-work in controls), the positive intervention effects on work-specific flexibility and workplace engagement may be attributable to writing about work rather than emotional processing.
Further, instructions to emotionally ‘process’ events in the experimental condition are inherently different from instructions to ‘describe’ events in the control condition. This semantic inconsistency could artificially inflate training effects considering that describing emotional content may not have the same benefits as emotional processing. Therefore, while this study partially supports a causative relationship from emotional intelligence as the foundation for building work-related psychological flexibility and engagement, more research is required to address these potential confounds and assess causation for the general psychological flexibility construct.

Changes in this instance are limited to the workplace and future research should extend these findings to clarify the relationship between emotional intelligence and characteristic psychological flexibility. Replicating this research in other applied settings will assist in establishing more causative links between these constructs, especially considering the context-dependent nature of psychological flexibility (Kashdan & Rottenberg, 2010). These findings highlight implications for measurement methods in research and practice. The improved sensitivity to treatment effects using a work-specific measure of psychological flexibility supports recent efforts to develop context-specific versions of the widely-used AAQ-II (e.g., Bond et al., 2013) and directs future research towards the development of more contextual measures. A static, global self-report measure such as the AAQ-II may not adequately capture nuanced changes in adaptive abilities and a range of measures appropriate to the setting may prove effective for future research approaches and assessment of clinical outcomes.

Future research might also consider varying the conceptualisations and measurement methods for the main variables to provide more support for the relationship between emotional intelligence and psychological flexibility. The present study conceptualised emotional intelligence using the trait approach and global scores. A greater sample size
enabling subscale analysis for specific domains of emotional intelligence competencies (e.g., optimism/mood regulation, emotional appraisal, social skills and utilisation of emotions; Petrides and Furnham, 2000) may be highly informative. Further research could approach study design from an ability perspective of emotional intelligence to assess the mediation relationships and intervention efficacy. Ability emotional intelligence has also been associated with positive work outcomes, such as job performance (O’Boyle et al., 2011), and research using ability models would complement trait findings from the present study to provide a more comprehensive understanding of the phenomena leading to workplace flourishing (Schutte et al., 2009).

Performance assessments more prevalent in the measurement of ability models may also address the common method variance limitation due to the present study’s reliance on self-report measures for all variables assessed. In particular, item content for the emotional intelligence and WAAQ self-report measures demonstrated some overlap; for example, “when I am faced with a challenge, I give up because I believe I will fail” and “I can work effectively, even when I doubt myself”, respectively (Schutte et al., 1998; Bond et al., 2013). Overlapping item content combined with self-report collection methods may have artificially inflated correlations. Constructs for emotional intelligence, psychological flexibility, and work outcomes are capable of assessment through performance proxies and observer ratings. Future research in this area might benefit from application of these varied approaches. In addition, lengthier follow up should be considered in future studies. Observed treatment effects for emotional intelligence, positive affect and work engagement in the present study were tested between 2-4 weeks following the training. Further research could test the sustainability and perseverance of observed training effects and ideal intervals for brief refresher training. However, designs involving protracted study timeframes need to be
balanced against the likelihood that control participants may become aware of condition assignment over lengthier periods.

The present study provides additional support that emotional intelligence is a foundation for workplace flourishing through the development of positive characteristics such as work-specific psychological flexibility. The practical implications of the study show that relatively brief, self-administered, training programs, that encourage reflection on the emotional content of work experiences through expressive writing, can effectively increase workplace strengths such as emotional intelligence and work-specific psychological flexibility, ultimately facilitating increased work engagement. From a positive psychology perspective, this finding describes an avenue for facilitating optimal employee functioning as well as fostering positive organisations that could benefit from greater employee engagement.
Chapter 6

Characteristic Emotional Intelligence Helps Maintain Positive Emotional States Which

Broaden Flexible Thinking
Abstract

Positive affect is theorised to broaden thought-action repertoires resulting in the accumulation of personal resources such as psychological flexibility. Emotional intelligence has been linked to positive affect regulation and may therefore promote broadening processes and associated skills acquirement. This study reports results from 107 participants, randomly allocated to positive, neutral and negative mood inductions using a combination of Velten statements and brief film clips. Participants in the positive condition demonstrated broadened cognitive repertoires as a performance proxy for psychological flexibility relative to a neutral state. Emotional intelligence was partially associated with positive affect maintenance and increased psychological flexibility. The authors discuss measurement implications for psychological flexibility and promising future research directions to further test the relationship between emotional intelligence, positive affect, and psychological flexibility.


6.1 Introduction

Emotions are momentary feelings that describe our subjective experiences and influence the way we think, act and respond physiologically to various situations (Reeve, 2009). Emotion theorists propose that emotional phenomena have an inherent adaptive value developed as an evolutionary mechanism for survival (e.g., Tooby & Cosmides, 1990; Fredrickson, 1998). For example, exposure to aversive situations culminates in the experience of negative emotions, such as anger and fear. These emotions stimulate changes in thoughts, actions and physiology, priming the individual to access a narrowed repertoire of action tendencies (Fredrickson, 2001). In these circumstances, specific action tendencies primarily consist of flight or flight responses which were crucial to survival. Negative emotion, therefore, coordinates the necessary psychological and physical (e.g., increased adrenaline) changes, promoting behavioural efficiency and effectiveness.

The evolutionary value of negative emotions is relatively explicit compared to the amorphous adaptive value of positive emotions, which are not generally associated with specific action tendencies (Fredrickson & Branigan, 2005). However, Fredrickson’s (1998; 2001) broaden-and-build theory proposes that positive emotions have an adaptive value that is complementary to negative emotion, and tangibly different in form. Positive emotions, such as amusement and contentment, experienced in non-threatening situations, broaden instead of narrow thought-action repertoires. These nonspecific action tendencies result in the accumulation of enduring physical, social, intellectual and psychological resources (Fredrickson, 1998). For example, the momentary positive emotion of joy may lead to play, building physical skills and strengths as a resource against future threats. In a more contemporary example, play or engaging and enjoying the company of others, develops social networks, ensuring greater levels of social support are available when required (Lee, 1983). One personal resource potentially fostered in this way is psychological flexibility.
6.1.1 Expanding Psychological Flexibility through Positive Affect

Psychological flexibility involves the ability to “recognize and adapt to various situational demands [and] shift mindsets or behavioural repertoires” (Kashdan & Rottenberg, 2010, p.865). High levels of psychological flexibility are considered a fundamental aspect of health and contribute to numerous positive outcomes such as improved coping skills and less depression and anxiety (Kashdan & Rottenberg, 2010). Two studies testing the broaden-and-build hypothesis examined the influence of emotions on the scope of attention and cognitive and behavioural (thought-action) repertoires, indicators of psychological flexibility (Fredrickson & Branigan, 2005). These studies demonstrate how positive affect could contribute to psychological flexibility as a personal resource.

Emotions influence the scope of attention; biases in attentional focus are introduced depending on the valence of emotional content (Derryberry & Tucker, 1994). Fredrickson and Branigan (2005) experimentally tested the influence of positive and negative emotions on attentional biases using a global-local visual processing task (Kimichi & Palmer, 1982). Following positive, neutral or negative mood induction using brief film clips, participants were presented with a series of standard figures and asked to select their impression of the most similar comparison figure from two options reflecting either local shape elements or global configurations. Global bias scores were significantly greater in the positive condition compared with neutral, indicating broadened attentional focus associated with positive emotional states.

In the same experiment, Fredrickson and Branigan (2005) examined whether positive emotions broaden the scope of thought-action repertoires relative to typical or neutral emotional states. The researchers administered a Twenty Statements Test (TST; Kuhn & McPartland, 1954) instructing participants to focus on the strongest emotion elicited during
the mood induction film and visualise a situation in which they experience that emotion to its full extent. Participants were provided with 20 blank lines and asked to construct a list describing all the present action urges flowing from that emotional experience (Fredrickson & Branigan, 2005). Positive affect significantly broadened thought-action repertoire size compared to neutral emotionality.

Combined, the broadened scope of attention and thought-action repertoires engendered through the experience of positive emotion may benefit momentary adaptive functioning and could build psychological flexibility as a personal resource. Fredrickson and Branigan’s (2005) studies show that a global bias due to the experience of positive affectivity may allow individuals to direct attentional resources where required, seeing past the finite details of a situation to gain a broader assessment of the circumstances. After facilitating recognition of situational demands, positive affect promotes a broader repertoire of behavioural affordances from which to select the most appropriate and adaptive response (Fredrickson & Branigan, 2005). In this way, positive affect may contribute to key features of psychological flexibility.

Studies examining the broadening effects of positive affect support the theory that it underlies psychologically flexible behaviours and cognitions, impacting adaptive functioning and situational outcomes. Positive affect expands cognitive organisation, facilitating consideration of creative options that may prove more adaptive and functional in the circumstances (Isen, Johnson, Mertz & Robinson, 1985). For example, medical practitioners consider wider arrays of diagnostic possibilities when experiencing positive emotion, contributing to decision-making efficiency and quality (Estrada, Isen & Young, 1997). Further, people in positive moods are more likely to openly consider arguments and arrive at mutually beneficial bargaining solutions in business negotiations compared with people in neutral states (Carnevale & Isen, 1986). The culmination of this research suggests that
positive affect supports broadened and flexible use of both cognitive and behavioural (thought-action) repertoires, manifesting as increased psychological flexibility. This is consistent with a comprehensive review of psychological flexibility, which concluded that positive emotional states facilitate flexible thinking and behaviour (Kashdan & Rottenberg, 2010). Consequently, the frequent or characteristic experience of positive affect may build psychological flexibility as an enduring personal resource.

6.1.2 Emotional Intelligence as a Foundation for Positive Affect and Psychological Flexibility

Considering that positive affect may build personal resources such as psychological flexibility, emotion regulation abilities enabling individuals to derive greater levels of positive emotion from a variety of situations may facilitate exponential growth. Emotional intelligence is adaptive emotional functioning associated with the characteristic experience and regulation of positive mood (Schutte, Malouff, Simunek, McKenly & Hollander, 2002). In this way, emotionally intelligent individuals may possess an evolutionary advantage in terms of the resources acquired through broaden and build processes. Schutte et al. (2002) posited that emotional intelligence facilitates recognition, understanding and regulation of emotions to the extent that individuals with high emotional intelligence can resist negative environmental influences and maximise the effects of positive situational influences. Studies examining both ability and trait models of emotional intelligence in relation to emotion regulation support this proposition.

Ciarrochi, Chan and Caputi (2000) administered an ability test of emotional intelligence prior to positive, neutral, and negative mood induction using film clips. Individuals with high emotional intelligence reported higher mood levels following the
positive (humorous) film than individuals with low emotional intelligence. Schutte et al. (2002) replicated these findings using a trait conceptualisation of emotional intelligence. High trait emotional intelligence was associated with greater characteristic positive affect as well as transient state positive affect. Further, trait emotional intelligence predicted positive affect after mood manipulation using Velten statements (Velten, 1968). Participants with high emotional intelligence maintained levels of positive affect following a negative induction and gained greater levels of positive affect when subsequently exposed to a positive induction compared to individuals with low emotional intelligence (Schutte et al., 2002).

These studies support the notion that individuals with high emotional intelligence are sensitive to positive environmental stimuli and can capitalise on the mood-enhancing benefits of positive experiences. Further, these individuals appear to be less vulnerable to negative stimuli, maintaining positive affect when exposed to aversive influences. Accordingly, emotionally intelligent individuals may experience more positive affect and thereby develop greater psychological flexibility as a personal resource to draw upon as needed in a variety of situations.

6.1.3 Evidence of the Relationship between Emotional Intelligence, Positive Affect and Psychological Flexibility

Emotional intelligence, positive affect and psychological flexibility may be intricately interrelated. Emotional intelligence potentially provides a foundation for the development of psychological flexibility through the ability to regulate positive affect. This is an important relationship given the relevance of psychological flexibility to health (Kashdan & Rottenberg, 2010). Previous research has examined the relationships between these variables in different applied contexts in an attempt to assess the causative roles. For example, in a decision study
manipulating choice changeability, positive affect mediated the effects of emotional intelligence on psychological flexibility, which in turn mitigated ruminative outcomes (Foster, Pammer, Schutte, & Brinker, 2016a). While this offers compelling support, emotional intelligence interventions and mood manipulations provide the most direct means of testing the potential causal relationships between emotional intelligence, positive affect and psychological flexibility.

A study investigating the effects of an emotional intelligence intervention on workplace outcomes provided partial support for the connection between emotional intelligence, positive affect and psychological flexibility (Foster, Schutte, & Pammer, 2016b). Concurrent data collected prior to the intervention showed that emotional intelligence significantly predicted work-specific psychological flexibility mediated by positive affect. Furthermore, individuals in the emotional training condition reported significantly more work-specific psychological flexibility following the intervention than control participants. However, the meditational role of positive affect between emotional intelligence and work-specific psychological flexibility was not confirmed in a sequential mediation analysis building in the intervention effects. The authors of the study concluded that the magnitude of the relationship between emotional intelligence, positive affect and work-specific psychological flexibility may be strengthened when developing naturally over longer time frames in comparison to a time-limited intervention. Consequently, the study offered equivocal support for meditational role of positive affect between emotional intelligence and psychological flexibility and additional research examining the influence of positive affect is warranted.

The workplace emotional intelligence study, comprising Chapter 5, raised further implications regarding the measurement of psychological flexibility. While the training intervention was effective at increasing work-specific psychological flexibility, no changes
were noted for general psychological flexibility operationalized as the widely-used Acceptance and Action Questionnaire (AAQ-II). The discussion suggested that this traditional measure of characteristic psychological flexibility may not be sensitive to treatment effects and highlighted the need for future research comparing the self-report AAQ-II measure against performance proxies of psychological flexibility. Mood induction offers a valuable method for comparing the efficacy of psychological flexibility measures given wide support for the effects of positive affect on flexible thinking and behaviour (e.g., Kashdan & Rottenberg, 2010). Valid measures of psychological flexibility should be sensitive to significant changes in positive affect.

Research in the area of cognitive broadening and flexible categorisation offers performance analogues for psychological flexibility. Greene and Noice (1988) induced positive affect in adolescents prior to a word generation task. The mean number of words and unusualness of word associations generated in the positive induction condition was significantly greater than in the neutral induction condition. This task offers a convenient test of the broadening hypothesis as well as a performance proxy for psychological flexibility as an indicator of expanded cognitive repertoires and flexible categorisation. Including a trait measure of emotional intelligence in conjunction with a mood manipulation procedure and assessment of psychological flexibility may further assist in clarifying the purported relationship between emotional intelligence, positive affect and psychological flexibility.

The present study will combine mood induction and measurement methods from the Fredrickson and Branigan (2005) and Schutte et al. (2002) studies, utilising film clips and Velten statements to induce mood in three randomly assigned groups: positive, neutral and negative. This addresses a limitation in the original Schutte et al. (2002) study which did not counterbalance mood manipulations (negative was always applied before positive) or provide a neutral condition aside from baseline measurements. Accordingly, the positive induction
could have operated as a mood repair rather than mood enhancer and may be confounded by passage of time effects resulting in a return to baseline. This creates ambiguous results for the purposes of testing the broadening hypothesis. The inclusion of a trait emotional intelligence measure and performance proxy for psychological flexibility (word generation) alongside the traditional measure (AAQ-II) in the present study should assist in more rigorous examination of the relationship between emotional intelligence, positive affect and psychological flexibility. The hypotheses are:

1. Word generation will be greater following a positive mood induction relative to a neutral condition, reflecting broadened psychological flexibility.
2. Word generation will be lower in the negative induction condition relative to neutral, reflecting narrowed psychological flexibility.
3. High emotional intelligence will be related to greater state positive affect prior to induction across all conditions.
4. Higher emotional intelligence will be associated with a greater increase in positive affect after a positive mood induction, controlling for prior levels.
5. High emotional intelligence will be associated with less of a decrease in positive affect after a negative mood induction, controlling for pre-existing positive affect.
6. Higher emotional intelligence will be associated with increased word generation.
7. Psychological flexibility as measured by the AAQ-II will not differ between positive, neutral and negative mood induction conditions.
8. Rumination will be inversely related to psychological flexibility and emotional intelligence in the positive condition.
6.2 Methods

6.2.1 Participants

First and second year psychology students self-selected to participate in the study for receipt of course credit incentive through the university online research gateway. Close examination of the dataset as collection progressed revealed data quality concerns, instigating a second recruitment round seeking community participants. Community members were recruited through social media advertising and snowball sampling. Of 195 students and community participants who started the survey, complete responses were recorded for 178 cases, suggesting 8.7% dropout. The 17 incomplete cases and 1 self-identified dummy response were deleted, leaving 177 cases in the dataset. An additional 70 cases were removed following the application of stringent data validation procedures outlined further in the results section. Participant attributes described in this section relate to the final data set with all suspect cases deleted.

The final study sample consisted of 107 participants. The sample comprised 91 students and 16 community members, representing 81 women and 26 men. The age of these individuals ranged from 18 to 78 years, with an average of 23.04 years ($SD = 10.37$). Reflecting the young demographic, the majority of participants held secondary school certificates as the highest qualification; 57.0% school certificate, 1.9% technical college diploma, 30.8% bachelor degree, 6.5% graduate certificate, and 3.7% graduate or doctorate degree. Ten participants (9.3%) identified with having a non-English speaking background (NESB).
6.2.2 Materials

6.2.2.1 Emotion Measures.

*Emotional Intelligence Scale.* Schutte et al. (1998) developed this 33-item self-report scale to measure characteristic emotional intelligence, operationalised as the trait ability to identify, understand, regulate and harness emotions in the self and others. Participants rate their abilities against a 5-point Likert-type scale from 1 (*Strongly disagree*) to 5 (*Strongly agree*), with total scores ranging from 33 to 165. Sample statements include “When I experience a positive emotion, I know how to make it last” and “When I am in a positive mood, I am able to come up with new ideas”. The scale demonstrated strong internal reliability in the present study with Cronbach’s alpha of .87, consistent with the mean alpha reported across diverse samples (Schutte, Malouff, & Bhullar, 2009). The Emotional intelligence scale has demonstrated convergent validity with alternative self-report and performance measures of emotional intelligence (Brackett & Mayer, 2003), as well as theoretically related constructs such as mood repair and emotional clarity (Bastian, Burns & Nettelbeck, 2005).

*Positive and Negative Affect Schedule (PANAS).* The PANAS comprises two 10-item mood scales, depicting positive and negative emotional states (Watson, Clark & Tellegen, 1988). Negative affect scale items reflect a variety of aversive mood states such as “hostile” and “afraid”, while positive affect items denote pleasurable engagement, including feeling “enthusiastic” and “interested”. Respondents report the extent of each emotional experience from 1 (*Very slightly or not at all*) to 5 (*Extremely*), in reference to relational time frame instructions. Validated time frame instructions range from the present moment (state) to more general characteristic (trait) affect. The present study instructed participants to indicate how
they are feeling “right now, that is, at the present moment” to capture momentary state affective changes as a function of the mood manipulation. In the original psychometric analysis, the internal reliability for administration of the present moment time instructions ranged from Cronbach’s alpha of .85 for the negative affect subscale to .89 for positive affect (Watson et al., 1988). For the present study, both scales demonstrated strong reliability; positive affect $\alpha = .93$ (pre-test) and .94 (post-test), negative affect $\alpha = .88$ (pre-test) and .92 (post-test). As an indicator of external validity, measures of anxiety, depression and psychological distress have been significantly positively correlated with the negative affect subscale and negatively correlated, at lower magnitudes, with positive affect (Watson et al., 1988; Crawford & Henry, 2004).

6.2.2.2 Mood Manipulation.

*Velten statements.* Modified sets of Velten’s (1968) original mood induction statements were used to evoke positive, neutral and negative emotions. Participants assigned to each condition were asked to experience the mood associated with the relevant list of statements. The list of 52 statements (comprising 17, 16 and 19 statements for the positive, neutral and negative conditions, respectively) was sourced from work evaluating the efficacy of Velten’s original statements against valence and arousal ratings (Jennings, McGinnis, Lovejoy & Stirling, 2000) using a Self Assessment Manikin rating scale (Lang, Bradley, & Cuthbert, 1999). Statements demonstrating strong reliability and validity features consistent with Velten’s original valence designations were retained in the modified lists.

*Film Clips.* In addition to the Velten statements, brief excerpts from movie segments freely available on youtube were used to create three mood induction clips. One clip “Singing” (1 min 30 sec), intended to evoke positive emotion, shows part of a singing and
dancing comedy routine from the feature film ‘Singing in the Rain’. A travel documentary for an Alaskan nature park describing the Denali mountain range and surrounding area, “Nature” (1 min 11 sec), served as the neutral manipulation. The final clip “Network” (1 min 18 sec) shows an anchorman expressing intense negative emotion, primarily anger, in response to prevailing social conditions. The Singing and Network clips demonstrated efficacy in eliciting the desired emotional state during pilot testing, while the Nature clip had been used in prior dissertation research as a neutral induction (e.g., Desnoyers, 2013).

6.2.2.3 Dependent Measures.

Acceptance and Action Questionnaire-Revised (AAQ-II; Bond et al., 2011). The AAQ-II is a widely used 7-item self-report scale measuring characteristic psychological flexibility. Sample items include “emotions cause problems in my life” and “worries get in the way of my success”. Respondents rate the self-descriptive accuracy of statements from 1 (Never true) to 7 (Always true). Items are reverse scored so that higher scores indicate general psychological flexibility. In the present study, Cronbach’s alpha was .87 following the mood induction procedure across all participants. Validation demonstrated that lower flexibility correlated with higher levels of emotional distress and poorer life functioning (Bond et al., 2011).

Word-generation task (Greene & Noice, 1988). A word generation task measured cognitive flexibility, or broadened and creative thinking, as a performance indicator for psychological flexibility (Greene & Noice, 1988; Rosent, 1980). Participants were asked to generate words relating to two categories: fruits and birds (Greene & Noice, 1988). The online form presented 20 text-entry boxes underneath each category, allowing a maximum of 40 words to be generated. Participants were allowed three minutes to complete the task.
before the page automatically submitted. Pilot testing showed that three minutes was sufficient time for slow typists to exhaust word generation options and the maximum range of 40 word options did not create a ceiling effect. Instructions for the task were presented prior to the categories and timed responses to ensure differential reading times did not confound results. This task provides a crude estimate of expanded cognitive repertoires and flexible thinking that requires less intensive administration and scoring procedures than remote associates testing (Mednick & Mednick, 1967), frequency scoring of category norms (e.g., Battig & Montague, 1969), or content analysis of thought-action repertoires (e.g., TST; Kuhn & McPartland, 1954). Mean differences for word generation in previous samples administering this task were significant between positive and neutral induction conditions (Greene & Noice, 1988).

*Ruminative Thought Styles Questionnaire (RTSQ; Brinker & Dozois, 2009).* The 20-item RTSQ assessed ruminative tendencies defined as repetitive, recurrent, intrusive and uncontrollable thinking regardless of content, valence, temporal orientation, or reason for engaging in the behaviour. Participants rate how well items describe their thinking from 1 (Not at all like me) to 7 (Just like me). Sample items include “If there is an important event coming up, I think about it so much that I work myself up” and “I find myself daydreaming about things I wish I had done”. Convergent validity is supported by the Beck Depression Inventory and Automatic Thoughts Questionnaire (Brinker & Dozois, 2009). Scale reliability in the present study was $\alpha = .92$.

**6.2.2.4 Controlling for Potential Confounds.**

*Shipley Institute of Living Scale (Shipley, 1940).* The Shipley scale is a measure of cognitive function and verbal ability; a probable contributor to success on word generation
tasks. Participants are presented with a list of 40 words and requested to select the most appropriate synonym from four possibilities grouped against each word. For example, four possible answers for the word *talk* include *draw*, *eat*, *speak* and *sleep*; *speak* represents the most appropriate synonym. This scale provides an additional check to ensure individual differences in verbal ability are not confounding findings between conditions.

*Verbal working memory.* Individual differences in semantic capacity could influence the number of words generated on the performance task. A measure of verbal recall was included to confirm that random group differences in working memory are not confounding mood induction results. Participants had 1 minute to read a list of 12 words and were prompted to recall those words later in the survey.

### 6.2.3 Procedure

Participants completed the emotional intelligence measure and a state version of the PANAS, indicating the extent to which they felt each positive and negative emotion at the present moment. The Qualtrics software then applied a randomizer assigning participants to positive, neutral and negative mood induction conditions. For each condition, participants were presented with the set of Velten statements prior to the brief film clip. Immediately following the mood induction procedure, participants completed a second state PANAS measure before undertaking the word generation task and psychological flexibility self-report survey. The presentation for these two measures of psychological flexibility was randomized to counterbalance any order effects. Participants were also requested to select their general typing speed (split by slow, medium and fast categories) and identify if from a non-English speaking background (NESB). Typing speed and English proficiency could potentially influence success on the word generation task and confound results. Finally, participants
completed the verbal memory task, Shipley cognitive function test and responded to the ruminative thought tendencies scale. Participants assigned to the negative mood induction were presented with the positive induction for mood repair on completion of the study. A second collection round followed the same procedure, targeting community participants and excluding the film clips from the mood induction protocols due to observed participant non-compliance with the film component of the induction procedure.

6.3 Results

6.3.1 Data Validation

An embedded data element indicated whether participants clicked play when presented with the mood induction clip. Of 177 individuals who completed the study, only 63 clicked one or more times on the video presentation screen, suggesting that 114 participants did not view the brief film clip or encountered technical access difficulties with the youtube links. Participants were instructed to attempt the survey on a desktop computer with youtube-enabled settings and speaker hardware. Testing the clips during survey design supported compatibility with these peripherals on various systems. However, given the psychology student demographic, it is possible that many participants attempted access on unsupported smart devices or were noncompliant with induction protocols to ensure quick completion of research credit requirements without meaningful engagement with the study. As this became apparent, the second data collection round was organised recruiting community members and relying solely on the Velten instructions to improve comparability of data and quality. However, community recruitment had limited success. Accordingly, extensive data validation was undertaken using established objective indices of suspect responding.
Descriptive statistics for mean scores and standard deviations on the main measures were run separately for each condition. Outliers, identified as three times the standard deviation from the mean, were removed from the dataset. Scatterplot analysis assisted in further identification and removal of outliers. Shipley scores of less than 20 out of 40 (i.e., lower than 50% comprehension of assessed English word definitions) were removed; some individuals performed worse than chance on this multiple choice measure of crystallised English proficiency, indicating random responding. Maximum string lengths for matching responses were applied to the main measures; cases with identical responses entered across all test items for a single measure were removed. Likewise, consistent endorsement of extreme responses were identified and deleted.

The verbal working memory task provided another data check, with cases demonstrating recalls of less than four words, or false recollection of more than three words, deleted from the dataset. In addition, responses were deleted where unrelated words were input for the word generation task (e.g., “dinosaur” as a response for the bird category), or less than four words were entered for either category (fruits or birds). Many of the deleted cases simultaneously failed multiple indices of suspect reporting. The present doctoral thesis outlines data validation treatment in more detail at Appendix E, with deleted cases identified alongside reasons for removal. In total, 70 complete cases were deleted from the original 177 responses (comprising 24, 19 and 27 cases from the positive, neutral and negative state inductions, respectively); the final dataset consisted of 107 responses.

6.3.2 Manipulation Check

Manipulation checks were undertaken to confirm that the three induction conditions influenced state affect. Repeated measures ANOVAs, using within-subject pre- and post-
variables for positive and negative affect, assessed the induction efficacy within each condition. For the positive induction, there was a significant increase in positive affect and decrease in negative affect, $F(1, 38) = 10.63, p < .01$, partial $\eta^2 = .22$ and $F(1, 38) = 19.52, p < .001$, partial $\eta^2 = .34$, respectively. The negative induction showed significant increases in negative affect with no significant changes in positive affect, $F(1, 34) = 7.28, p = .01$, partial $\eta^2 = .18$ and $F(1, 34) = 1.08, p = .31$, respectively. Both positive and negative affect significantly regressed in the neutral condition, $F(1, 32) = 6.98, p = .01$, partial $\eta^2 = .18$ and $F(1,32) = 13.25, p < .001$, partial $\eta^2 = .29$, respectively. Table 5.1 shows the mean scores for positive and negative affect before and after the induction procedure for each condition.

Table 6.1

Mean Scores on Positive Affect and Negative Affect Before and After Positive, Neutral and Negative State Inductions

<table>
<thead>
<tr>
<th>Condition</th>
<th>n</th>
<th>Before Induction</th>
<th>After Induction</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Mean</td>
<td>SD</td>
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<tr>
<td>Positive Affect</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neutral induction</td>
<td>33</td>
<td>24.00</td>
<td>7.48</td>
</tr>
<tr>
<td>Negative induction</td>
<td>35</td>
<td>30.63</td>
<td>8.82</td>
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<tr>
<td>Negative Affect</td>
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</tr>
<tr>
<td>Positive induction</td>
<td>39</td>
<td>14.46</td>
<td>4.27</td>
</tr>
<tr>
<td>Neutral induction</td>
<td>33</td>
<td>15.21</td>
<td>6.38</td>
</tr>
<tr>
<td>Negative induction</td>
<td>35</td>
<td>16.57</td>
<td>6.70</td>
</tr>
</tbody>
</table>
A 3 x 2 x 2 ANOVA (Induction Condition x Gender x NESB) evaluated group differences on positive and negative affect change. State affective changes were significant between induction conditions for positive and negative affect; $F(2, 98) = 3.97, p = .02, \eta^2 = .08$ and $F(2, 98) = 21.74, p < .001, \eta^2 = .31$, respectively. Pairwise comparisons among the three induction conditions using the Tukey HSD procedure to control for Type 1 error, showed that positive affect change in the positive condition was significantly greater than the neutral condition (mean difference = 5.46, $SD = 1.47, p < .01, 95\% CI [1.95, 8.96]$), but not significantly different from the negative condition (mean difference = 3.35, $SE = 1.45, p = .06, 95\% CI [-1.10, 6.80]$). Negative affect change in the negative induction condition was significantly greater than both neutral and positive induction conditions (mean difference = 5.67, $SE = 1.03, p < .001, 95\% CI [3.23, 8.12]$ and mean difference = 4.44, $SE = 0.98, p < .001, 95\% CI [2.08, 6.77]$, respectively). The ANOVA indicated no significant main effects for gender or NESB on either positive or negative affect change and there were no significant interactions between factors.

6.3.3 Main Analyses

The mean number of words generated overall was 28.83 ($SD = 7.14$). Group differences in word generation were tested using a 3 x 2 x 2 ANOVA (Induction Condition x Gender x NESB). The induction condition was the only significant main effect, $F(2, 98) = 11.73, p < .001, \eta^2 = .19$. Figure 5.1 shows the mean number of words generated for each mood induction condition. The largest mean number of words generated followed the positive mood induction condition. Post hoc analyses using Tukey HSD confirmed that word generation in the positive condition was significantly larger than the neutral condition (mean difference = 4.11, $SE = 1.51, p = .02, 95\% CI [0.54, 7.68]$), supporting the hypothesis that
positive affect broadens cognitive repertoires and flexible categorisation. In addition, the mean number of words generated in the negative condition was significantly lower than both positive and neutral conditions (mean difference = -8.00, \(SE = 1.48, p < .001, 95\% \text{ CI } [-11.52, -4.49]\) and mean difference = -3.89, \(SE = 1.55, p = .04, 95\% \text{ CI } [-7.55, -0.23]\), respectively), supporting the narrowing effect of negative affect on cognitive repertoires.

![Figure 6.1](image_url)

*Figure 6.1. Word generation means by mood induction condition.*

Results do not appear to be confounded by typing speed, English comprehension or semantic capacity. Across all participants, 9 individuals identified as slow typists, 71 as medium and 27 as fast. Word generation means did not differ by slow, medium and fast typing speeds, \(F(2, 104) = .06, p = .94\) (\(M = 28.78, SD = 8.61, M = 28.68, SD = 6.82, M = 29.26, SD = 7.73\), respectively). Although Shipley total scores were significantly positively associated with word generation across all participants, \(r(107) = .32, p < .01\), Shipley mean
scores did not differ significantly between groups, \( F(2, 104) = 2.97, p = .06 \), providing further support for emotion as the mechanism of broadening effects rather than any group differences on knowledge of English word definitions. Likewise, although verbal working memory was significantly correlated with word generation totals overall, \( r(107) = .30, p < .01 \), mean scores for semantic capacity did not differ between groups, \( F(2, 104) = 1.93, p = .15 \). In addition, crosstabs showed that participant educational attainment did not significantly differ across conditions, \( \chi^2 = 8.86, p = .35 \).

The average emotional intelligence score across all participants was 125.45, \( SD = 12.08 \), and ranged from a minimum of 92 to a maximum of 153. Emotional intelligence did not differ significantly between groups: \( F(2, 104) = 1.11, p = .33 \). As anticipated, higher emotional intelligence was associated with significantly more positive affect prior to induction across positive, neutral and negative conditions, although the magnitude of the correlations varied slightly, \( r(39) = .58, p < .001, r(33) = .48, p < .01, r(35) = .35, p = .04 \), respectively.

Partial correlations were used to test the association between emotional intelligence and changes in positive affect with prior levels (i.e. before induction) of state positive affect held constant. Higher emotional intelligence measured before the positive mood induction was not associated with greater increases in positive affect as hypothesised, \( r(36) = .05, p = .76 \). Likewise, higher emotional intelligence measured before the negative mood induction was not associated with less decrease in positive affect as hypothesised, \( r(32) = -.06, p = .74 \). The induction efficacy for these two conditions is of much lower magnitude than found in the original study (Schutte et al., 2002) and may not provide enough scope for the influence of emotional intelligence on positive affect maintenance to be detected. Given greater decreases in positive affect observed for the neutral condition, presumably due to regression towards the mean, this data may provide greater sensitivity in detecting the influence of emotional
intelligence on positive affect maintenance than the other conditions. Therefore, further supplementary analyses were conducted using neutral data. Higher emotional intelligence measured before the neutral induction was significantly associated with less decrease in positive affect, $r(30) = .39, p = .02$. The strength of this association almost perfectly replicates the original findings relating to the negative induction, in which positive affect was similarly decreased (Schutte et al., 2002).

Emotional intelligence is theorised to be associated with psychological flexibility through the primary mechanism of positive affect. Given the influence of emotional intelligence on changes in positive affect was not detected in the positive and negative conditions, it is unsurprising that higher emotional intelligence was not associated with greater word generation in these conditions as hypothesised, $r(39) = .09, p = .59$ and $r(35) = -.31, p = .07$, respectively. However, higher emotional intelligence was associated with significantly greater word generation in the neutral condition, $r(33) = .43, p = .01$, where its influence on positive affect was supported. This partially supports the hypothesis that high emotional intelligence fosters positive affect maintenance and contributes to greater psychological flexibility as indicated by word generation.

The average overall score for psychological flexibility, as measured by the AAQ-II, was 31.25 ($SD = 7.07$) and ranged from a minimum of 11 to a maximum of 46. Group differences in psychological flexibility were tested using the same procedure as word generation; a 3 x 2 x 2 ANOVA (Induction Condition x Gender x NESB). The ANOVA indicated no significant main effects or interaction for any group differences, $F(2, 98) = 1.20, p = .31$. Figure 5.2 shows the mean psychological flexibility score measured after each mood induction condition. These findings support the hypothesis that characteristic psychological flexibility as measured by the AAQ-II would not be sensitive to changes as a result of the mood induction, even though positive affect is widely theorised to be a building block for
psychological flexibility. Further, psychological flexibility was not associated with word
generation in any of the mood induction conditions.

Figure 6.2. Psychological flexibility means by mood induction condition.

Emotional intelligence demonstrated a significant inverse relationship with
rumination in the positive induction condition, \( r(39) = .42, p < .01 \). This would be
anticipated if emotional intelligence influenced positive affect gains to enhance psychological
flexibility, in turn minimising ruminative tendencies as extrapolated from previous studies
(Foster et al., 2016). However, this result is somewhat unusual given the finding that
emotional intelligence did not predict positive affect change in this particular condition.
Regardless, emotional intelligence was strongly correlated with characteristic psychological
flexibility, \( r(39) = .45, p < .01 \), which was inversely associated with rumination, \( r(39) = -.54, \).
\( p < .001 \), providing partial support for the theory that emotional intelligence may enhance positive outcomes through the frequent experience of positive affect over longer timeframes.

\[ 6.4 \text{ Discussion} \]

This study showed that positive affect broadens semantic access and creative thinking on a word generation task, expanding cognitive flexibility and categorisation as indicators of enhanced psychological flexibility. The corollary hypothesis, that word generation would be lower in the negative induction condition, was also supported. These effects were demonstrated relative to neutral states, providing robust support for both broadening and narrowing in cognitive processes as a consequence of positive and negative emotional experience. Partial support was also provided for the influence of emotional intelligence on positive affect maintenance and enhanced performance on the psychological flexibility task. The study further revealed some limitations in the traditional measure of characteristic psychological flexibility depending on the research purposes.

\[ 6.4.1 \text{ The Contribution of Affective States to Psychological Flexibility} \]

These findings confirm Fredrickson’s (2005) broaden-and-build hypothesis and are consistent with previous research examining the effects of positive affect on cognition. In the Green and Noice (1987) word generation study, positive affect increased activation of semantic networks, resulting in the generation of more exemplars to the presented categories. The magnitude of the mean difference between the number of words generated in the positive and neutral conditions was larger in the original study compared to the present study (13.4 and 4.1 words, respectively). It is possible the induction procedure was less effective in the
present study, contributing to smaller effect sizes on the dependent word generation measure; however, no data were reported for mood manipulation checks in the original study to confirm this assumption. Despite the small effect size in the present study, the finding was significant and underscores the pervasiveness of broadening processes even at low levels of positive affect.

The present study extends the original Greene and Noice (1987) findings through inclusion of a negative induction condition. This enabled testing of Fredrickson’s (2005) corollary narrowing hypothesis. Individuals in the negative induction condition demonstrated lower word generation means relative to the neutral condition on the psychological flexibility performance task, confirming a narrowed semantic repertoire. The narrowing hypothesis tends to yield less consistent and marginal findings compared with the broadening hypothesis (e.g., Fredrickson & Branigan, 2005). Narrowing processes may be specific, affecting limited cognitive or behavioural domains, with the particular negative emotion experienced dictating the effects. This interpretation acknowledges that negative emotion mobilises specific action tendencies and explains why some studies do not detect narrowing processes following negative inductions targeting particular emotions or measurement methods. It further highlights that the Greene & Noice (1987) word generation task offers a simple and sensitive test for use in future studies examining narrowing processes.

6.4.2 The Influence of Trait Emotional Intelligence on Positive Affect

High emotional intelligence was associated with greater state positive affect prior to induction across all conditions (supporting Hypothesis 3). However, it was not associated with enhanced positive affect following the positive mood induction, controlling for prior emotional levels (Hypothesis 4 not supported). This finding can be interpreted in two ways.
In the original Schutte et al. (2002) study, the positive induction always followed a negative manipulation. Accordingly, trait emotional intelligence may have facilitated mood returning to baseline levels as opposed to genuine mood increases as a result of the positive manipulation. This explanation is particularly persuasive considering that positive affect scores following the positive induction were similar to baseline levels in that study. Combined with the findings from the present study, this implies that emotional intelligence may be critical to mood repair but does not improve sensitivity to positive environmental stimuli.

The alternative explanation is that the positive induction efficacy did not reach the threshold required to detect an existing relationship between trait emotional intelligence and positive affect gains. In the present study, the positive induction condition demonstrated smaller increases on the equivalent measure of positive affect than observed in the original Schutte et al. (2002) study following a Velten-only mood manipulation. This means that emotional intelligence possibly facilitates mood gains in broadening conditions and future studies should examine this relationship through administration of more efficacious mood protocols. Considering student participant noncompliance with viewing instructions for the film clips, administration of Velten-only manipulations in a non-student sample may improve the induction efficacy. However, any replications restricting mood manipulations should balance the limitations of Velten statements against other methods. The intent of mood induction statements is relatively self-evident and may be susceptible to social desirability factors or hypothesis guessing (Jennings et al., 2000). Further, Velten statements have been more effective at inducing negative states as opposed to positive states (Gerrards-Hesse et al., 1994) and may therefore demonstrate limited utility in testing broadening effects associated with positive affect. Alternatively, positive psychology literature presents a valuable resource for empirically tested interventions to increase positive affect. For example, gratitude journals
(Seligman, 2005) may provide an opportunity to further test the influence of emotional intelligence on positive affect gains and changes in psychological flexibility across longer intervention timeframes. Considering that the broaden-and-build hypothesis operates as an upward spiral towards enduring personal resources, manipulations spanning prolonged periods may be more informative and effective at detecting hypothesised relationships.

While high emotional intelligence was not associated with positive affect maintenance in the negative condition, it did predict positive affect maintenance in the neutral condition. This result is explicable; there was no decrease in positive affect during the negative induction to delineate the differential effects of emotional intelligence on affect maintenance. Positive affect unexpectedly decreased at substantially greater levels in the neutral condition, presumably due to regression, providing individuals with high emotional intelligence the opportunity to demonstrate positive emotion regulation abilities in this condition. This finding provides partial support for Hypothesis 5; emotional intelligence did facilitate positive affect maintenance in a condition where positive affect significantly decreased. While this effect was anticipated in the negative condition, it is worth noting that negative inductions target negative emotion and that positive and negative emotions are theoretically quasi-independent (Watson et al., 1988). Although the original Schutte et al. (2002) study found a significant decrease in positive affect following the negative induction, negative mood manipulations may not necessarily impact positive emotion. More work examining inductions targeting specific positive and negative emotions could be useful in extricating the underlying factors responsible for these mixed findings.
6.4.3 Emotional Intelligence, Positive Affect and Psychological Flexibility

The magnitude of the relationship between high emotional intelligence and positive affect maintenance in the neutral condition paralleled findings from the Schutte et al. (2002) study. In this condition alone, emotional intelligence was also significantly related to word generation, the performance proxy for psychological flexibility, partially supporting Hypothesis 6. The findings in this condition suggest that high emotional intelligence may foster positive affect maintenance and thereby contribute to greater psychological flexibility as indicated by word generation. Further, emotional intelligence may support broader outcomes through enhanced characteristic psychological flexibility given the inverse relationship it demonstrated with rumination.

Findings interpreting the relationship between emotional intelligence and psychological flexibility should consider alternative theories proposed in the literature. The Acceptance and Commitment model origins for the AAQ-II measure of psychological flexibility suggest that emotional intelligence may inversely impact flexibility (Donaldson-Feilder & Bond, 2004). For example, active attempts to suppress aversive emotional states could interfere with mindful environmental engagement and consequently flexible responding due to an inward rather than outward attentional focus. However, research suggests that emotional intelligence does not contribute to negative affect regulation and therefore any attempts to control negative emotion may be unrelated to trait levels of emotional intelligence (Schutte et al., 2002). In fact, individuals high in emotional regulation abilities are considered to engage in less emotional suppression, instead employing strategies such as cognitive re-appraisal which deplete fewer mental resources (Joseph & Newman, 2010). In addition, sensitivity to positive stimuli may be responsible for the characteristic positive affect in emotionally intelligent individuals rather than active attempts at emotion regulation that potentially interfere with flexibility.
6.4.4 Measurement Implications

Characteristic psychological flexibility operationalised as the AAQ-II showed no differences across induction conditions (supporting Hypothesis 7). This outcome was anticipated following the absence of treatment effects for characteristic psychological flexibility despite increases in work-specific psychological flexibility following an emotional intelligence intervention (Foster et al., 2016). The authors theorised that this particular measure is not sensitive to treatment effects. An alternative explanation was that the treatment did not enhance global flexibility, as the targeted emotional intelligence competencies were work-specific. However, the present findings extend support for the proposition that the measure lacks treatment sensitivity given that positive affect, a widely-accepted determinant of psychological flexibility (Kashdan & Rottenberg, 2010), did not enhance scores on the AAQ-II. Potentially, this could mean that positive affect contributes to state psychological flexibility and the effects are negligible when summed across ability contexts in global assessments. Accordingly, future research might benefit from an eclectic approach combing context-specific measures of psychological flexibility (like the work-specific derivation of the AAQ-II) alongside performance proxies for state and trait psychological flexibility, using indicators such as expanded cognitive or behavioural repertoires.

6.4.5 Future Directions

This study supports a growing body of literature showing that positively-valanced emotions broaden thought-action repertoires. Broaden-and-build theory extends further than emotional valence, suggesting that the content of emotion dictates the type of thought-action
urges experienced in positive conditions (Fredrickson & Branigan, 2005). For example, individuals viewing an amusing film clip experienced frequent urges to socialise, while individuals viewing a contenting nature clip expressed more urges to exercise. Further research could focus on manipulating specific emotions and examining the differential broadening effects and associated outcomes. This highlights another useful research endeavour; developing an extensive and freely accessible repository of mood induction film clips with accompanying data on validated induction effects using Emotion Report Forms, PANAS or equivalent. Such a repository of clips targeting specific emotions may be useful for the purpose of testing content effects related to the broaden hypothesis.

The study was premised on broadened attentional scope and thought-action repertoires as indicators for enhanced psychological flexibility (Fredrickson & Branigan, 2005) but did not explore the role of global attention biases. Importantly, attentional control rather than a global bias per se is fundamental to psychological flexibility (Kashdan & Rottenberg, 2010). While a global bias may be useful in determining situational needs, the ability to rapidly shift processing focus if warranted represents flexible executive control and adaptive functioning (Kashdan & Rottenberg, 2010). Future experiments may test this capacity for psychological flexibility in relation to positive affect and emotional intelligence, especially considering ACT propositions that emotional intelligence may inhibit outward attention. An adaptation of the Garner Interference Task presents an interesting application of this research which could also inform alternative performance measures for psychological flexibility. This test requires participants to attend to two distinct stimuli that vary along features of colour and orientation. Participants are directed to attend to one aspect and change focus part-way through the exercise. This task provides a measure for cognitive set-shifting (attention) and behavioural set-shifting (key press) in relation to a situational demand (task
objective). Consequently, studies incorporating this task could address attentional control in psychological flexibility and how this relates to positive affect and emotional intelligence.

While some data limitations and anomalies preclude the formation of concrete conclusions, the present study offers useful insights into the broadening mechanisms of positive emotion and measurement methods in psychological flexibility. The study confirmed the broadening hypothesis and provided partial support for the proposition that trait emotional intelligence facilitates psychological flexibility through enhanced positive affect, extending on previous findings for these variables. It further notes treatment sensitivity limitations for the commonly-used self-report measure of psychological flexibility, suggesting an eclectic deployment of tools tailored to the research or clinical aims. Discussion explored potential research directions in identifying valid measurement methods for psychological flexibility and further testing the relationship between emotional intelligence, positive affect and psychological flexibility.
Chapter 7

Discussion and General Conclusions

7.1 Summary of Findings

The studies within this thesis examined the relationship between emotional intelligence and psychological flexibility from a contextual perspective, evaluating how these constructs interrelate to promote positive outcomes in decision making and workplace flourishing. Three experimental chapters outlined results from four separate studies. These studies, described below, demonstrate the power of emotional intelligence for facilitating psychologically flexible thinking and how this process impacts positive outcomes in these contexts.

The first two studies described in Chapter 4 investigated how maximising personality styles in decision making influence rumination, and whether emotional intelligence facilitates psychological flexibility to protect against this potentially adverse health outcome. In the first correlational study, emotional intelligence and positive affective experience significantly predicted psychological flexibility scores on the AAQ-II, providing preliminary correlational support for the hypothesised relationship between emotional intelligence and psychological flexibility. Moreover, psychological flexibility inversely predicted rumination, which was associated with high levels of maximisation on the Maximisation Scale (Schwartz et al., 2002). It was hypothesised that psychological flexibility may down-regulate maximising tendencies in appropriate situations, attenuating the post-decisional evaluative processes (e.g., social comparison) that contribute to ruminative thought styles.

The second study outlined in Chapter 4 clarified these processes through the application of Gilbert and Ebert’s (2002) decision changeability manipulation. Results
showed that only high maximisers increased ruminative responding when confronted with changeable decision conditions. These findings suggest that high maximisers may be less capable of accepting and moving on from a decision identified as changeable, making them particularly susceptible to post-decisional ruminative thinking. However, high levels of psychological flexibility, or the ability to shift mindsets when dominant strategies (such as maximisation) compromise functioning, moderated the effects of maximisation on rumination. In addition, emotional intelligence significantly predicted psychological flexibility, mediated by positive affect change. This study provided more compelling experimental support for the proposition that emotional intelligence facilitates psychological flexibility, identifying positive affect change as a primary mechanism in the relationship. Consequently, the characteristic experience of positive affect inherent in high levels of emotional intelligence, and the ability to regulate positive emotion, may generate greater levels of psychological flexibility as a resource to draw upon when needed. Contextual examination of this relationship was extended to the workplace environment to assess causal components.

The study in Chapter 5 explored the relationship between emotional intelligence and psychological flexibility from a positive psychology perspective applied to workplace flourishing. This study was an extension of Schutte and Loi’s (2014) correlational research demonstrating that emotional intelligence competencies generate workplace social support and perception of power, ultimately predicting improved work engagement. In the present thesis, emotional intelligence was viewed as a foundation for building positive affect and psychological flexibility as employee strengths, contributing to positive organisational outcomes operationalized as increased work engagement on the Utrecht Work Engagement Scale (UWES; Schaufeli, Bakker, & Salanova, 2006). An adaptation of Pennebaker’s (Pennebaker & Beall, 1986) writing paradigm, targeting emotional self-efficacy in the
workplace (Kirk et al., 2011), was experimentally administered to Australian Public Sector employees across three nationally distributed organisations. Trait emotional intelligence, positive affect, work-specific psychological flexibility, and work engagement (dedication and absorption dimensions) were increased in the experimental group relative to controls. Further, positive affect and work-specific psychological flexibility mediated the relationship between emotional intelligence and work engagement in separate analyses.

Findings from the third study (Chapter 5) were the first step towards addressing the causal role of emotional intelligence for facilitating psychological flexibility and associated outcomes in workplace flourishing. Training in emotional competencies directly increased work-specific psychological flexibility and engagement. In addition, positive affect increased for the experimental group relative to controls and may partially explain corresponding increases for work-specific psychological flexibility and engagement. These findings indicate that emotional intelligence competencies may help employees mindfully approach and persist in work tasks despite internal subjective experiences that may otherwise interfere with effective functioning; a behavioural pattern that reflects adaptive responding to workplace challenges consistent with psychological flexibility. However, significant increases in work-specific psychological flexibility WAAQ (Bond et al., 2013) contrasted with the absence of changes in global psychological flexibility scores measured by the AAQ-II, warranting follow-up in laboratory conditions.

The fourth study in Chapter 6 applied a mood induction procedure to directly assess the effects of positive affect on psychological flexibility and more explicitly determine the role of emotional intelligence in positive emotion regulation. This study confirmed Fredrickson’s (2001) broaden-and-build hypothesis and the corollary narrowing hypothesis. Positive affect increased activation of semantic networks and broadened creative categorisation on a word generation task, as a performance proxy for psychological
flexibility. Despite these effects, characteristic psychological flexibility measured through the AAQ-II was unchanged. Findings relating emotional intelligence to positive affect as an extension of Schutte et al.’s study (2002) were mixed. Emotional intelligence was associated with greater levels of positive affect across all conditions prior to induction. However, the fourth study could not confirm the mood-enhancing benefits of emotional intelligence following positive induction. The influence of emotional intelligence on positive affect was limited to mood repair (or maintenance) subsequent to conditions of mood regression. Former studies supporting the mood-enhancing benefits of emotional intelligence tested the relationship after negative induction, confounding interpretation of the findings which could be attributed to either mood enhancement or repair (Schutte et al., 2002). While the fourth study in the present thesis did not detect a benefit, the induction efficacy may not have reached the necessary threshold and further mood manipulation experiments examining the effects of emotional intelligence on positive affect gains are needed. Regardless of this limitation, emotional intelligence was related to positive affect maintenance and improved performance on the proxy psychological flexibility measure in the neutral condition. These results provide laboratory confirmation supporting the causal role of emotional intelligence for facilitating psychologically flexible thinking, particularly through positive affect mechanisms.

Findings from the final study (Chapter 6) are linked to positive outcomes initially explored in the first two decision studies (Chapter 4). Emotional intelligence demonstrated strong correlations with characteristic psychological flexibility, which was inversely associated with rumination. In addition, emotional intelligence itself demonstrated a strong negative correlation with rumination in the positive induction condition. This suggests that emotional intelligence plays a role in supporting reduced pathological thinking, perhaps as a consequence of positive affect and through the facilitation of psychological flexibility. These
findings may potentially extend beyond decision making scenarios given indications of this relationship in laboratory conditions divorced from context. Overall, the thesis supports a causal connection between emotional intelligence and psychological flexibility, and beneficial outcomes in decision making and workplace settings. It also highlights some limitations in measurement methods for psychological flexibility.

7.2 Broad Implications of the Thesis Findings

The thesis findings summarised in section 7.1 have broad, practical implications in decision making and workplace contexts. Chapter 4 results regarding decision processes have specific applications for medium-to-high maximising individuals navigating choice proliferation in the contemporary environment. Commercial competition is increasing not only the number of choices available to consumers but also the incentives for consumer patronage, such as free trial periods and exchange options. Consequently, choice changeability is becoming a common feature of the social world confronting decision makers across a diverse range of contexts. Moreover, individuals with high maximising tendencies intentionally seek opportunities with changeability features in order to maximise outcomes (Schwartz et al., 2002). The Chapter 4 study results showed that high level maximisers are particularly susceptible to post-decisional evaluative processes (such as rumination) in changeable decision situations, making them vulnerable to negative health outcomes. Ruminative thought styles are linked to depressive symptomology (Nolen-Hoeksema et al., 2008), implying that mechanisms to reduce rumination in decision making may result in better overall mental health.

While Schwartz (2004) recommends a number of strategies for high maximising individuals, such as avoiding social comparison (e.g., facebook) and approaching
unchangeable decision opportunities, the studies in Chapter 4 support the utility of psychological flexibility as an additional mechanism for positive health outcomes in the decision context. Psychological flexibility demonstrated a strong moderating effect on maximising tendencies and ruminative outcomes, theoretically facilitating a shift in decision strategy towards more functional processes (such as satisficing) or promoting acceptance of internal cognitions and affective experiences generated in the decision task without needless rumination. Psychologically flexible individuals may be capable of restructuring perceived decision outcomes consistent with positive interpretations, leading to choice satisfaction and lower levels of ruminative responding. Given that emotional intelligence predicted psychological flexibility (mediated by positive affect), it may serve as a protective trait in these circumstances, helping decision makers maintain positive affect in the face of changeable decision conditions and thereby generating better health outcomes. Subsequent analysis of the causal contribution of emotional intelligence towards psychological flexibility strengthens this interpretation.

Chapter 5 examined the effects of an emotional intelligence training program in the workplace. Exemplar-guided exploration of emotional content in real-life work scenarios facilitated emotional intelligence, and was associated with corresponding increases in work-related psychological flexibility and positive affect. From a positive psychology perspective, these variables are regarded as individual strengths, contributing to workplace flourishing. Training targeting trait emotional intelligence provided a foundation for building these employee strengths, ultimately promoting dedication and absorption in work tasks that manifested as global improvements in work engagement. These outcomes may be inherently satisfying for the employee, but also contribute to improved organisational productivity. Work life is a fundamental social role and represents a realm of functioning that many individuals devote substantial personal resources towards fulfilling over the lifespan. Any
improvements in the subjective experience of work life and contextual outcomes are a clinically significant finding with widespread application. These outcomes highlight the value and functionality of emotional intelligence in the work environment, consistent with previous research (O’Boyle et al., 2011). In addition, the results show that relatively brief and inexpensive journal-writing tasks can be efficacious in this context and therefore represent a promising training technique that can be exploited by individuals and workplaces to improve organisational outcomes.

Finally, the series of studies described in this thesis provide strong support for emotional intelligence as a clinically significant facilitator of psychological flexibility. These findings are consistent with a recent meta-analysis linking emotional intelligence to the use of emotion regulation strategies important to psychologically flexible thinking (Peña-Sarrionandia, Mikolajczak, & Gross, 2014). Individuals high in emotional intelligence have a larger repertoire of adaptive coping and emotion regulation strategies available, which they apply flexibly and successfully when navigating the social world to achieve better outcomes. These adaptive emotional competencies underlie flexible responding, highlighting the power of emotional intelligence for influencing psychological flexibility as a fundamental aspect of health. Broadly, these findings suggest that emotional intelligence training and more general interventions to increase enduring positive affect as a significant mediator, may be effective in promoting psychological flexibility and a host of associated positive outcomes. Emotional intelligence and positive affect interventions represent a low cost, therapist-free alternative to traditional clinical interventions for psychological flexibility such as Acceptance and Commitment Therapy (ACT). The equivocal findings in relation to the causal effect of emotional intelligence on global flexibility as measured by the AAQ-II raised important considerations for future research endeavours.
7.2.1 Measurement Implications for Psychological Flexibility

As the studies progressed, limitations in traditional measurement methods for psychological flexibility became apparent. Study three (Chapter 5) simultaneously demonstrated post-intervention increases for work-specific psychological flexibility, alongside unchanged global flexibility as measured in the AAQ-II. A follow up on this anomaly in the final Chapter 6 study revealed that a selected performance proxy for psychological flexibility was sensitive to changes in positive affect, while characteristic flexibility on the AAQ-II remained unchanged. Given that positive affect is considered a precursor to psychological flexibility (Kashdan & Rottenberg, 2010), an assessment method incapable of detecting these types of changes may have limited utility as a clinical and research tool.

The limited intervention-sensitivity of the AAQ-II in the present thesis may stem from the negatively keyed nature of the item questions. Specifying an absence of inflexibility does not necessarily impute the presence of flexibility (Grossman, 2011). Therefore, attempts to build psychological flexibility, through mechanisms such as emotional intelligence and positive affect, may not be captured on a tool that primarily measures increases for inflexibility as opposed to increases for flexibility. Alternatively, a measure of averaged flexibility across situations may not sufficiently detect context-specific changes in behaviour (e.g. work-specific psychological flexibility). This implies that there may be merit in research activities focused on the construction of additional psychological flexibility measures. In particular, the field may benefit from global psychological flexibility instruments that combine positively-keyed content with reversed items, a wider range of context-specific versions (extending beyond work-specific areas), and an eclectic mix of performance tests potentially combined with more traditional self-report assessments.
In their extensive review, Kashdan and Rottenberg (2010) noted that the dynamic nature of psychological flexibility necessitates measurement methods incorporating temporality and person-situation interactions. This point informed the context-directed nature of the present thesis and the use of a performance proxy when examining the variable in laboratory conditions. However, it also highlights the challenges in measuring psychological flexibility through global self-report. Psychological flexibility is not a single, static concept that can be applied to an individual in isolation of their environment; it is a resource that fluctuates over time and across situations. Research efforts aimed at developing more robust measures should refer to the Kashdan and Rottenberg (2010) review for an informative framework. A varied set of measurement approaches depending on the research purposes includes daily diary studies, behavioural observation, Q-sort procedures evaluated against prototypical flexibility profiles, and aggregate 360 observer ratings. Research in this area could subsequently be applied to further investigation of the relationship between emotional intelligence and psychological flexibility.

7.3 Future Directions

7.3.1 Extending the Thesis Findings and Research Opportunities Addressing Limitations

The research in this thesis informs a number of opportunities for future research pathways. Investigation of the causal impact of emotional intelligence on psychological flexibility was intentionally restricted to decision making and workplace environments to provide a contextual perspective. The nature of the relationship described between these variables may not persist in the same form in other contexts. In particular, studies examining how emotional intelligence relates to psychological flexibility in health contexts may be a promising research avenue, given the fundamental importance attributed to health outcomes.
for both these variables (Martins, Ramalho, & Morin, 2010; Kashdan & Rottenberg, 2010). In addition, the research in this thesis tested the causal role of emotional intelligence on psychological flexibility through application of a journal writing intervention targeting emotional self-efficacy. The literature supports a wide variety of efficacious emotional intelligence programs applied across numerous settings, including broader organisational contexts, sports studies, mental health, and education (Schutte, Malouff, & Thorsteinsson, 2013). Researchers in any of these areas could explore the effects of various emotional intelligence training programs on psychological flexibility and their associated outcomes. Extending investigation to alternative intervention techniques and contexts will enhance understanding of how emotional intelligence facilitates psychological flexibility, what outcomes can be achieved, and the essential pre-conditions for effectuating the relationship.

In addition to broadening the range of contexts exploring the relationship between emotional intelligence and psychological flexibility, more in-depth studies could be conducted in workplace settings. Future research could combine examination of workplace and decision contexts given that aspects of decision making are incorporated in various realms of workplace functioning. This expanded study scope could include consideration of maximising personality factors in relation to emotional intelligence and psychological flexibility in the workplace. The current thesis also focused primarily on Australian Public Service (APS) employees. The APS operates on an Integrated Leadership System (ILS), outlining stages of progression modelled on specified leadership qualities, including: “shapes strategic thinking”, “achieves results”, “cultivates productive working relationships”, “exemplifies personal drive and integrity”, and “communicates with influence” (Australian Public Service Commission, 2007). Many of these elements are associated with transformational leadership styles related to high functioning emotional intelligence (Harms & Credé, 2010). Rosete and Ciarrochi (2005) found that the majority of these APS qualities
were significantly correlated with various sub-dimensions of the revised Mayer and Salovey (1997) integrated ability model of emotional intelligence, measured through performance on the MSCEIT. Journal writing instructions could be adapted to include more scenarios modelling these particular qualities and thereby improve emotional intelligence outcomes and workplace performance specific to the APS. This approach could be applied more broadly across a variety of work environments. Workplace settings may vary substantially, and the impact of the emotional intelligence journal writing intervention could be strengthened through tailored sets of examples applied to specific work roles. For example, care industries (e.g., nursing) could emphasise examples related to an awareness of patient emotions and building understanding and efficacy towards regulating those emotions for motivating recovery-oriented behaviours. The context-specific nature of emotional intelligence and psychological flexibility suggest that these tailored approaches may prove more efficacious when matched to the appropriate setting.

The fact that ability measures such as the MSCEIT are demonstrating similar findings to the trait measure used in the APS workplace study suggests that the thesis results may generalise to other conceptualisations of emotional intelligence. However, it is acknowledged that the present research findings are limited to a characteristic trait approach. Future research using ability models would complement trait findings outlined in this thesis to provide a more comprehensive understanding of the relationship between emotional intelligence and psychological flexibility. Such research may further assist identification of emotional sub-dimensions or specific emotional competencies that contribute to beneficial outcomes (Schutte et al., 2009). In particular, situational tests of emotional understanding (e.g., Freudenthaler & Neubauer, 2007; MacCann & Roberts, 2008) may reveal contextually-bound competencies relevant to psychological flexibility. Ability approaches complementing the research in this thesis could further address an intrinsic limitation of self-report measures. A
minimal level of intrapersonal self-awareness in relation to typical emotional functioning is required in order access the knowledge that informs valid responding on self-report assessments. This emotional competency is one of the basic dimensions of emotional intelligence. Therefore, self-report measures may be increasingly less reliable at lower levels of emotional intelligence. Resource-intensive research methods testing maximal performance through administration of ability tests may represent a suitable approach capable of addressing this limitation.

The project within this thesis examined a discrete selection of psychological flexibility features. In particular, it assessed global flexibility as measured in the AAQ-II, work-related psychological flexibility (WAAQ), and expanded thinking (broadened categorisation), operationalised as semantic repertoires. As discussed in the measurement implications of the thesis findings, these methods capture a small component of the overall psychological flexibility construct, which is reflected in a wide range of abilities (Kashdan & Rottenberg, 2010). Future research could evaluate the relationship between emotional intelligence and other aspects of psychological flexibility. For example, the final study (Chapter 6) noted a research avenue assessing attentional control (i.e. redirecting attention as dictated by task demands).

While exploration of attention processes was not pursued as part of the thesis scope, the theoretical development was partially predicated on the idea that positive emotion, a feature of emotional intelligence, facilitates global biases in attention and therefore a greater situational awareness necessary for psychological flexibility (Fredrickson & Branigan, 2005). It is noted, however, that flexible deployment of attentional resources through executive control represents a more adaptive competency than global biases per se. In some situations, a goal-directed focus on specific local, as opposed to global, elements may be necessary for
task success. While positive affect may be related to global attention biases, the competencies underlying emotional intelligence extend to flexible attentional control.

One ability described in the formulation of Salovey and Mayer’s (1990; 1997) emotional intelligence model is the use of emotion to redirect attention towards the salient features of the environment. Emotional intelligence may therefore promote flexible attentional control necessary for adaptive responding. An understanding of the situational demands enables top-down processing of environmental stimuli, and emotionally intelligent individuals may use emotions in a goal-directed manner to focus attention on the essential elements for behavioural effectiveness. Self-reported attention deployment abilities have been correlated with trait emotional intelligence (Schutte, Manes, & Malouff, 2009). The final (Chapter 6) study in the thesis described a potential application for extending this research using the Garner Interference Task. Participants are presented with various stimuli and task demands require a shifting attentional focus for effective performance. In addition, adaptation of this task could test behavioural set shifting (response inhibition versus perseveration) by adjusting the required key press on identification of the target stimuli. Such research could expand on the relationship between emotional intelligence and psychological flexibility described in this thesis.

The majority of the studies in this thesis emphasised positive affect as a mechanism in the relationship between emotional intelligence and psychological flexibility. How emotional intelligence relates to positive affect, and the unique contribution of positive affect to psychological flexibility, could be further explored. For example, emotional intelligence was related to positive mood maintenance (or repair), but further research employing induction protocols could clarify whether it enhances sensitivity to positive stimuli. Given that positive affect consistently demonstrated its utility as a mediating variable between emotional intelligence and psychological flexibility across multiple studies in this thesis, it could be
expected to independently build psychological flexibility. The field of positive psychology provides a rich source of empirically-derived interventions to increase positive affect. Many interventions from the positive psychology literature are closely related to the Kirk’s et al. (2011) journal writing paradigm employed in this research, using expressive writing as a means of self-exploration and emotional facilitation. For example, one positive psychology exercise involves the daily journaling of three positive events and their perceived causes over the course of a week (Seligman, Steen, Park & Peterson, 2005). Other tasks include writing gratitude letters, and describing best possible versions of the self, that is, if all outcomes valued by the individual could be achieved, alongside an outline of the trajectory involved in attaining these goals (King, 2001; Peters, Flink, Boersma, & Linton, 2010). Writing tasks of this nature may enhance focus on personal values and motivate effortful engagement with congruent activities and behaviours, thus fulfilling one dimension of the range of human behaviours encompassed in Kashdan and Rottenberg’s (2010) comprehensive definition of psychological flexibility. Although positive affect in general was identified as an important element of psychological flexibility it is important to note that affect and specific emotions are theoretically distinct constructs.

Emotions are somewhat distinguishable from affective experience; they have been described as more transient subsets of affect, and may contain subconscious processes (Fredrickson, 2001). While the two concepts are closely related, emotions are more contextual, manifesting from surrounding circumstances and reflecting more specific types of emotional state (e.g. joy, contentment versus general positivity; Fredrickson, 2001). In this way, a separate examination of various kinds of emotion may present an ideal opportunity for examining the relationship with context-dependent variables like psychological flexibility and emotional intelligence. The relationship between these variables and associated outcomes may differ as a function of particular emotional content. This research could proceed in
tandem with construction of a freely accessible emotion induction repository containing brief validated film clips of sufficient quality and induction efficacy for research purposes. Retrieving available clips with these objective features was challenging when designing the final mood induction study and a repository, if not already in development, may benefit ongoing research in the field.

7.4 General Conclusion

In general, the findings in this thesis support the power of emotional intelligence for facilitating psychologically flexible thinking in relation to decision making and workplace contexts as hypothesised in Figure 1.1. Relatively brief, self-directed interventions to increase emotional intelligence have the potential to contribute to significant clinical outcomes. While this thesis demonstrated positive outcomes relating to the attenuation of pathological thinking styles in decision making and improved workplace flourishing, the contribution of emotional intelligence to psychological flexibility may generalise to other contexts. In particular, the influence of emotional intelligence on positive affect maintenance in laboratory conditions, which was associated with heightened performance on a psychological flexibility proxy measure, suggests that the relationship may persist more globally. These findings have significant practical and theoretical implications. Emotional intelligence is a promising individual difference for the facilitation of a large repertoire of adaptive coping competencies that contribute to important realms of functioning (mental health outcomes in decision making and workplace flourishing) and successful navigation of the social world.
7.5 References


Van Bruekelen, G. J. (2006). ANCOVA versus change from baseline had more power in randomized studies and more bias in nonrandomized studies. *Journal of Clinical Epidemiology, 59*, 920-925.


Appendix A. Workplace Emotional Intelligence Training Journal Writing Instructions

for the Control Condition
Emotional Intelligence

Training

Writing Journal
Please spend the next 3 days (Tuesday – Thursday) writing in this journal for 20 minutes at the end of each workday, following the Journal Writing instructions (enclosed).

NOTE: This journal is a completely private self-training tool and will not be collected or reviewed. Please do not show or compare your journal to other participants.

AFTER THE JOURNAL WRITING:

1. You will receive an email link to complete the final online survey on 5 November.
2. On completion of the survey, a debrief page is presented with further information about the study and expected outcomes.

Your Journal Code:

Please input this code when prompted in your final online survey on 5 November.

Thank you for participating!
Contact details if in distress:

We understand that writing about experiences in the journal may elicit distress. If you experience any symptoms of distress, we strongly encourage you to seek support. You can contact Lifeline at 13 11 14 or visit www.beyondblue.com.

Contact details for more information:

If you have any questions about this project or your participation, please do not hesitate to contact the researchers at:

· Roxanne Foster – roxanne.foster@anu.edu.au

· Kristen Pammer – Kristen.Pammer@anu.edu.au

If you have any concerns or complaints about how this research has been conducted, please contact:

Ethics Manager

The ANU Human Research Ethics Committee

The Australian National University

Telephone: 6125 3427

Email: Human.Ethics.Officer@anu.edu.au
INSTRUCTIONS

Writing about emotional events can improve physical health and overall well-being. This study is expanding on these previous findings to discover the benefits such writing has on overall workplace functioning. In order to do this, a particular process is required.

1. Keep a journal for 3 days. What you write in the journal need be seen by no one but you. The researchers will not ask you for the journal.

2. It is requested however that you keep a log of how much time you spend writing per day.

In this journal you will need to:

3. Write for at least 20 minutes a day for 3 days about what you did in the past 24 hours that was not related to work (please see following examples).

Two weeks after completing the journaling

4. You will be emailed a survey link to complete.
JOURNAL WRITING

The purpose of writing is to provide you with an opportunity to reflect on your thoughts related to your non-work day.

The following examples are just some of the types of events you may choose to write about.

Example 1:

Took the family to McDonalds so no-one had to cook the dinner (elaborate on the occasion).

Example 2:

I managed to watch my favourite show on TV tonight (Discuss what the show was about).

Example 3

Helped the kids with their homework (Describe what you actually did).

Example 4

Decided to have friends over for a party at the weekend (note down who will be coming and what type of food and/or drinks you will be serving).

NB: Please write for at least 20 minutes a day for 3 days
Appendix B: Workplace Emotional Intelligence Training Journal Writing Instructions for the Experimental Condition
Emotional Intelligence

Training

Writing Journal
Please spend the next 3 days (Tuesday – Thursday) writing in this journal for 20 minutes at the end of each workday, following the Journal Writing instructions (enclosed).

NOTE: This journal is a completely private self-training tool and will not be collected or reviewed. Please do not show or compare your journal to other participants.

AFTER THE JOURNAL WRITING:

1. You will receive an email link to complete the final online survey on 5 November.
2. On completion of the survey, a debrief page is presented with further information about the study and expected outcomes.

Your Journal Code:

| Please input this code when prompted in your final online survey on 5 November. |

Thank you for participating!
Contact details if in distress:

We understand that writing about experiences in the journal may elicit distress. If you experience any symptoms of distress, we strongly encourage you to seek support. You can contact Lifeline at 13 11 14 or visit www.beyondblue.com.

Contact details for more information:

If you have any questions about this project or your participation, please do not hesitate to contact the researchers at:

- Roxanne Foster – roxanne.foster@anu.edu.au
- Kristen Pammer – Kristen.Pammer@anu.edu.au

If you have any concerns or complaints about how this research has been conducted, please contact:

Ethics Manager

The ANU Human Research Ethics Committee

The Australian National University

Telephone: 6125 3427

Email: Human.Ethics.Officer@anu.edu.au
The purpose of this writing is to provide you with an opportunity to reflect on your deepest thoughts and feelings connected to your workplace. A related purpose is to increase emotional skills by building up confidence in effectively perceiving, using, understanding, and managing emotions. This can be done by evaluating one’s own ability to master a situation either by noticing how one effectively perceives, uses, understands, or regulates emotions; by observing how another person manages to do this; or by receiving encouragement from others. A further means is by being aware of how one’s physiological or emotional arousal can contribute to the effective perception and management of emotions.

Start out by writing about your deepest thoughts and feelings related to your past workday; or an important workday in the more distant past.

Then, if you find it useful, explore whether by analysing your thoughts and feelings you can build confidence in your ability to perceive and manage emotions in yourself and others. A beneficial way of doing this may be to identify instances of emotion and relate these to future events. Below are a number of examples plus some of the types of emotional situations that may occur routinely in many organizations. Also included are examples of the benefits gained by handling a situation in a particular fashion. The following examples are just some of the types of emotional experiences and outcomes that an individual might write about. It is of course completely up to you what you write about in your journal.
Example 1:

I was given a promotion today and I felt enthused and happy. I had good insight into my emotions and understood why I felt them.

Example 1 relates to a sense of mastery that is built up from one’s own personal experiences.

Example 2a:

I observed the reactions of a number of people today who also put in for the job and I felt embarrassed when one person swore and stormed out of the office.

Example 2b:

I however also observed the reaction of one particular person who managed her emotion effectively, even though she expressed she was disappointed. I felt inspired because this is the example I prefer to follow.

Example 3

I noticed that one of the male staff members started ranting and raving over not being given an important phone message. This verbalization only created tension in the office. I suggested he speak directly with the person in case there was a good reason he did not receive the message. He did so and found out the reason why. He immediately calmed down and the office returned to a relaxed state once again.
Examples 2a and 2b are different aspects to the same situation. Example 2a involves perception of one’s own emotions. Example 2b involves learning an emotional management skill by observing another person. Example 3 shows successful support of another person in managing his emotions.

Example 4

I was given support from my supervisor today, when she stated that she believed in my ability to carry out my new work responsibilities. I felt happy about these words of encouragement and decided there and then that I would keep trying. I will also give myself similar encouragement by telling myself that I believe in my own abilities.

Example 4 shows that when people are verbally persuaded that they have the ability to master a task then they are more likely to maintain the effort required to do so than those who are not encouraged. That is because verbal persuasion can bolster people’s beliefs that they do have the capability to achieve their goals.

Example 5

I realize that I could have sworn and stormed out of the office when my computer broke down and I lost all the data I needed for a report. I recognized the strong emotions that were brewing within me through the adrenaline rush I experienced. This recognition allowed me to manage my emotions by channelling my
physiological arousal into more productive emotions and behaviour. I didn’t retrieve the lost data, but a few people seemed to admire how I handled the situation and said that they could not have stayed calm under those circumstances.

Example 5 relates to the beneficial outcome that occurs when a person is able to perceive how physiological states contribute to emotions and uses this information to manage emotions.

**NB:** Please write for at least 20 minutes a day for 3 days
Appendix C: Example Data Coding Sheet for Primary Variables Across Studies

Variables in the database

**Demographic Variables:**

AGE_Q1 = Age of participant  
SEX_Q1 = Gender of participant (Male = 1, Female = 2, Other = 3)  
LAN_Q1 = Participant’s first spoken language  
LAN_Q2 = If English is not participant’s first language, number of years English has been spoken regularly

**Psychological Variables:**

EMO_Total = Total Assessing Emotions Scale/Questionnaire score  
MAX_Total = Maximisation total score  
PA_Total = Positive affect subscale score of the Positive Affect and Negative Affect Schedule (PANAS)  
NA_Total = Negative affect subscale score of the Positive Affect and Negative Affect Schedule (PANAS)  
RTS_Total = Ruminative Thought Styles Questionnaire score

**Scoring Variables:**

EMO_Q1 = Assessing Emotions Scale score question 1 “I know when to speak about my personal problems to others”  
EMO_Q2 = Assessing Emotions Scale score question 2 “When I am faced with obstacles, I remember times I faced similar obstacles and overcame them”  
EMO_Q3 = Assessing Emotions Scale score question 3 “I expect that I will do well on most things I try”  
EMO_Q4 = Assessing Emotions Scale score question 4 “Other people find it easy to confide in me”  
EMO_Q5 = Assessing Emotions Scale score question 5 “I find it hard to understand the non-verbal messages of other people”  
EMO_Q6 = Assessing Emotions Scale score question 6 “Some of the major events of my life have led me to re-evaluate what is important and not important”  
EMO_Q7 = Assessing Emotions Scale score question 7 “When my mood changes, I see new possibilities”  
EMO_Q8 = Assessing Emotions Scale score question 8 “Emotions are one of the things that make my life worth living”  
EMO_Q9 = Assessing Emotions Scale score question 9 “I am aware of my emotions as I experience them”  
EMO_Q10 = Assessing Emotions Scale score question 10 “I expect good things to happen”  
EMO_Q11 = Assessing Emotions Scale score question 11 “I like to share my emotions with others”  
EMO_Q12 = Assessing Emotions Scale score question 12 “When I experience a positive emotion, I know how to make it last”  
EMO_Q13 = Assessing Emotions Scale score question 13 “I arrange events others enjoy”  
EMO_Q14 = Assessing Emotions Scale score question 14 “I seek out activities that make me happy”  
EMO_Q15 = Assessing Emotions Scale score question 15 “I am aware of the non-verbal messages I send to others.”  
EMO_Q16 = Assessing Emotions Scale score question 16 “I present myself in a way that makes a good impression on others”
EMO_Q17 = Assessing Emotions Scale score question 17 “When I am in a positive mood, solving problems is easy for me”
EMO_Q18 = Assessing Emotions Scale score question 18 “By looking at their facial expressions, I recognize the emotions people are experiencing”
EMO_Q19 = Assessing Emotions Scale score question 19 “I know why my emotions change”
EMO_Q20 = Assessing Emotions Scale score question 20 “When I am in a positive mood, I am able to come up with new ideas”
EMO_Q21 = Assessing Emotions Scale score question 21 “I have control over my emotions”
EMO_Q22 = Assessing Emotions Scale score question 22 “I easily recognize my emotions as I experience them”
EMO_Q23 = Assessing Emotions Scale score question 23 “I motivate myself by imagining a good outcome to tasks I take on”
EMO_Q24 = Assessing Emotions Scale score question 24 “I compliment others when they have done something well”
EMO_Q25 = Assessing Emotions Scale score question 25 “I am aware of the non-verbal messages other people send”
EMO_Q26 = Assessing Emotions Scale score question 26 “When another person tells me about an important event in his or her life, I almost feel as though I experienced this event myself”
EMO_Q27 = Assessing Emotions Scale score question 27 “When I feel a change in emotions, I tend to come up with new ideas”
EMO_Q28 = Assessing Emotions Scale score question 28 “When I am faced with a challenge, I give up because I believe I will fail”
EMO_Q29 = Assessing Emotions Scale score question 29 “I know what other people are feeling just by looking at them”
EMO_Q30 = Assessing Emotions Scale score question 30 “I help other people feel better when they are down”
EMO_Q31 = Assessing Emotions Scale score question 31 “I use good moods to help myself keep trying in the face of obstacles”
EMO_Q32 = Assessing Emotions Scale score question 32 “I can tell how people are feeling by listening to the tone of their voice”
EMO_Q33 = Assessing Emotions Scale score question 33 “It is difficult for me to understand why people feel the way they do”
EMO_Q5, Rev = Reversed Assessing Emotions Scale score question 5
EMO_Q28, Rev = Reversed Assessing Emotions Scale score question 28
EMO_Q33, Rev = Reversed Assessing Emotions Scale score question 33
MAX_Q1 = Maximization Scale score question 1 “Whenever I’m faced with a choice, I try to imagine what all the other possibilities are, even ones that aren’t present at the moment”
MAX_Q2 = Maximization Scale score question 2 “No matter how satisfied I am with my job, it’s only right for me to be on the lookout for better opportunities”
MAX_Q3 = Maximization Scale score question 3 “When I am in the care listening to the radio, I often check other stations to see if something better is playing”
MAX_Q4 = Maximization Scale score question 4 “When I watch TV, I channel surf, often scanning through the available options even while attempting to watch one program”
MAX_Q5 = Maximization Scale score question 5 “I treat relationships like clothing: I expect to try a lot on before finding the perfect fit”
MAX_Q6 = Maximization Scale score question 6 “I often find it difficult to shop for a gift for a friend”
MAX_Q7 = Maximization Scale score question 7 “Renting videos is really difficult. I’m always struggling to pick the best one”
MAX_Q8 = Maximization Scale score question 8 “When shopping, I have a hard time finding clothing that I really love”
MAX_Q9 = Maximization Scale score question 9 “I’m a big fan of lists that attempt to rank things (the best movies, the best singers, the best athletes, the best novels, etc.)”
MAX_Q10 = Maximization Scale score question 10 “I find that writing is very difficult, even if it’s just writing a letter to a friend, because it’s so hard to word things just right. I often do several drafts of even simple things”
MAX_Q11 = Maximization Scale score question 11 “No matter what I do, I have the highest standards for myself”
MAX_Q12 = Maximization Scale score question 12 “I never settle for second best”
MAX_Q13 = Maximization Scale score question 13 “I often fantasize about living in ways that are quite different from my actual life”

PANAS_Q1 = Positive Affect and Negative Affect Schedule Positive Affect subscale score question 1 “Interested”
PANAS_Q2 = Positive Affect and Negative Affect Schedule Negative Affect subscale score question 2 “Distressed”
PANAS_Q3 = Positive Affect and Negative Affect Schedule Positive Affect subscale score question 3 “Excited”
PANAS_Q4 = Positive Affect and Negative Affect Schedule, Negative Affect subscale score question 4 “Upset”
PANAS_Q5 = Positive Affect and Negative Affect Schedule, Positive Affect subscale score question 5 “Strong”
PANAS_Q6 = Positive Affect and Negative Affect Schedule, Negative Affect subscale score question 6 “Guilty”
PANAS_Q7 = Positive Affect and Negative Affect Schedule, Negative Affect subscale score question 7 “Scared”
PANAS_Q8 = Positive Affect and Negative Affect Schedule, Negative Affect subscale score question 8 “Hostile”
PANAS_Q9 = Positive Affect and Negative Affect Schedule, Positive Affect subscale score question 4 “Enthusiastic”
PANAS_Q10 = Positive Affect and Negative Affect Schedule, Positive Affect subscale score question 10 “Proud”
PANAS_Q11 = Positive Affect and Negative Affect Schedule, Negative Affect subscale score question 11 “Irritable”
PANAS_Q12 = Positive Affect and Negative Affect Schedule, Positive Affect subscale score question 12 “Alert”
PANAS_Q13 = Positive Affect and Negative Affect Schedule, Negative Affect subscale score question 13 “Ashamed”
PANAS_Q14 = Positive Affect and Negative Affect Schedule, Positive Affect subscale score question 14 “Inspired”
PANAS_Q15 = Positive Affect and Negative Affect Schedule, Negative Affect subscale score question 15 “Nervous”
PANAS_Q16 = Positive Affect and Negative Affect Schedule, Positive Affect subscale score question 16 “Determined”
PANAS_Q17 = Positive Affect and Negative Affect Schedule, Positive Affect subscale score question 17 “Attentive”
PANAS_Q18 = Positive Affect and Negative Affect Schedule, Negative Affect subscale score question 18 “Jittery”
PANAS_Q19 = Positive Affect and Negative Affect Schedule, Positive Affect subscale score question 19 “Active”
PANAS_Q20 = Positive Affect and Negative Affect Schedule, Negative Affect subscale score question 20 “Afraid”
RTS_Q1 = Ruminative Thought Styles Questionnaire score question 1 “I find that my mind often goes over things again and again”
RTS_Q2 = Ruminative Thought Styles Questionnaire score question 2 “When I have a problem, it will gnaw on my mind for a long time”
RTS_Q3 = Ruminative Thought Styles Questionnaire score question 3 “I find that some thoughts come to mind over and over throughout the day”
RTS_Q4 = Ruminative Thought Styles Questionnaire score question 4 “I can’t stop thinking about some things”
RTS_Q5 = Ruminative Thought Styles Questionnaire score question 5 “When I am anticipating an interaction, I will imagine every possible scenario and conversation”
RTS_Q6 = Ruminative Thought Styles Questionnaire score question 6 “I tend to replay past events as I would have liked them to happen”
RTS_Q7 = Ruminative Thought Styles Questionnaire score question 7 “I find myself daydreaming about things I wish I had done”
RTS_Q8 = Ruminative Thought Styles Questionnaire score question 8 “When I feel I have had a bad interaction with someone, I tend to imagine various scenarios where I would have acted differently”
RTS_Q9 = Ruminative Thought Styles Questionnaire score question 9 “When trying to solve a complicated problem, I find that I just keep coming back to the beginning without ever finding a solution”
RTS_Q10 = Ruminative Thought Styles Questionnaire score question 10 “If there is an important event coming up, I think about it so much that I work myself up”
RTS_Q11 = Ruminative Thought Styles Questionnaire score question 11 “I have never been able to distract myself from unwanted thoughts”
RTS_Q12 = Ruminative Thought Styles Questionnaire score question 12 “Even if I think about a problem for hours, I still have a hard time coming to a clear understanding”
RTS_Q13 = Ruminative Thought Styles Questionnaire score question 13 “It is very difficult for me to come to a clear conclusion about some problems, no matter how much I think about it”
RTS_Q14 = Ruminative Thought Styles Questionnaire score question 14 “Sometimes I realize I have been sitting and thinking about something for hours”
RTS_Q15 = Ruminative Thought Styles Questionnaire score question 15 “When I am trying to work out a problem, it is like I have a long debate in my mind where I keep going over different points”
RTS_Q16 = Ruminative Thought Styles Questionnaire score question 16 “I like to sit and reminisce about pleasant events from the past”
RTS_Q17 = Ruminative Thought Styles Questionnaire score question 17 “When I am looking forward to an exciting event, thoughts of it interfere with what I am working on”
RTS_Q18 = Ruminative Thought Styles Questionnaire score question 18 “Sometimes even during a conversation, I find unrelated thoughts popping into my head”
RTS_Q19 = Ruminative Thought Styles Questionnaire score question 19 = “When I have an important conversation coming up, I tend to go over it in my mind again and again”
RTS_Q20 = Ruminative Thought Styles Questionnaire score question 20 “If I have an important event coming up, I can’t stop thinking about it”
AAQ2_Q1_Rev = Acceptance and Action Questionnaire version 2 score question 1 “My painful experiences and memories make it difficult for me to live a life that I would value.”
AAQ2_Q2_Rev = Acceptance and Action Questionnaire version 2 score question 2 “I’m afraid of my feelings.”
AAQ2_Q3_Rev = Acceptance and Action Questionnaire version 2 score question 3 “I worry about not being able to control my worries and feelings.”
AAQ2_Q4_Rev = Acceptance and Action Questionnaire version 2 score question 4 “My painful memories prevent me from having a fulfilling life.”
AAQ2_Q5_Rev = Acceptance and Action Questionnaire version 2 score question 5 “Emotions cause problems in my life.”
AAQ2_Q6_Rev = Acceptance and Action Questionnaire version 2 score question 6 “It seems like most people are handling their lives better than I am.”

AAQ2_Q7_Rev = Acceptance and Action Questionnaire version 2 score question 7 “Worries get in the way of my success.”

AAQ2_Q1_Rev = Reversed Acceptance and Action Questionnaire version 2 score question 1 “My painful experiences and memories make it difficult for me to live a life that I would value.”

AAQ2_Q2_Rev = Reversed Acceptance and Action Questionnaire version 2 score question 2 “I’m afraid of my feelings.”

AAQ2_Q3_Rev = Reversed Acceptance and Action Questionnaire version 2 score question 3 “I worry about not being able to control my worries and feelings.”

AAQ2_Q4_Rev = Reversed Acceptance and Action Questionnaire version 2 score question 4 “My painful memories prevent me from having a fulfilling life.”

AAQ2_Q5_Rev = Reversed Acceptance and Action Questionnaire version 2 score question 5 “Emotions cause problems in my life.”

AAQ2_Q6_Rev = Reversed Acceptance and Action Questionnaire version 2 score question 6 “It seems like most people are handling their lives better than I am.”

AAQ2_Q7_Rev = Reversed Acceptance and Action Questionnaire version 2 score question 7 “Worries get in the way of my success.”

Computations:

EMO_Pre_Total = EMO_Q1_Pre + EMO_Q2_Pre + EMO_Q3_Pre + EMO_Q4_Pre + EMO_Q5_Pre_Rev + EMO_Q6_Pre + EMO_Q7_Pre + EMO_Q8_Pre + EMO_Q9_Pre + EMO_Q10_Pre + EMO_Q11_Pre + EMO_Q12_Pre + EMO_Q13_Pre + EMO_Q14_Pre + EMO_Q15_Pre + EMO_Q16_Pre + EMO_Q17_Pre + EMO_Q18_Pre + EMO_Q19_Pre + EMO_Q20_Pre + EMO_Q21_Pre + EMO_Q22_Pre + EMO_Q23_Pre + EMO_Q24_Pre + EMO_Q25_Pre + EMO_Q26_Pre + EMO_Q27_Pre + EMO_Q28_Pre_Rev + EMO_Q29_Pre + EMO_Q30_Pre + EMO_Q31_Pre + EMO_Q32_Pre + EMO_Q33_Pre_Rev


MAX_Total = MAX_Q1 + MAX_Q2 + MAX_Q3 + MAX_Q4 + MAX_Q5 + MAX_Q6 + MAX_Q7 + MAX_Q8 + MAX_Q9 + MAX_Q10 + MAX_Q11 + MAX_Q12 + MAX_Q13

PA_Total = PANAS_Q1 + PANAS_Q3 + PANAS_Q5 + PANAS_Q9 + PANAS_Q10 + PANAS_Q12 + PANAS_Q14 + PANAS_Q16 + PANAS_Q17 + PANAS_Q19

PA_Pre_Total = PANAS_Q1_Pre + PANAS_Q3_Pre + PANAS_Q5_Pre + PANAS_Q9_Pre + PANAS_Q10_Pre + PANAS_Q12_Pre + PANAS_Q14_Pre + PANAS_Q16_Pre + PANAS_Q17_Pre + PANAS_Q19_Pre

PA_Post_Total = PANAS_Q1_Post + PANAS_Q3_Post + PANAS_Q5_Post + PANAS_Q9_Post + PANAS_Q10_Post + PANAS_Q12_Post + PANAS_Q14_Post + PANAS_Q16_Post + PANAS_Q17_Post + PANAS_Q19_Post

UWES_Pre_Total = UWES_Q1_Pre + UWES_Q2_Pre + UWES_Q3_Pre + UWES_Q4_Pre + UWES_Q5_Pre + UWES_Q6_Pre + UWES_Q7_Pre + UWES_Q8_Pre + UWES_Q9_Pre

UWES_Post_Total = UWES_Q1_Post + UWES_Q2_Post + UWES_Q3_Post + UWES_Q4_Post + UWES_Q5_Post + UWES_Q6_Post + UWES_Q7_Post + UWES_Q8_Post + UWES_Q9_Post

WAAQ_Pre_Total = WAAQ_Q1_Pre + WAAQ_Q2_Pre + WAAQ_Q3_Pre + AAQ2_Q7_Pre_Rev + WAAQ_Q5_Pre + WAAQ_Q6_Pre + WAAQ_Q7_Pre

190
WAAQ_Post_Total = WAAQ_Q1_Post + WAAQ_Q2_Post + WAAQ_Q3_Post + AAQ2_Q7_Post_Rev + WAAQ_Q5_Post + WAAQ_Q6_Post + WAAQ_Q7_Post
NA_Pre_Total = PANAS_Q2_Pre + PANAS_Q4_Pre + PANAS_Q6_Pre + PANAS_Q7_Pre + PANAS_Q8_Pre + PANAS_Q11_Pre + PANAS_Q13_Pre + PANAS_Q15_Pre + PANAS_Q18_Pre + PANAS_Q20_Pre
NA_Post_Total = PANAS_Q2_Post + PANAS_Q4_Post + PANAS_Q6_Post + PANAS_Q7_Post + PANAS_Q8_Post + PANAS_Q11_Post + PANAS_Q13_Post + PANAS_Q15_Post + PANAS_Q18_Post + PANAS_Q20_Post
RTS_Pre_Total = RTS_Q1_Pre + RTS_Q2_Pre + RTS_Q3_Pre + RTS_Q4_Pre + RTS_Q5_Pre + RTS_Q6_Pre + RTS_Q7_Pre + RTS_Q8_Pre + RTS_Q9_Pre + RTS_Q10_Pre + RTS_Q11_Pre + RTS_Q12_Pre + RTS_Q13_Pre + RTS_Q14_Pre + RTS_Q15_Pre + RTS_Q16_Pre + RTS_Q17_Pre + RTS_Q18_Pre + RTS_Q19_Pre + RTS_Q20_Pre
RTS_Post_Total = RTS_Q1_Post + RTS_Q2_Post + RTS_Q3_Post + RTS_Q4_Post + RTS_Q5_Post + RTS_Q6_Post + RTS_Q7_Post + RTS_Q8_Post + RTS_Q9_Post + RTS_Q10_Post + RTS_Q11_Post + RTS_Q12_Post + RTS_Q13_Post + RTS_Q14_Post + RTS_Q15_Post + RTS_Q16_Post + RTS_Q17_Post + RTS_Q18_Post + RTS_Q19_Post + RTS_Q20_Post
UWES_Vigor_Post_Total = UWES_Q1_Post + UWES_Q5_Post + UWES_Q2_Post
UWES_Vigor_Pre_Total = UWES_Q1_Pre + UWES_Q5_Pre + UWES_Q2_Pre
UWES_Absorp_Pre_Total = UWES_Q6_Pre + UWES_Q8_Pre + UWES_Q9_Pre
UWES_Absorp_Post_Total = UWES_Q6_Post + UWES_Q8_Post + UWES_Q9_Post
UWES_Ded_Pre_Total = UWES_Q6_Pre + UWES_Q8_Pre + UWES_Q9_Pre
UWES_Ded_Post_Total = UWES_Q6_Post + UWES_Q8_Post + UWES_Q9_Post
AAQ2_Pre_Total = AAQ2_Q1_Pre_Rev + AAQ2_Q2_Pre_Rev + AAQ2_Q3_Pre_Rev + AAQ2_Q4_Pre_Rev + AAQ2_Q5_Pre_Rev + AAQ2_Q6_Pre_Rev + AAQ2_Q7_Pre_Rev
AAQ2_Post_Total = AAQ2_Q1_Post_Rev + AAQ2_Q2_Post_Rev + AAQ2_Q3_Post_Rev + AAQ2_Q4_Post_Rev + AAQ2_Q5_Post_Rev + AAQ2_Q6_Post_Rev + AAQ2_Q7_Post_Rev

Notes: AQ1 and AQ2 reverse scoring so that higher scores indicate more psychological flexibility.
Appendix D: Mood Induction Velten Statements and Film Clips

Positive Statements

1. When I have the right attitude, nothing can depress me.
2. The world is full of opportunity and I’m trying to take advantage of it.
3. When it comes right down to it, I’m just too cool.
4. Nothing can bum me out now.
5. My parents brag about me to their friends.
6. My future is so bright I’ve got to wear shades.
7. Most people like me.
8. Life’s a blast: I can’t remember when I felt so good.
9. It’s great to be alive.
10. It doesn’t get any better than this.
11. I’m going to have it all!
12. I know if I try I can make things turn out fine.
13. I know I can do it; I’m going to seize the day!
14. I can make things happen.
15. I feel creative.
16. I feel completely aware.
17. I can make any situation turn out right.

The positive induction film clip (Singing) is publicly available on youtube at:

https://youtu.be/Z7aO9ntV9hs
Neutral Statements

1. The rug was made according to an old Navajo pattern.
2. The movie theater was located downtown.
3. The Gulf Islands are in British Columbia.
4. New York City is in New York state.
5. Some think that electricity is the safest form of power.
6. Some baseball bats are made from the wood of the ash tree.
7. She walked over to the shop and knocked on the door.
8. Perennials bloom every year.
9. Olympia is the capital of the state of Washington.
10. Many buildings in Washington are made of marble.
11. It snows in Idaho.
12. Mules hauled the supplies up the mountain.
13. Santa Fe is the capital of New Mexico.
14. Diamonds really can cut glass.
15. Elephants carried the supplies.
16. Basket weaving was invented before pottery making.

The neutral induction film clip (Nature) is publicly available on youtube at:

https://youtu.be/N0t8A6hYpwQ
Negative Statements

1. Why should I try when I can’t make a difference anyway.
2. What’s the point of trying?
3. Today is one of those days when everything I do is wrong.
4. When I talk no one really listens.
5. Sometimes I feel so guilty that I can’t sleep.
6. Sometimes I feel really guilty about the way I’ve treated my parents.
7. There is no hope.
8. I feel I am being suffocated by the weight of my past mistakes.
9. Nobody understands me or even tries to.
10. Life is such a heavy burden.
11. I feel worthless.
12. I feel like my life’s in a rut that I’m never going to get out of.
13. I feel cheated by life.
14. Everyone else seems to be having more fun.
15. I don’t think things are ever going to get better.
16. I doubt that I’ll ever make a contribution in the world.
17. I wish I could be myself, but nobody likes me when I am.
18. Every time I turn around, something else has gone wrong.
19. Even when I give my best effort, it just doesn’t seem to be good enough.

The negative induction film clip (Network) is publicly available on youtube at:

https://youtu.be/N0t8A6hwpwQ
Appendix E: Mood Induction Outlier Treatment

<table>
<thead>
<tr>
<th>No.</th>
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<th>Reasons for Exclusion</th>
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