The Role of Intentional Exploration in Processing Difficult Moments

Thesis submitted for the degree of Doctor of Philosophy

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Declaration:

I confirm that this is my own work and the use of all material from other sources has been properly and fully acknowledged.

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"There can be no transforming of darkness into light

and of apathy into movement without emotion."

C. G. Jung

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Abstract

The capacity to regulate emotions is essential for well-being (Houle & Philippe, 2020; Roth & Benita, 2023b; Ryan et al., 2015b; Weinstein et al., 2011). The research presented in my thesis examined the role of *intentional exploration* of emotional experiences, a form of regulation that is motivated and energised by active interest and curiosity (Roth et al., 2019), in processing difficult moments in community samples. The first empirical chapter (Chapter 2) investigated three emotion regulatory styles (integrative emotion regulation, suppression, and emotion dysregulation) and their associations with adaptive and maladaptive coping strategies in a one-month longitudinal study. It then contrasted two integrative emotion regulation forms, intentional exploration and receptive attention (*receptive and nonjudgmental attention* of emotional experiences; Roth et al., 2019), in daily well-being through a seven-day daily diary study. Chapter 3 reports three studies that investigated interest-taking and trait-level intentional exploration in processing shame experiences. The current literature indicates that shame is associated with avoidance tendencies (McLachlan et al., 2011; Schmader & Lickel, 2006), but can be countered by interest-taking, an essential quality of intentional exploration that can help individuals connect with themselves again through self-reflection, insight, and introspection. Studies 3-5 attempted to manipulate interest when writing about recent shame experiences. Chapter 4 presents three additional studies that explored how individual differences in intentional exploration influence solitude experiences (e.g., rumination, introspection, and peaceful affect) and different solitude forms (distracted vs. private). In these chapters, intentional exploration was associated with (1) adaptive coping and daily well-being, (2) constructive tendencies about shame experiences but not lower shame, and (3) self-connection in solitude. The implications of the findings and potential future studies are discussed.

Chapter 1

Introduction to the Literature and Conceptual Framework

Individuals' ability to experience their emotional states, regulate them, and integrate these emotional experiences is essential for well-being (Roth et al., 2009; Ryan et al., 2016). This thesis examined a relatively less studied form of emotion regulation: integrative emotion regulation, and specifically intentional exploration. Integrative emotion regulation, derived from Self-Determination Theory (SDT; Ryan & Deci, 2017), reflects the full experiencing of both negative and positive aspects of emotional experiences, exploring the personal sources of those emotions, and using this knowledge and insights in the volitional regulation of behaviours (Roth et al., 2014; Roth et al., 2019). This adaptive regulatory style represents an *autonomous* (i.e., intrinsically, or self-motivated) form of emotion regulation (Ryan et al., 2016). Intentional exploration constitutes the core of processing difficult emotions as it involves actively and intentionally exploring emotional experiences, as well as considering important aspects of the self (i.e., needs, values, goals, preferences, and available resources) (Roth et al., 2019). It is characterised by an interest in and a differentiated awareness toward inner emotional experiences (Ryan et al., 2016). In the series of studies presented within this thesis I examined the role of intentional exploration as a key quality of integrative emotion regulation that can help to downregulate difficult emotions.

The first chapter of this thesis presents the current conceptual frameworks related to emotion regulation and coping, and integrative emotion regulation within the context of Self-Determination Theory, in particular. I review evidence suggesting that integrative emotion regulation and, most notably intentional exploration; i.e., active and motivated pursuit of one's own emotions (Roth et al., 2009; Roth et al., 2018; Roth et al., 2019), plays a crucial role in contributing to integrative regulation. I then explore one aspect of integrative regulation – the potential use of interest-taking in regulating feelings of shame. Drawing on

the literature on shame that argues that this especially painful emotion motivates movement away from the self, I explore the potential for intentional exploration, and its state expression, interest-taking, to move people back towards the self. Additionally, I explore solitude experiences and how individual differences may influence these experiences and their impact on self-connection. Lastly, I discuss cognitive well-being indicators studied in this thesis, including self-reflection, rumination, insight, and self-connection, which I believe to be key to understanding consequences of intentional exploration.

In Chapter Two, I explore the associations between emotion regulation styles (e.g., integrative emotion regulation: receptive attention and intentional exploration; emotional suppression; and emotion dysregulation) and coping strategies (e.g., active coping, planning, positive reframing, acceptance, denial, self-blame, behavioural disengagement) in terms of their relative effects on well-being. I report my longitudinal one-month study on different emotion regulatory styles and their effects on adaptive and maladaptive coping. I then shift my focus to understanding the variations in integrative emotion regulation dimensions (e.g., receptive attention and intentional exploration) and their relative effects on perceived daily stress and well-being.

In Chapter Three, I examine the extent to which intentional exploration of emotional experiences can be used as an effective tool to down-regulate feelings of shame. I conducted three studies (Studies 3 and 5: experimental study, Study 4: daily diary study) to explore a mechanism that may explain the associations between interest and shame regulation. Specifically, I used interest-taking to help individuals move towards themselves to facilitate constructive processing of feelings of shame, thus offering a potential practical application of my findings.

The three studies in Chapter 4 (Studies 6 and 7: daily diary; Study 8: experimental study) investigated the extent to which intentional exploration of emotional experiences

facilitates self-connection when individuals spend time in solitude, because these periods of time hold special power for both self-connection and for loneliness, depending on the characteristics of the context and the individual resources that individuals bring to their alone time. Additionally, in Study 8, I explore whether intentional exploration relates to private (i.e., distracted; watching a TV show) or complete (i.e., undistracted; sitting alone with thoughts) solitude differently after participants were exposed to the Trier Stress Task. These two contexts provided the opportunity to examine intentional exploration when individuals were fully left alone (i.e., undistracted solitude) as differentiated from a type of solitude that offers a cognitive focus away from the self.

The final chapter summarizes the findings, discusses insights on intentional exploration and interest-taking, and outlines the implications and limitations of the studies.

1.1. Emotion Regulation

Individuals experience stressful circumstances and negative emotions within their daily lives and employ various strategies to cope with them. The study of specific approaches taken by individuals to regulate their emotions has gained traction since early studies in this area in the 1980s (Gross, 1998). Emotion regulation refers to the processes by which individuals influence their own emotions; Regulatory styles may affect the expression, frequency, and when and which emotions emerge and unfold (Gross, 1998). Below, I review current approaches to emotion regulation and highlight some of their key features.

Thompson defined emotion regulation as an attempt involving *intrinsic* and *extrinsic* processes affecting emotional responses, which consists of monitoring, evaluating, and shifting emotional reactions to meet desired goals (Thompson, 1994). He emphasized that emotion regulation encompasses the ability to initiate, maintain, and modify the experience and expression of emotions in pursuit of an individual's goals. Intrinsic factors are considered to be internal mechanisms, individual differences in temperament, as well as cognitive

processes such as attention and inhibitory control. By contrast, extrinsic factors are made up of external influences such as the environment, relationships, and cultural expectations (Fox & Calkins, 2003).

Gross' (1998) process model of emotion regulation posts that emotions can be regulated in two different ways, which are termed *antecedent-focused emotion regulation* and *response-focused emotion regulation*. Antecedent-focused strategies refer to attempts made by individuals before emotional responses are activated. By contrast, response-focused strategies refer to people's behaviours when emotions have already been generated (John & Gross, 2004). According to the process model of emotion regulation, emotion regulation is generated at five points in time: (1) *situation selection*, (2) *situation modification*, (3) *attentional deployment*, (4) *cognitive change* (reappraisal), and (5) *response modulation*. Antecedent-focused strategies involve the first four phases: situation selection, situation modification, attentional deployment and cognitive change (reappraisal). Gross describes emotions as starting by evaluating external or internal emotion cues. Individuals approach or avoid particular situations or people by considering their emotional effects on themselves (*situation selection*), then modify the environment to change its emotional effect (*situation modification*). Next, the person focuses on paying attention to something else or avoiding the situation to influence its emotional consequences (*attentional deployment*). Finally, *cognitive change* occurs at the last point, reappraisal. During reappraisal, individuals reevaluate the situation to change their perception of it and decrease its emotional impact. Response modulation refers to attempts to alter emotional responses such as suppression once the emotional tendencies have already been generated.

Gratz and Roemer's (2004) conceptualization of emotion regulation draws on Thompson's definition and is composed of several dimensions, including being aware of emotions, acceptance of emotions, controlling impulsive behaviours and acting in relation to

goals while experiencing negative emotions, and being able to choose flexible emotion regulation strategies to control emotional arousal and meet personal goals and situational necessities. The lack or insufficiency of these important abilities causes individuals to experience difficulties regulating their emotions (Gratz & Roemer, 2004).

A recent taxonomy of emotion regulation was proposed by Tamir (2016) regarding motives to achieve desired outcomes. Tamir classified these key emotion regulation motives into two main categories: hedonic and instrumental. Hedonic motives consist of prohedonic (i.e., motives to increase pleasure and minimise pain) and contrahedonic motives (i.e., motives to increase unpleasant emotions as these emotions are perceived as less painful). While hedonic motives represent an orientation toward pleasure or pain, instrumental motives describe other types of benefits rather than immediate pleasure. These instrumental benefits can be performance, epistemic (i.e., knowledge), social relations, or eudaimonic motives (i.e., meaning in life, personal growth, autonomy, competence). Emotion goals can serve various motives; for instance, an individual can increase sadness to facilitate analytical thinking, social support from others (social motive), self-verification (epistemic motive), or promote meaning in life (eudemonic motive) (Tamir, 2016).

While the mentioned approaches describe certain strategies to modulate emotions and impulses, Self-Determination Theory, which I describe in more detail in the following sections, considers emotion regulation as a trait-level variable. For this reason, emotion regulation is seen as a consistent style, not a specific strategy (Benita et al., 2020; Benita et al., 2017). According to SDT, emotion regulation also involves the extent to which these emotion regulation styles are accompanied by a sense of volition and autonomy (Benita et al., 2019; Roth et al., 2019; Ryan et al., 2016). In SDT, emotion regulation requires individuals to be in touch with their inner selves and emotional experiences and accept both the positive and negative aspects (Ryan et al., 2016). Taken together, the concept of integrative emotion

regulation in SDT has certain shared features and differences with other concepts such as mindfulness, awareness, acceptance, and reappraisal (Benita et al., 2020). The first dimension of the integrative emotion regulation concept in SDT; namely, nonjudgemental *receptive attention* to emotional experiences, corresponds to the notion of mindfulness (Brown & Ryan, 2003; Roth et al., 2019). Receptive attention enables the active and *intentional exploration* of emotional experiences (Roth et al., 2014), which does not exist in other adaptive emotion regulation forms (Benita et al., 2020).

This second step also involves deriving knowledge from emotional experiences (Roth et al., 2018). For this reason, integrative emotion regulation differs from Gross' (1998) view of reappraisal which is defined as "interpreting potentially emotion-relevant stimuli in unemotional terms" (Gross, 1998) and involves attempts to view an emotional or stressful situation in a particular, typically positive, way through a deliberate cognitive, evaluative process. Further, in contrast to strategic re-evaluation, adaptive emotion regulation within the SDT tradition involves embracing rich access to the inner self and emotional experiences, rather than trying to minimize the experience of the emotion (Ryan et al., 2015b). Individuals who implement adaptive regulation gain insights into their emotions, understand the nature of the situation, and select appropriate coping strategies and actions (Benita et al., 2020; Roth & Benita, 2023b).

Although individuals occasionally use emotion regulation strategies to down-regulate their positive emotions and up-regulate their negative emotions as a function of situational needs, for instance, before athletic competitions to increase their performance, most of the time, emotion regulation strategies are used to down-regulate undesirable negative emotions (Gross et al., 2006; Livingstone & Srivastava, 2012). For instance, sadness is a core symptom of depression, which is one of the most common psychological disorders globally (Li et al., 2022). Depressed individuals employ a number of adaptive and

maladaptive strategies to downregulate their sadness, including suppression, cognitive reappraisal, distraction, seeking emotional support, and/or rumination (Zaid et al., 2021). Another example of a negative emotion is anger. Studies focusing on reducing anger have shown that cognitive reappraisal, mindfulness, attention-shifting, seeking information, and attention-based cognitive behavioural treatments are all effective (Beames et al., 2019; Clifford et al., 2022; Gilliom et al., 2002). Other difficult emotions, such as guilt and shame, are classified under a specific category of emotions known as self-conscious emotions and have been linked to a number of psychopathological outcomes (e.g. anorexia nervosa, depression, PTSD symptoms, internalizing and externalizing problems, and antisocial behaviours) (Muris & Meesters, 2014; Tangney & Dearing, 2002). Shame for example consists of a negative evaluation of the entire self (Lewis, 1971), and negative identities are more threatening when negative affect is related to the self (Weinstein et al., 2011). For this reason, it is difficult to acknowledge and integrate this painful emotion.

Successful emotion regulation contributes to individuals' health and adaptive functioning (Tamir, 2011). It also influences relationships and social connections because emotions frequently emerge in social interactions, and individuals need to regulate their emotions during these emotionally important interactions to pursue their goals and maintain good relationships with important others (John & Gross, 2004). This emotional closeness improves their relationships, whereas the chronic use of suppression is associated with inauthenticity, reduced social closeness and less social support (John & Gross, 2004). This also influences other aspects of their lives, for instance, reappraisal is related to greater life satisfaction, optimism, and self-esteem (John & Gross, 2004). Individuals using reappraisal habitually tend to experience fewer depressive symptoms, and show greater personal growth, self-acceptance, environmental mastery, purpose in life, and greater autonomy. In contrast, suppressors experience more negative outcomes, including more negative emotions, poor

coping skills, and increased risk of depressive symptoms (John & Gross, 2004). Other forms of adaptive emotion regulation, such as refocus on planning and positive reappraisal, are positively associated with subjective and psychological well-being whereas maladaptive strategies such as catastrophising, self-blame, and rumination are linked to poorer well-being (Balzarotti et al., 2016). Successful emotion regulation also contributes to work (Brackett & Salovey, 2006; Diener et al., 2020) and academic performance (Piryaei et al., 2017).

While adaptive emotion regulation is associated with positive outcomes, emotion regulation difficulties have been associated with a range of conditions indicative of poor mental health (Aldao & Nolen-Hoeksema, 2012; Lawlor et al., 2020). These include depression, anxiety, eating disorders, alcohol and substance-related disorders, bipolar disorder, and borderline personality disorder (Aldao et al., 2010; Dvorak et al., 2014; Johnson, 2005; Linehan, 1993; Nolen-Hoeksema et al., 2008; Young et al., 2019). Although beyond the scope of this thesis, it is worth noting that emotion regulation has been found to be significantly impaired in individuals with psychosis, who implement more maladaptive and less adaptive emotion regulation strategies compared to healthy controls (Ludwig et al., 2019; O'Driscoll et al., 2014). In addition to mental disorders, emotion regulation difficulties have an impact on physical health (Gross, 2015). Studies have indicated that some emotional dispositions such as depression, anxiety, and anger are associated with coronary heart disease (Suls & Bunde, 2005). Thus overall, intense negative emotions, when not effectively processed, increase the risk of mental and physical health issues.

1.1.1. *Emotion Regulation and Adaptive Coping*

Emotion regulation and coping are closely related but distinct psychological constructs (Compas et al., 2014). Coping is a research topic that examines how individuals handle stressful circumstances and threatening events. It has been conceptualised as efforts to manage stressful circumstances in the moment, in contrast to reflecting stable or personality

characteristics (Compas et al., 2014; Snyder & Pulvers, 2001). Coping is considered to cover purposeful and controlled thoughts and behaviours which are adopted to influence the internal and external demands of situations in stressful circumstances, whether real or imagined (Folkman & Moskowitz, 2004; Gross, 1998). Coping differs from emotion regulation in two main ways in these definitions. Emotion regulation encompasses a much wider range of emotions, including positive and negative experiences, whereas coping involves responses to stressful events or circumstances (Compas et al., 2017; Gross & John, 2003). For example, individuals may try to suppress their happiness when meeting with a friend who is having a difficult day. The second major difference is that coping is a purposeful and controlled process, whereas emotion regulation encompasses both automatic and controlled processes. Said differently, coping involves conscious awareness to deal with stressful circumstances. Emotion regulation involves both conscious and unconscious processes. To take these distinctions into account, Compass et al. (2001, 2017) defined coping as "conscious volitional efforts to regulate emotion, cognition, behaviour, physiology, and the environment in response to stressful events or circumstances".

Although several coping taxonomies have been proposed (Aldwin & Yancura, 2004; Koh, 2018; Skinner et al., 2003; Stallman, 2020; Zhang et al., 2019), one of the most widely used classifications was proposed by Folkman and Lazarus (1980), who classified coping strategies into *problem-focused strategies* and *emotion-focused strategies*. Problem-focused strategies focus on solving the external problem that was the source of the distress, and aims at altering this source whereas, emotion-focused strategies aim to decrease negative feelings related to the problem (Folkman & Moskowitz, 2004). Even though problem-focused strategies are considered to be more adaptive and healthy strategies in the literature, individuals may use emotion-focused strategies when it is difficult to eliminate stressors from their lives. Therefore, problem-focused strategies are mainly used in controllable situations,

whereas emotion-focused strategies are used in uncontrollable situations (Folkman & Moskowitz, 2004). For example, when facing a significant loss, such as the death of a loved one or dealing with a chronic illness, it is helpful to utilize emotional coping strategies to reduce the negative feelings resulting from these stressful situations. On the other hand, when there is still an opportunity to change the circumstances, such as preparing for exams or addressing financial difficulties, it is beneficial to deal with the problems through active coping or seeking advice.

The second widely used conceptualization of coping consists of *approach-coping strategies* and *avoidance-coping strategies.* This involves cognitive and emotional reactions oriented to move towards or away from threatening information (Roth & Cohen, 1986). Approach strategies consist of attempts to resolve distress by actively focusing on distress resources, such as planning, positive reframing, and seeking social support to deal with stressors. In contrast, avoidance strategies include attempts to avoid or deny the existence of stressors, which can include denial, self-blame, or blaming others (Finset et al., 2002). Although approach orientation is preferable in controllable situations, avoidance orientation is considered to be more adaptive when the problem is uncontrollable (Roth & Cohen, 1986) because it is crucial to detach from situations where one feels helpless for effective self-regulation and goal achievement (Lench & Levine, 2008). When a situation is hard or impossible to control, disengagement may help people conserve their resources for other goal pursuits (Lench & Levine, 2008).

1.2. The Self-Determination Theory Perspective on Emotion Regulation

In this thesis, I used the Self-Determination theory framework (Ryan & Deci, 2017) to explore integrative emotion regulation. Integrative emotion regulation differs from constructs described above, because this adaptive form of emotion regulation refers to a consistent style, instead of a specific strategy (Benita et al., 2020; Benita et al., 2017). SDT's

perspective on emotion regulation is rooted in a holistic view of wellness (Roth et al., 2019; Ryan et al., 2015b) where wellness and mental health require integrated and harmonious functioning which is characterised by awareness, assimilation, and self-regulation (Roth & Benita, 2023b; Ryan & Deci, 2017). Integrative emotion regulation corresponds to a motivated form of emotion regulation, and incorporates the presence of a sense of volition and autonomy (i.e., regulation by the self) (Roth et al., 2019; Ryan et al., 2016). Emotion regulation has been shown to impact well-being and the integration of negative emotional experiences (Benita et al., 2020; Roth et al., 2019; Weinstein et al., 2011). It is also associated with personal well-being, volitional functioning, and high-quality relationships (Roth et al., 2019). Before expanding the integrative emotion regulation framework and its components, the next section provides a brief introduction to SDT.

1.2.1. *Human Nature Through the Lens of Self-Determination Theory*

Self Determination Theory (SDT; Deci and Ryan, 1985; Ryan and Deci, 2017) is an organismic metatheory, which assumes that humans begin their psychological development with a nascent self. SDT argues that people are intrinsically physically active, inherently curious, growth-oriented, and deeply social organisms who are naturally inclined toward the integration of a coherent and unified sense of self (Deci & Ryan, 2000). They have intrinsic tendencies to take an interest in, learn, and gain mastery of their inner and outer worlds (Ryan & Deci, 2017). This organismic perspective also proposes that this natural inclination orients people to engage in interesting activities, experience connectedness in social groups, and incorporate intrapsychic and interpersonal experiences into a coherent experience of the self within a social world (Deci & Ryan, 2000).

Ryan and Deci (1985) further posited *Basic Psychological Needs Theory (BPNT),* a core set of universal psychological needs that they consider the essential elements of human nature: competence (i.e., self-efficacy), relatedness (i.e., belonging and connectedness), and

autonomy (i.e., the experience of having volition or agency and self-congruence). These three needs are universal in that people flourish when their needs are satisfied and struggle when their needs are frustrated, regardless of culture (Chen et al., 2015; Church et al., 2013; Nishimura & Suzuki, 2016; Ryan & Deci, 2000b). The satisfaction of these psychological needs is necessary for healthy development, optimal human functioning, well-being, and resilience (Ryan & Deci, 1985; Vansteenkiste & Ryan, 2013). Supporting these psychological needs facilitates self-development and reduces psychopathology (Ryan et al., 2016). On the other hand, need frustration leads to observable functional disruptions (Bartholomew et al., 2011) and increases the risk of defensiveness and psychopathology (Vansteenkiste & Ryan, 2013). Previous studies have shown that low need-satisfaction is associated with ill-being. For instance, Hodge et al. (2008) showed that low autonomy and competence levels were linked to higher burnout in athletes.

BPNT considers autonomy to be the most complex need because it is a critical concept for full-functioning and effective self-regulation (Ryan et al., 2016) The term autonomy etymologically refers to "self-rule"; SDT defines autonomous behaviours as accompanied by a sense of volition, choice, and psychological freedom (Allen et al., 2017; Deci & Ryan, 2000; Ryan et al., 2009). In other words, autonomous behaviours align with the needs, values, and interests of a person (Weinstein et al., 2012). When people have their basic psychological needs met, they experience greater self-determined motivation (Ryan & Deci, 2017), authenticity, and self-esteem (Heppner et al., 2008).

Within SDT, autonomous behaviours are derived from the "self". Therefore, when acting autonomously, the organism feels "wholehearted" and "together", and the author of their behaviours (Ryan et al., 2015b; Weinstein et al., 2012). Although all intentional actions do not emanate from self, well-assimilated and self-endorsed actions are understood to be autonomous (Ryan et al., 2015b). SDT theorists and researchers (Ryan et al., 2015b)

emphasize the importance of distinctions between the true self and the false self, as initially described by the psychodynamic therapist and theorist D. W. Winnicot (1965). According to Winnicot, when individuals act from the true self, they feel real and in touch with their needs and emotions. On the other hand, when acting from false self, the persons experience a kind of mask of their behaviours. Alice Miller pointed out that the false self serves individuals as a mechanism to gain approval in non-accepting social contexts (Miller, 1981).

SDT (Ryan, 1995) shares several assumptions described in Carl Rogers' (Rogers, 1961) Organismic Valuing Process theory (OVP). This approach assumes that individuals are naturally inclined toward physical and psychological growth (Rogers, 1961). In Rogerian terminology, the *actualizing tendency* refers to an active push for an individual to improve themselves through the fulfilment of their potential, better organization, and growth (Maurer & Daukantaitė, 2020). Rogers distinguished three essential conditions that support individuals engaging with the organismic valuing process; namely, *congruence and genuineness* (i.e., self-connection, a reflection of authenticity, the experience of congruity between expression and presence of self), *unconditional positive self-regard* (i.e., appreciation for one's being), and *empathic understanding* (i.e., the ability to feel another else's experience; Rogers, 1961). These conditions help individuals be in touch with their organismic valuing processes.

1.2.2. Integration of Experiences: Successful versus Poor Integration

The studies suggest that integration and assimilation of past positive and negative experiences are fundamental processes for psychological growth, well-being, and individuals' present adaptive psychological functioning and thriving (Kaap-Deeder et al., 2016; Ryan & Deci, 2017). Integration is a natural and intrinsically motivated tendency that leads to self-determined actions through optimal internalization (Ryan, 1995). It is identified as a process in which individuals acknowledge different aspects of themselves, such as emotions,

behaviours, and thoughts, and then incorporate these aspects in harmony with their feelings, values, identities, beliefs, and basic needs to construct a unified sense of self (Kaap-Deeder et al., 2016; Weinstein et al., 2011). In other words, the individual integrates past and present experiences by taking into account his/her sense of self.

While high-quality integration involves acceptance and connection (Weinstein et al., 2013), poor integration can include rumination and intrusion (Kaap-Deeder et al., 2016). Within this conceptualization, integration consists of three key subprocesses: awareness (i.e., access to self-knowledge), autonomy (i.e., acting volitionally/ownership), and non-defensiveness (2013). Awareness is considered an active process in which individuals explore their emotional experiences and the meanings of these experiences (Benita et al., 2021). This authentic awareness enables individuals to comprehend what is occurring in the present moment. It plays an essential role in facilitating the integration of emotions (Benita et al., 2020; Roth et al., 2019). The second aspect of integration is autonomy/ownership, which refers to a sense of authorship in actions. Autonomously motivated individuals accept both positive and negative aspects of emotional experiences, which can lead to improved well-being (Weinstein et al., 2011). A study conducted by Weinstein and Hodgins (2008) presented individuals with emotionally charged pictures (Nagasaki and Hiroshima bombings) and instructed participants to use first-person or second-and third-person grammatical constructions to express their feelings. The findings showed that participants who exhibited more ownership reported greater state-level well-being, energy, and better memory after the second viewing of pictures. In this study, the benefits of autonomy were mediated by the third aspect of integration; i.e., non-defensiveness, which is associated with approach coping that involves turning toward distressing stimuli to deal with them actively. In another study (Weinstein et al., 2009), researchers found that mindful individuals showed better integration of stressful experiences, were less defensive/avoidant, and employed more approach coping.

1.2.3. Integrative Emotion Regulation

Within SDT, emotion regulation is classified as three different processes: *integrative emotion regulation, suppressive/controlled emotion regulation,* and *amotivated emotion regulation/emotion dysregulation* (Roth et al., 2019; Ryan & Deci, 2017). Integrative emotion regulation is defined as the ability to experience emotions, explore the roots of emotions and use them to change behaviour volitionally (Roth et al., 2014). Healthy emotional integration requires an accepting and interested attitude towards inner experiences instead of stifling them (Roth et al., 2018; Ryan et al., 2015b). According to theory stemming from the SDT perspective, integrative emotion regulation helps individuals to explore and experience their emotions and gives them alternatives in terms of expression of emotions thus making emotional integration considered a crucial part of effective emotion regulation (Roth & Assor, 2012). Emotional integration also entails a differentiated awareness of a person's emotional states and the capacity to change behaviour volitionally (Roth et al., 2009; Ryan et al., 2015b). Notably, this adaptive style allows individuals to experience negative emotions in addition to positive ones (Roth et al., 2014).

Emotion regulation in SDT stems from a *eudaimonic* rather than hedonic view of wellness. Whereas the hedonic approach defines well-being in terms of pleasure attainment and pain avoidance, the eudaimonic approach defines well-being in terms of the level to which a person is fully functioning (Ryan & Deci, 2001). SDT theorists and researchers argue that emotions are significant informational cues that can affect action and growth (Deci & Ryan, 2000; Ryan et al., 2015b). Healthy emotion regulation implements a eudaimonic view of well-being, which requires generous access to positive and negative emotions, the expression of these emotions, and the ability to use this information to choose behaviours and set goals that satisfy basic psychological needs. Ultimately, this facilitates self-acceptance, personal growth, and the capacity for intimate connection with others (Ryan et al., 2015b).

The eudaimonically oriented regulation of emotion is termed *emotional integration* (Roth et al., 2018; Ryan et al., 2015b).

In contrast to integrative emotion regulation, suppressive emotion regulation, a maladaptive type of emotion regulation refers to the internal compulsion to feel or not feel in particular ways; or in other words, to decrease emotional experience and expression (Roth et al., 2019). Individuals who utilize suppressive emotion regulation attempt to minimize emotional reactions and avoid emotional exploration and expressions once emotions arise. These responses can involve several attempts to avoid fully experiencing emotions such as ignoring, avoiding, and hiding negative emotions to minimize their emotional impact (Roth et al., 2019).

Integrative emotion regulation and suppression can be differentiated in terms of the extent to which they are characterised by autonomy. Autonomous functioning is strongly related to emotional integration, since mindfully perceived emotions provide essential information for satisfying psychological needs and regulating actions for growth and well-being (Ryan et al., 2015b). For this reason, integrative emotion regulation is described as "the most autonomous form of emotion regulation" (Ryan et al., 2015b). In the presence of integrated regulation, individuals act with a sense of volition and choice (Deci & Ryan, 2015).

Previous findings have shown that integrative emotion regulation positively influences well-being compared to other emotion regulatory styles. For instance, recent studies have demonstrated that integrative emotion regulation promotes well-being and the integration of negative emotional experiences whereas suppressive regulation negatively impacts well-being (Benita et al., 2020; Roth et al., 2019). One foundational study in different countries (Israel, Peru, and Brazil) found that college students' integrative emotion regulation positively predicted basic psychological need satisfaction and well-being, whereas

suppressive regulation positively predicted psychological need frustration and negatively predicted well-being (Benita et al. (2020). A recent study (Scharf et al., 2024) investigated the associations between emotion regulation styles and psychosocial adjustment among adolescents after COVID-19 lockdown. In this study, intentional exploration as a form of integrative emotion regulation was associated with optimal well-being and social behaviour, as reported by both mothers and adolescents at the beginning of the study. Specifically, it was positively associated with adolescents' positive affect and prosocial behaviour and negatively related to depressive symptoms and aggressive behaviours. However, there was a self-reported decrease in prosocial behaviours over time. In contrast, suppressive emotion regulation was associated with reduced self-reported well-being after lockdown at baseline (i.e., higher levels of negative affect and depressive symptoms and a decrease in prosocial behaviour as reported by mothers over time). The findings indicate that emotion regulation styles play an important role in adolescents' adjustment to the challenges in lockdown.

Additionally, integrative emotion regulation plays an important role in pursuing goal-relevant behaviours. Studies examining the role of emotion regulation styles in goal progress showed that integrative emotion regulation promotes goal effort and goal pursuit (Benita et al., 2023; Benita et al., 2021) while suppression impedes it. Higher integrative emotion regulation was associated with more goal progress, which was mediated by goal-related effort. In contrast, suppressive emotion regulation was linked to lower goal progress, and this link was mediated by goal-related depressed mood (Benita et al., 2021). A recent study (Benita et al., 2024) compared integrative emotion regulation (e.g., intentional exploration) and reappraisal in their associations with goal pursuit at both trait and daily levels. At the trait level, integrative emotion regulation (e.g., intentional exploration) was consistently associated with goal progress, goal effort, and positive affect while reappraisal was unrelated to these outcomes except in only one study showing a positive association with positive

affect. This influential study also clarified differences between integrative emotion regulation and reappraisal at the within-person level. Daily reappraisal, but not daily emotional integration (e.g., interest-taking), was found to be a strong predictor of goal effort, goal progress, and positive affect. While daily emotional integration (e.g., interest-taking) in this study was positively associated with negative affect, daily reappraisal was negatively linked to it. Their findings clarify that integrative emotion regulation is a more important predictor of optimal goal pursuit at the trait level, while reappraisal emerged as a more significant predictor at a daily level. Reappraisal helps individuals regulate negative emotions to achieve their goals on a daily basis, while integrative emotion regulation, which involves active interest and curiosity and integrating emotional experiences as a trait, is a more beneficial approach in the long run.

Although not the focus of this thesis, the third regulatory style, known as amotivated emotion regulation, is characterised by emotion dysregulation. In this style, negative emotions are experienced as overwhelming and paralyzing (Roth & Assor, 2012). Dysregulation does not involve open and receptive awareness, attentive reflection, or a sense of choice regarding behavioural likelihood (Roth et al., 2019).

1.2.3.4. Receptive Attention and Intentional Exploration

Integrative emotion regulation consists of two complementary dimensions. The first component is *receptive and nonjudgmental attention* of one's emotional experiences. Within SDT, the two key constructs of mindfulness and acceptance are associated with receptive attention (Deci et al., 2015). Mindfulness is defined as increased attention to and awareness of one's current experiences or the present moment (Brown & Ryan, 2003). It is also a protective factor for the negative impacts of difficult life events (Weinstein et al., 2009). Mindfulness also modulates cortisol hormones and emotional reactions to acute social stressors (Brown et al., 2012). Acceptance, another related construct, involves acknowledging

and embracing experiences without attempting to change them (Hayes et al., 2006).

Consequently, the nonjudgmental and receptive awareness afforded through mindfulness and

acceptance prepares people for the integrative process without minimizing automatic and

impulsive reactions or defensive evaluations (Brown & Ryan, 2003; Roth et al., 2018).

Individuals utilize open and nonjudgmental awareness and observe their internal states and

external surroundings. This high-quality awareness allows individuals to be more in touch

with their feelings, needs, values, and preferences and helps them choose goals and activities

that encourage them to feel more effective and sufficient, related, congruent, and authentic in

their actions (Deci et al., 2015).

The second component involves an *active and intentional exploration* of emotional

experiences. This active emotional exploration includes the intention to coordinate the

emotional experience with other directions of self, such as aims and needs (Roth et al., 2019).

While receptive and nonjudgmental attention allows individuals to unfold their awareness,

interest-taking enables them to engage in these emotional experiences with curiosity (Deci et

al., 2015).

1.3. Interest and Interest-Taking in Processing Difficult Moments

1.3.1. *Interest*

Interest is the core of intentional exploration and integrative emotion regulation, and

differentiates integrative emotion regulation from other adaptive regulatory styles. In recent

years, researchers have explored the role of interest in learning, thinking, exploration,

development, and motivation. Interest is defined as positive feelings and encompasses an

attraction, a preference, or a passion (Valsiner, 1992). It is mainly conceptualized as a type of

individual and object relationship (Krapp, 2005) and refers to focused attention and

engagement with the opportunities provided by specific content, potentially leading to action

activities (Hidi et al., 2004; Krapp, 2005). Other important attributes of interest encompass

specific cognitive and emotional elements; in other words, interest is elicited when something

is important or valuable for feeling-related or value-related evaluation (Krapp, 2005). It

motivates individuals to learn, explore, and develop their knowledge, skills, and experience

by energising their behaviours (Silvia, 2008). Interest also relates to orientation,

concentration, and approach-oriented actions (Libby et al., 1973; Silvia, 2008) and serves

when pursuing goal-relevant behaviours (Sansone & Smith, 2000).

      Curiosity, which is a related concept to interest, is an important indicator of positive

mental health and well-being (Kashdan et al., 2004). It is described as a "desire to know"

(Berlyne, 1960) and a response to new experiences involving feelings of interest or

uncertainty (Collins et al., 2004). Curiosity motivates exploration and initiates a thorough

investigation of new stimuli to gain knowledge (Litman & Spielberger, 2003). According to

Broaden and Built Theory (Fredrickson, 2001), negative emotions narrow an individual's

momentary thought-action capacity, whereas positive emotions such as interest, joy, and

pride, broaden individuals' thought-action repertoire and build their enduring personal

resources. Curiosity differs from other positive emotions in terms of its potential effect in

facilitating flexible and open thinking regarding individuals' feelings and emotions

(Weinstein, 2009).

      In Litman's conceptualization (2010), curiosity encompasses two goals: gaining

knowledge to evoke positive feelings linked to the *interest* (I-type) and reducing undesirable

states of lacking information, known as the *deprivation* type (D-type). While the interest type

of curiosity represents intrinsically motivated experiences, where having new experiences is

seen positively that generate positive feelings such as joy and engagement, the deprivation

type of curiosity refers to the intense and uncomfortable desire to know which is aimed at

reducing unpleasant feelings of ignorance (Litman, 2010). Research examining how the I and

D type interact with the effects of self-regulation has shown that individuals categorised as

tending towards the I type of curiosity reported greater optimistic expectations, risk-taking, and higher behavioural intentions such as fun- seeking. On the other hand, the D type involved caution and thoughtfulness in learning new knowledge (Lauriola et al., 2015).

Curiosity also plays an important role in well-being and meaning in life (Kashdan et al., 2004; Kashdan & Steger, 2007). For instance, individual differences in trait-curiosity led to more growth-oriented behaviours, as well as a greater presence of meaning, search for meaning, and life satisfaction (Kashdan & Steger, 2007). Gallagher and Lopez (2007) showed that curiosity related to greater emotional (e.g., high positive affect, low negative affect, and greater subjective happiness) and psychological well-being. Studies have thus suggested that curiosity promotes positive subjective experiences and personal growth opportunities which may facilitate emotional and psychological well-being (Gallagher & Lopez, 2007; Kashdan et al., 2004).

Specifically, feelings of interest-excitement and curiosity are seen as the foundation of intrinsically motivated actions and integrative emotion regulation (and intentional exploration in particular). By extension, interest-excitement is posited to play an important role in exploratory behaviours (Loewenstein, 1994; Roth et al., 2019; Ryan & Deci, 1985). Intrinsic motivation involves experiencing an activity for its inherent satisfactions (Ryan & Deci, 2000a). This tendency towards assimilation and integration, competence, spontaneous interest and exploration is thought to be critical for cognitive and social development (Ryan & Deci, 2000b). These activities are experienced because they are fun and enjoyable (Ryan et al., 2009). Interest-taking involves motivated attention to being receptive to positive and negative experiences (Weinstein et al., 2011) .

Previous studies have examined the effects of interest-taking in regulating negative emotions. For instance, Roth et al. (2018) showed that individuals who were instructed to explore their emotions with interest reported lower arousal and better cognitive capacity after

watching a fear-inducing film. Another study conducted by Roth et al. (2014) found that taking an interest in and accepting negative emotions was associated with less defensive processing of negative experiences and better functioning. Weinstein (2009) showed that participants who were instructed to take an interest and manifest curiosity in their emotional experiences after rejection reported less anger than that found in the suppression and expression regulation groups. Thus interest, as a core aspect of intentional exploration of emotions and autonomous forms of motivation, may be used as an effective way to down-regulate when processing difficult moments.

1.3.2. Shame: "Sinking into the Ground"

Shame is considered one of the most difficult feelings, and is characterised by "an acute awareness of one's own flawed and unworthy self" (Tangney & Dearing, 2002). Since shame is a self-conscious emotion, it depends on one's perception of the self and negatively influences a unique relationship with oneself (Tangney & Dearing, 2002). Shame consists of negative evaluations, appraisals and feelings toward the entire self when violating social and moral norms (Lewis, 1971; Liw et al., 2022). Feelings of shame reflect a sense of inferiority, smallness, powerlessness, personal devaluation, and worthlessness (Brown, 2006; Goffnett et al., 2020; Lewis, 1971). One of the most visible markers of shame is the feeling of "sinking into the ground" (Reimer, 1996). When people feel ashamed, they reject themselves and move away from their inner selves.

Because of the similarities between shame and guilt, their differences tend not to be well differentiated. Lewis (1971) suggested that shame involves a negative general evaluation of the entire self (I am bad), whereas guilt involves a particular assessment of one's specific behaviour (I did something wrong). Shame is considered more "public" than guilt because others' evaluation is a key factor in the emergence of shame feelings (Bansal et al., 2023). Another important difference between these two emotions is life satisfaction: while

dispositional shame is negatively associated with life satisfaction, guilt is positively related to it (Sullivan et al., 2020).

According to Lewis' model of cognitive attributions (1992), the emergence of shame is dependent on three factors. First, individuals must have the capacity to experience self-conscious emotions. Self-conscious emotions refer to self-evaluations of the self that are characterised by two components: self-awareness and self-representations (Tracy & Robins, 2004). Secondly, individuals need to have some certain standards, such as values, norms, or rules to evaluate their actions or attributes (Lewis, 1992, 2007, 2019). Third, individuals use this to evaluate their actions in light of these norms and decide whether they are in line with them. Shame is elicited when a person perceives a decline in their social status, and this perception violates their need to belong (DeWall & Bushman, 2011; Goffnett et al., 2020; Muris et al., 2014).

Some researchers have argued that shame and interest may be closely connected because shame can only manifest after interest has been activated (Probyn, 2005; Sedgwick & Frank, 1995). This assumption is predicated on the idea that what makes people ashamed is something important to them, which is why interest could be key to understanding shame experiences. Integrative emotion regulation is related to approach orientation, which refers to actively dealing with stressors or life events; for instance, planning or cognitive reappraisal (Finset et al., 2002; Roth & Cohen, 1986). In Roth and Cohen's model (1986), approach orientation is contrasted with avoidance, which describes attempts to move away from the stressor. This is particularly important given that shame is inherently avoidant (McLachlan et al., 2011) and controlled (Ryan & Deci, 2000) in that behaviours driven by shame are not derived from the "self" and are not aligned with a person's values and goals, but instead involve internal prods and pressures (Ryan et al., 2006). While feelings of shame can distance

individuals from their inner selves, intentional exploration of shame experiences may facilitate their pursuit of self-knowledge and exploration of their inner selves.

1.3.3. *Being with Yourself: Solitude and Emotion Regulation*

Not only emotions, but also *life contexts* can be especially difficult for self-regulation. In everyday life, spending time alone can be hard because it may be difficult to confront one's inner thoughts and feelings without external distractions. For instance, solitude can violate people's basic need to belong, leading to loneliness, social isolation, and negative emotions (Averill & Sundararajan, 2013; Bastian et al., 2015; Coplan & Bowker, 2013; Lay et al., 2019; Wang, 2006). On the other hand, solitude can also be an opportunity for individuals to engage in self-connection and self-discovery (Goossens, 2013; Naor & Mayseless, 2020; Weinstein et al., 2021), reduce stress, increase relaxation and experience better mood (Nguyen et al., 2018; Pfeifer et al., 2019). Throughout history, spiritual leaders have embraced solitude to focus on self-exploration and gain insights (Long & Averill, 2003). Similarly, solitude is important for writers, thinkers, artists, and scholars in their work and creative processes (Larson, 1990; Long & Averill, 2003; Storr, 1989). These conflicting findings, stemming from the intricate and multifaceted nature of solitude, may explain why it is often perceived as a double-edged sword (Lay et al., 2019).

The concepts of solitude, loneliness, and aloneness have often been used interchangeably, but they are distinct constructs. Aloneness and loneliness are subjective experiences. Aloneness refers to the objective state of being alone (Galanaki, 2015), while loneliness is an unpleasant psychological state characterised by a desire for the presence of others (Peplau & Perlman, 1982). Conversely, *solitude*, as a state of loneliness, refers to the absence of social interaction, not only physical separation from others but also cybernetic separation (Larson, 1990). Larson suggested that an individual can experience solitude even when surrounded by people and not feel lonely while communicating online. The experience

of being alone can be both positive and negative. When feeling the negative aspects of solitude, individuals may feel lonely and crave company. Conversely, these same individuals can also benefit from the advantages of solitude, especially when they choose to be alone. Being free from social demands can provide opportunities to engage in activities of personal interest (Galanaki, 2015; Long & Averill, 2003).

Long et al. (2003) defined three dimensions of solitude: inner-directed solitude, outer-directed solitude, and loneliness. Inner-directed solitude experiences (i.e., self-to-self relations) involve self-discovery and inner peace, and include forms of solitude such as problem-solving, self-discovery, creativity, inner peace, and anonymity (i.e., freedom from social concerns). Outer-directed solitude experiences (i.e., self-to-other relations) involve a connection with others who are not physically present, such as close others, nature, or God, and encompass intimacy and spirituality. The third dimension involves loneliness and diversion (i.e., engaging in distracting activities). In this conceptualization, loneliness is the only negative form of solitude, and diversion is the only neutral form.

Psychological research shows that solitude experiences influence people's affective experiences, and vice- versa in that people's emotion regulation ability shapes their solitude experiences. Nguyen et al. (2018) defined an emotion-related phenomenon called the *deactivation effect*, which occurs when individuals experience solitude. This term refers to the significant decrease in both positive and negative high arousal effects experienced when alone. Their findings showed that 15 minutes of solitude facilitated relaxation and reduced stress levels. Similarly, Pfeifer et al. (2019) found that allocating themselves six minutes of solitude helped students feel more relaxed, less aroused, and have a better mood. In a study by Rodriguez et al. (2020), individuals experienced a significant decrease in both positive and negative moods after sitting alone for 10 minutes. However, those who were instructed to use this time more positively showed a smaller decrease in positive mood compared to the control

group. These findings hint that using cognitive reappraisal helped the participants manage their emotions when alone, thus potentially increasing their ability to maintain a positive mood during periods of solitude.

Thomas and Azmitia (2019) emphasized the importance of motivation in solitude experiences. They found that choosing to spend time alone for self-determined reasons (e.g. intrinsic motivation) was linked to positive well-being in young people. On the other hand, engaging in solitude for external or imposed reasons was associated with negative outcomes such as loneliness, social anxiety, and depressive symptoms. Similarly, Lay et al. (2019) also showed that individuals with higher desire for solitude and social self-efficacy experienced daily solitude positively.

Although solitude provides opportunities for self-exploration and self-discovery, promotes relaxation, and reduces stress and high arousal positive and negative emotions, some individuals may struggle with confronting their inner thoughts, feelings, and experiences. For example, Lay et al. (2019) also showed that trait self-reflection and self-rumination was associated with daily negative solitude experiences. Another study (Preece et al., 2021) examining the impact of individual differences in emotion regulation strategies in experiences of loneliness, not solitude, showed that high loneliness was characterised by greater use of rumination, catastrophizing, and blame attributions (e.g., self-blame and blaming others), and less use of cognitive reappraisal. Behaviourally, individuals experiencing high levels of loneliness showed more significant use of expressive suppression, withdrawal, and decreased seeking of social support.

1.4. Private Self-Consciousness and Self-Connection

Self-knowledge and connecting with the true self are essential mechanisms in the psychology literature for personal growth and change. Private self-consciousness (Fenigstein et al., 1975) or self-focused attention (Grant et al., 2002; Trapnell & Campbell, 1999) refers

to inner-directed attention which enables the individual to reflect on and gain insight into internal thoughts and feelings. Dispositional private self-focused attention is associated with well-being (Harrington & Loffredo, 2011). Its adaptive forms such as self-reflection and insight, are central to the self-regulatory process and in creating behavioural change (Grant et al., 2002).

1.4.1. *Self-Reflection*

Private self-consciousness refers to a disposition to focus on one's inner experiences (Harrington & Loffredo, 2011). This concept, which was originally developed by Fenigstein et al. (1975), has prompted researchers to formulate new instruments to measure the forms of inner-directed attention incorporated in the model such as internal self-reflectiveness and self-awareness. More recent work has defined new concepts and measures to examine private self-consciousness and differentiate rumination from reflection (Grant et al., 2002; Trapnell & Campbell, 1999). Although private self-consciousness encourages individuals to be more open to experiences and pursue an understanding of the self, it is also noteworthy that it is associated with depression, anxiety, and neuroticism (Trapnell & Campbell, 1999). For this reason, the complex and dual nature of self-reflectiveness is referred to as "*the self-absorption paradox*" (Trapnell & Campbell, 1999). Self-reflectiveness defines the general inclination to focus on oneself (Harrington & Loffredo, 2011). One adaptive form of self-reflectiveness known as self-reflection, refers to examining and assessing inner processes such as thoughts, feelings, and behaviours (Grant et al., 2002). Self-reflection is motivated by epistemic interest and curiosity toward the self and relates to openness to experiences (Takano & Tanno, 2009; Trapnell & Campbell, 1999). It consists of an individual's need for reflecting on thoughts, feelings, and actions, and engagement in self-reflection. These two components of self-reflection have been shown to be positively associated with anxiety and stress, but not with depression and alexithymia (Grant et al., 2002).

1.4.2. Insight

Insight is another adaptive private self-focused attention variable. It refers to a general awareness of a person's feelings and thoughts (Harrington & Loffredo, 2011). This clear understanding is the main goal of psychodynamic approaches that aim to bring internal and unconscious conflicts, repressed feelings, thoughts, and memories to conscious awareness (Brinegar et al., 2006; Freud, 1937). Self-reflection and insight are separate forms of self-focused attention. A number of studies have explored whether insights derived from self-reflection can lead to enhanced well-being. For instance, Stein and Grant (2014) showed that self-reflection contributes to well-being by fostering the development of self-insight, particularly in individuals with high levels of positive self-evaluations and low levels of dysfunctional attitudes towards themselves. On the other hand, another study examining these associations indicated that self-reflection did not positively interact with insight (Lyke, 2009). Researchers have also found that insight, but not self-reflection, was related to two subjective well-being components; namely, life satisfaction and happiness (Lyke, 2009). Apart from these findings, insight is essential for both self-regulation and emotion regulation. For example, it was shown to be related to cognitive flexibility and self-regulation and negatively correlated with depression, anxiety, stress, and alexithymia (Grant et al., 2002). Further, insight is a mediator in the association between mindfulness and psychological well-being (Harrington et al., 2014). Another study showed that increased introspective insight mediated the positive effects of mindfulness-based stress reduction on perceived stress, negative affect, and quality of life (Nyklíček et al., 2020).

1.4.3. Rumination

While self-reflection refers to an adaptive form of self-directed focus, rumination is considered the negative and repetitive form of self-focus which is driven by a feeling of loss, threats, and unfairness to the self (Mor & Winquist, 2002; Trapnell & Campbell, 1999). It is a

significant indicator of poor integration (Kaap-Deeder et al., 2016) because thoughts are not effectively processed but rather revisited in a non-productive way repeatedly over time. Rumination is considered a detrimental cognitive emotion regulation strategy (Garnefski et al., 2001). Response Styles theory (Nolen-Hoeksema, 1991) posited a relationship between rumination and depression and described rumination as a mode of responding to distress which focuses repetitively and passively on symptoms of distress and the potential causes and results of these symptoms (Nolen-Hoeksema et al., 2008). Rumination is associated with neuroticism (Trapnell & Campbell, 1999), and can increase negative thinking and sad moods (Lyubomirsky & Nolen-Hoeksema, 1995), and may lead to other mental health difficulties including the development of anxiety, binge eating and binge drinking, and self-harm (Nolen-Hoeksema et al., 2008). While self-reflection is associated with increased positive affect, rumination is associated with increased negative and decreased positive affect (Brans et al., 2013)

1.4.4. Introspection

Through introspection individuals access their internal states and become aware of their present mental states and processes (Robbins, 2006). Introspection enables individuals to understand their emotional experiences (Ellis, 1991) and can facilitate self-insight, which may lead to self-knowledge and better interpersonal choices (Hixon & Swann, 1993). Although introspection is essential to accessing internal states, overvaluing introspection may lead to conflicts and barriers to self-knowledge and social intimacy (Pronin, 2009). Specifically, excessively high or low levels of self-reflection are considered risk factors for psychological maladjustment unlike moderate self-reflection which was not found to be associated with worse psychological well-being (Hoyer & Klein, 2000). The benefits of introspection are moderated by the nature of the introspective activity and its duration (Hixon & Swann, 1993).

1.4.5. Self-Connection

Gnothi seauton, which means "know thyself," is an ancient maxim inscribed on the Temple of Apollo at Delphi. From ancient philosophers to contemporary theorists and researchers, the importance of understanding the self in human existence has been emphasized (Aristotle, 1976; Kierkegaard, 1980; Rogers, 1961; Schlegel et al., 2009; Winnicott, 1965). Self-connection researchers focus on the perceived understanding of the self rather than the reality of the true-self (Klussman, Curtin, et al., 2022). The self serves as an "internal compass" in guiding actions (Assor et al., 2023). When individuals know more about themselves or they use their true self as a guide, they feel more satisfied with their decisions (Schlegel et al., 2013). Self-knowledge and connecting with the true self facilitate self-actualization, vitality, mindfulness, self-esteem, and active coping (Schlegel et al., 2012). Klussman, Nichols, et al. (2022) recently conceptualized several components of self-connection. Self-connection is thought to be a subjective experience encompassing three capacities; namely self-awareness, self-acceptance, and behavioural alignment with oneself (Klussman, Curtin, et al., 2022). In Klussman's framework, self-awareness refers to having access to inner experiences and knowing these internal states such as feelings, thoughts, behaviours, values, goals and intuitions, priorities, and their changes across time and situations (Goleman, 1995; Klussman, Nichols, et al., 2022). Self-acceptance involves embracing both the positive and negative aspects of oneself, being open to experiences, and not avoiding or denying these experiences (Klussman, Nichols, et al., 2022). Self-acceptance is considered the key component of self-connection because of its associations with well-being and positive functioning (Klussman, Nichols, et al., 2022). Once people become aware of their inner experiences and accept them without judgment, they may start to act in a way that is truer to themselves. At this point, their actions align with their internal states.

1.5.Summary and Hypotheses

Integrative emotion regulation is a less-studied form of emotion regulation. While previous researchers have examined integrative emotion regulation, they have not distinguished between its two key components in their analysis: receptive attention and intentional exploration. This lack of distinction limits our understanding of the independent effects of being receptive versus actively and intentionally engaging in processing emotional experiences. In this thesis, I initially compared these two components and then specifically examined intentional exploration in the context of challenging moments, including (1) adaptive coping and daily well-being, (2) shame experiences, (3) and self-connection in solitude. I hypothesized that intentional exploration of emotional experiences would be associated with constructive processing of these difficult moments. In three empirical chapters, I investigated the following questions and hypotheses:

Chapter 2 (Studies 1-2):

Research question:

RQ 1) Do intentional exploration and receptive attention differ in predicting coping strategies and daily stress and well-being (e.g., positive and negative mood, day satisfaction, self-reflection, rumination, and anxiety)?

Hypotheses:

H1a) Both receptive attention and intentional exploration would be positively associated with greater use of adaptive coping strategies (Study 1).

H1b) Emotional suppression would be negatively associated with adaptive coping strategies (Study 1).

H1c) Emotion dysregulation would be positively associated with maladaptive coping strategies (Study 1).

H2) Both receptive attention and intentional exploration would be positively associated with greater subjective well-being (greater day satisfaction and positive mood, and lower negative mood) (Study 2).

H3) Both receptive attention and intentional exploration would be negatively associated with lower perceived daily stress and daily anxiety (Studies 2).

H4) Both receptive attention and intentional exploration would be associated with greater daily self-reflection and lower rumination (Study 2).

Chapter 3 (Studies 3-5):

Research questions:

RQ 1) Does interest-taking help individuals down-regulate their feeling of shame?

RQ 2) Will intentional exploration predict lower shame and constructive tendencies about shame experiences after engaging in emotion focused expressive writing tasks (e.g., self-reflection, insight, introspection, self-improvement motivation, and approach-oriented tendencies)?

Hypotheses:

H1) Condition would predict less state-level shame after five minutes engaging in an emotion-focused interest-taking writing task (Studies 3, 4, and 5).

H2) Condition would predict greater state-level self-reflection and insight (i.e., engagement in self-reflection, need for self-reflection, and insight (Studies 3, 4, and 5)), and introspection scores (only measured in Studies 4 and 5).

H3) Condition would predict more self-improvement motivation and approach orientation (Study 5).

H4) Individual differences in intentional exploration would relate to lower state-level shame after five minutes engaging in an emotion-focused interest-taking writing task (Studies 3, 4, and 5).

H5) Individual differences in intentional exploration would relate to greater state-level self-reflection and insight (i.e., engagement in self-reflection, need for self-reflection, and insight (Studies 3, 4, and 5), and introspection scores (only measured in Studies 4 and 5) after five minutes engaging in an emotion-focused interest-taking writing task.

H6) Individual differences in intentional exploration would relate to self-improvement motivation and approach orientation (Study 5).

Chapter 4 (Studies 6-8):

Research questions:

RQ 1) Does intentional exploration of emotional experiences predict self-connection in solitude?

RQ 2) How does intentional exploration of emotional experiences influence solitude experiences (rumination, introspection, and peaceful affect)?

Additional research question:

RQ 3) Does intentional exploration influence individuals' solitude experiences in private (distracted) vs. complete (undistracted) solitude?

Hypotheses:

H1) Intentional exploration of emotional experiences would relate to greater self-connection in solitude (Studies 6, 7, and 8).

H2) Intentional exploration of emotional experiences would relate to higher peaceful affect (Studies 6, 7, and 8) and introspection (Studies 7 and 8), but lower rumination (Studies 7 and 8) in solitude.

H3) Self-connection would mediate the links between intentional exploration of emotional experiences and peaceful affect (Studies 6, 7, and 8), introspection (Studies 7 and 8), and rumination (Studies 7 and 8).

Chapter 2

The Role of Integrative Emotion Regulation in Adaptive Coping and Perceived Daily Stress Regulation

Abstract

Emotional integration involves ways of responding to one's emotions: receptive attention (i.e., open and nonjudgmental attention to emotions) and intentional exploration (i.e., active and motivated pursuit of one's own emotions. Across two studies (Study 1: two waves longitudinal, $N = 239$; Study 2: daily diary, $N = 132$), I compared these two dimensions of integrative emotion regulation (i.e. receptive attention and intentional exploration) in adaptive and maladaptive coping styles (i.e., specific strategies to shape one's response to stress) and daily well-being. In Study 1, both forms of integrative emotion regulation were positively associated with adaptive coping (e.g., the use of active coping, acceptance, planning, and positive reframing) one month later, but only intentional exploration (and not receptive attention) showed benefits for well-being in a seven-day daily diary context (Study 2). Intentional exploration was negatively associated with perceived daily stress and positively associated with constructive self-reflection, a marker of productive processing of emotions, and daily day satisfaction. In all, both forms of emotion regulation promote adaptive coping, but intentional exploration showed more consistent benefits across our studies. This research highlights the independent importance of motivated pursuit of emotional information in the coping process.

Keywords: *Integrative emotion regulation, intentional exploration, coping, perceived daily stress, well-being.*

2.1. Introduction

Increasing focus has been given to understanding optimal emotion regulation in terms of *experiencing,* rather than *avoiding*, negative emotions such as anger, fear, or sadness. Informed by Buddhist approaches to meditative practice (Baer, 2003; Brown & Ryan, 2003; Kabat-Zinn et al., 1985) and humanistic views (Rogers, 1961; Roth et al., 2014; Ryan et al., 2015b), keeping oneself open to, and accepting of both negative and positive emotions is understood in terms of allowing the emotion to enter into awareness. This *receptivity* to an emotion supports individuals selecting more adaptive coping styles despite the negative weight of some emotions (Weinstein et al., 2009). Within the Self-Determination Theory (SDT; Ryan & Deci, 2017), integrative emotion regulation involves both being receptive to one's emotion and intentional exploration of emotional experiences. The latter involves an active, intentional exploration of emotional experiences, which the assumption that individuals may benefit from pursuing information about the emotion actively through taking an active curiosity or interest in the emotion (Roth & Assor, 2012). In the current chapter, I compare these two tendencies or patterns in responding to one's emotions and consider their implication for coping styles, understood as concrete actions designed to regulate those emotions.

2.1.1. Emotion Regulation and the Integrative Process

Emotion regulation involves processes – both automatic and controlled – aimed at shaping emotional states that vary on an individual level (Gross & Thompson, 2007; Tamir, 2016). People differ in their tendency to identify, understand, accept, and manage emotions across contexts (Gratz & Roemer, 2004). A growing literature highlights that optimal emotion regulation improves individuals' health and well-being, as well as their interpersonal well-being, while difficulties in emotion regulation are related to mental health and behavioral problems (Aldao et al., 2010). Although scholars have examined mainly two

emotion regulation styles: emotion suppression (i.e., internal compulsion and pressure to feel or not to feel in particular ways to decrease emotional experience and behavioral expression of emotion; Roth et al., 2019) and emotion dysregulation (i.e., individuals' experiencing emotions but not able to effectively regulate them; Roth & Assor, 2012), research is needed to better understand healthy and adaptive emotion regulation styles and identify which, among these, are most successful at supporting positive coping and well-being.

In contrast to both emotional suppression or dysregulation, adaptive emotion regulation strategies focus on constructively engaging in emotional experiences. SDT argues that emotions provide important information that guide action, growth, and connectedness, and that healthy self-regulation involves having full access to those emotions (Ryan et al., 2015a). In short, SDT views all emotions, whether positive and negative, as important contributors to psychological growth (Roth et al., 2019; Ryan et al., 2015b). SDT moreover shares the assumption that humans are active, inherently curious, growth-oriented, and deeply social beings (Ryan & Deci, 2017). Individuals are naturally inclined toward the integration of a coherent and unified sense of self (Deci & Ryan, 2000), and have intrinsic tendencies to take interest in, learn about, and gain mastery of their inner and outer worlds (Ryan & Deci, 2017).

SDT posits that successful emotion regulation is related to the *integration of emotions*, the process in which individuals acknowledge and come to incorporate emotions into their self and self-concept, and incorporate them into other key cognitive and affective components important to them (Kaap-Deeder et al., 2016; Weinstein et al., 2013). Emotion regulation models informed by SDT identify *integrative emotion regulation* as an adaptive form of regulation, which is based on the capacity to feel emotions, investigate the causes of emotions, and use this information in regulating behaviors volitionally (Roth et al., 2014). Integrative emotion regulation is seen as a consistent style instead of a specific strategy

(Benita et al., 2020; Benita et al., 2017). This involves an accepting and interested attitude towards inner experiences rather than stifling them (Roth et al., 2018; Ryan et al., 2015b), and helps individuals to explore and experience their emotions, and select how to act on their emotions (Weinstein et al., 2009). In addition, integrative emotion regulation improves self-acceptance, personal growth, and the capacity for interpersonal closeness and involves negative emotional experiences as well as positive ones (Roth et al., 2018). Thus, high-quality integration reflects productive acceptance, whereas poor integration is reflected in ruminative and intrusive thoughts when emotions that are compartmentalized return to awareness in a disruptive, not useful, way (Kaap-Deeder et al., 2016). In all, emotional integration is considered critically important for adaptive psychological functioning and thriving (Kaap-Deeder et al., 2016).

2.1.2. Receptive Attention and Intentional Exploration

Integrative emotion regulation has recently been further differentiated into two components, namely, receptive attention and intentional exploration. Receptive attention – "a non-judgmental and open attention" to emotional experiences (Roth et al., 2018; Roth et al., 2019) – is strongly conceptually associated with mindfulness (Brown & Ryan, 2003) and involves an openness to, acknowledgement of, and constructive (vs. helpless) acceptance of emotions (Hayes et al., 1999). Intentional exploration involves active and interested (i.e., motivated) exploration of emotional experiences (Roth et al., 2019).

Therefore, whereas receptive attention primarily concerns open-minded and present-centered observation of emotions, the second dimension of integrative emotion regulation – intentional exploration – involves pursuing through an active interest a deeper understanding of inner emotional experiences. The research anchored on integrative emotion regulation has, so far, measured only the dimension of intentional exploration in nascent research and has not

examined its effects alongside receptive attention (Roth & Benita, 2023). The present studies are the first to explore both dimensions simultaneously.

2.1.3. Emotion Regulation can Influence Coping Approaches

Ultimately, the ways in which individuals tend to respond to their emotions internally may influence the direct and concrete actions that they take in response to them, namely, their coping styles. Coping is understood as effortful and conscious attempts to reach one's desired psychological state in response to emotionally charged stressors (Snyder & Pulvers, 2001). Although the two constructs, emotion regulation and coping, share some common elements – namely they both involve a relationship with emotions and can be adaptive or maladaptive (Weinstein et al., 2009), they are distinct in two major ways. First, emotion regulation involves attempts to manage emotions under wider range of situations (e.g., positive and negative emotions; Compass et al., 2001), while coping includes responses to particular events (Gross & John, 2003). In other words, emotion regulation reflects general internal and external tendencies, whereas coping refers to specific thoughts and behaviors (Folkman & Moskowitz, 2004). Second, emotion regulation involves both automatic and purposeful processes while coping is a more purposeful and controlled process (Compas et al., 2014; Gross, 1998).

One of the most widely used coping classifications was proposed by Roth and Cohen (1986). According to this classification, coping strategies can be grouped as *approach-coping strategies* and *avoidance-coping strategies,* referring to the cognitive, emotional, and behavioral attempts directed either towards or away from the threat (Roth & Cohen, 1986). Approach strategies aim at resolving distress by harnessing resources, involving a range of activities including, active coping (i.e., taking active effort to remove or reduce the effects of stressor), planning (i.e., thinking about strategies to deal with the problem), acceptance (i.e., acknowledgement of the reality of the existing problems), and positive reframing (i.e.,

reappraisal; reframing the meaning of stressful situations and change its emotional effect, accepting difficult experiences a kind of learning opportunity (Carver et al., 1989; Gross, 1998)).

Avoidance strategies are maladaptive coping styles that consist of avoiding stressors, denying the existence of stressors, and withdrawing from others such as denial (i.e., attempts to avoid the reality of the stressful circumstances) and self-blame (i.e., tendency that perceiving the self as a direct reason of negative experiences). Even though approach-oriented strategies are more adaptive and healthy strategies (Elliot et al., 1997) and avoidance-oriented strategies are related to maladaptive outcomes (Kashdan et al., 2006), individuals may use avoidance strategies when it is difficult to deal with stressors from their lives. Therefore, approach-coping strategies are mainly used when individuals feel the situation is controllable, whereas avoidance is used in situations perceived to be overwhelming or uncontrollable (Roth & Cohen, 1986). In this study, I classified coping strategies as either adaptive or maladaptive. However, it is noteworthy that situational factors may influence the extent to which regulatory styles are adaptive in any particular moment. For example, emotional avoidance may be adaptive when individuals aim to minimize disruptive impact of negative emotions (Westphal & Bonanno, 2004), and athletes can increase their negative emotions, such as anger, to improve their performance in competitions (Tamir, 2016).

Previous findings from two siloed literatures have demonstrated that both integrative emotion regulation and coping contributed to well-being. In relation to emotion regulation, suppressive emotion regulation has been shown to negatively impact well-being while integrative emotion regulation promotes it (Benita et al., 2020; Roth et al., 2019). For example, integrative emotion regulation has been associated with psychological need satisfaction for autonomy (i.e., choice and volition), relatedness (i.e., closeness to others), and

competence, and negatively related to need frustration (i.e., experience of having basic psychological needs undermined by social or environmental factors) among Belgian adolescents (Brenning et al. (2021). In this study, integrative emotion regulation mediated the links between low need satisfaction and high need frustration in internalizing problems. Another study conducted across three countries (Israel, Peru, and Brazil) showed that college students' integrative emotion regulation was positively associated with well-being, whereas suppressive regulation was negatively associated with lower well-being (Benita et al., 2020). In line with these studies focused on emotion regulation, adaptive coping has also been shown to improve well-being. For example, Freire et al. (2016) showed that higher psychological well-being was associated with increased use of positive reappraisal, support-seeking, and planning strategies. Other studies showed that problem focused coping strategies positively predicts well-being in young adults (Mayordomo-Rodríguez et al., 2015) and relates to more post-traumatic growth among cancer patients (Scrignaro et al., 2011). Additionally, it was shown that adaptive coping strategies are protective factor against substance use (Cardoso, 2018). Studies attempting to consider both areas are rare, but a series of studies by Weinstein et al. (2009) found that mindful individuals (i.e., those high in receptive attention) use less avoidant and more approach coping strategies. A recent study showed that integrative emotion regulation, particularly intentional exploration, was linked to adaptive coping and a greater tendency to learn from failure; this link was mediated by adaptive coping (Sharabi & Roth, 2025). Their findings emphasize the important role of integrative emotion regulation in the process of learning from failure.

2.1.4. Perceived Daily Stress, Daily Anxiety, Self-Reflection and Rumination, and Subjective Well-Being

Stress and anxiety are intertwined experiences (Bystritsky & Kronemyer, 2014), but each is conceptually distinct. Stress is briefly defined as psychological tension or strain which is difficult to deal with or endure (Colman, 2006). Lazarus and Folkman (1984) point out that stress is strongly associated with an individual's subjective perception, irrespective of the existence of negative events. In this study, I focused on perceived daily stress, which represents minor stressful events potentially occurring on a daily basis (Brantley et al., 1987). Alongside stress, anxiety is characterised by excessive worry (Hoge et al., 2012). Emotion regulation influences how individuals deal with both perceived daily stress and anxiety. For instance, habitual adoption of maladaptive emotion regulation strategies (e.g., suppression, avoidance, rumination) is associated with anxiety symptoms. In contrast, adaptive strategies (e.g., reappraisal, problem-solving, acceptance) are negatively associated with anxiety (Schäfer et al., 2016).

In addition to daily stress and anxiety, emotion regulation influences self-focused attention tendencies (i.e., inner-directed attention), which enable the individual to reflect on and gain insight into internal thoughts and feelings (Grant et al., 2002; Trapnell & Campbell, 1999). Self-reflection is an adaptive form of self-focused attention and refers to examining and assessing inner processes such as thoughts, feelings, and behaviours (Grant et al., 2002). It is motivated by epistemic interest and curiosity toward the self, and relates to openness to experiences (Takano & Tanno, 2009; Trapnell & Campbell, 1999).

In contrast, rumination is considered the negative and repetitive form of self-focus (Mor & Winquist, 2002; Trapnell & Campbell, 1999). It is an indicator of poor emotional integration (Kaap-Deeder et al., 2016) because thoughts are not effectively processed but rather revisited in a non-productive way repeatedly over time. While rumination is associated

with increased negative affect and decreased positive affect, self-reflection is associated with increased positive affect (Brans et al., 2013).

Finally, subjective well-being refers to self-reported evaluation of a person's quality of life. Higher subjective well-being is associated with good health, longevity, better relationships, work performance, and creativity (Diener, 1994). Subjective well-being consists of life satisfaction (a cognitive evaluation), positive affect, and the lack of negative affect (Diener, 1994). Whereas life satisfaction is often the focus, researchers have also used the term *day satisfaction* to measure well-being at this timescale (Lucas & Brent Donnellan, 2012; Przybylski et al., 2021; Weinstein, Vuorre, et al., 2023). Researchers (Richardson, 2017) examining the impact of emotion regulation strategies on daily affect in the context of daily stress showed that individuals who adopt reappraisal experience higher positive and lower negative affect, while those who typically engage in suppression report lower positive affect. An experience-sampling study showed similar findings (Brans et al. (2013), demonstrating that suppression and rumination were related to higher negative affect and lower positive affect whereas coping styles such as reappraisal, distraction, social sharing, and reflection were associated with increases in positive affect.

2.2. The Present Studies

Building on the current literature, I conducted two studies to explore the associations between integrative emotion regulation dimensions, coping strategies, perceived daily stress, anxiety, self-reflection, rumination, and subjective well-being (e.g., day satisfaction and positive mood). My first aim was specifically to compare two dimensions of integrative emotion regulation style: intentional exploration and receptive attention, in terms of their relative effects on both coping strategies and well-being (H1a). The second goal of this research was to investigate other emotion regulation styles (suppression and emotion dysregulation) in terms of their associations with coping strategies (H1b and H1c). The last

aim of the study was to examine intentional exploration and receptive attention in terms of their associations with daily outcomes, including day satisfaction, positive and negative mood (H2), perceived daily stress, anxiety (H3), and self-reflection and rumination (H4).

Study 1 – through a longitudinal design –tested two integrative emotion regulation dimensions and additionally two regulatory styles (suppression and emotion dysregulation) known to be maladaptive, but which should be distinct and robust predictors of coping. In Study 2, drawing on findings from the first study, I explored differences between receptive attention and intentional exploration in their associations to daily experiences (perceived daily stress, anxiety, rumination, self-reflection, daily day satisfaction and positive and negative mood) using a one-week daily diary methodology. A daily diary methodology allows researchers to understand how individual characteristics relate to state-level outcomes observed daily and enables data collection more sensitive to short-term variations in experience (Horstmann, 2021). Through these studies, I focused on intentional and receptive regulation of perceived daily stress and anxiety, specifically, because the two experiences cut across the emotion regulation and coping literatures. All two studies were approved by the Psychology Department's Ethics Committee at the University of Reading before undertaking studies.

I set out to four hypotheses (H):

H1a) Both receptive attention and intentional exploration would be positively associated with greater use of adaptive coping strategies (Study 1).

H1b) Emotional suppression would be negatively associated with adaptive coping strategies (Study 1).

H1c) Emotion dysregulation would be positively associated with maladaptive coping strategies (Study 1).

H2) Both receptive attention and intentional exploration would be positively associated with greater subjective well-being (greater day satisfaction and positive mood, and lower negative mood) (Study 2).

H3) Both receptive attention and intentional exploration would be negatively associated with lower perceived daily stress and daily anxiety (Studies 2).

H4) Both receptive attention and intentional exploration would be associated with greater daily self-reflection and lower rumination (Study 2).

2.3. Study 1

Study 1 contrasted both forms of integrative emotion regulation – intentional exploration and receptive attention– alongside non-adaptive forms of emotion regulation, namely dysregulation (i.e., individuals' experiencing emotions but not able to effectively regulate them; Roth et al., 2009) and emotional suppression (i.e., internal compulsion to feel or not to feel in particular ways to decrease emotional experience and behavioral expression of emotion; Roth et al., 2019). This was done to understand the independent effects of both forms of integrative emotion regulation in relation to those that had been more widely studied (Gross & John, 2003; Stellern et al., 2023; van der Kaap-Deeder et al., 2021). Specific to this study, I sought to differentiate dimensions of integrative emotion regulation in terms of their effects on adaptive coping styles.

2.3.1. Method

2.3.1.1. Participants and Procedure

This sample size is based on previous studies testing individual differences in emotion regulation styles (Benita et al,. 2017: $N = 241$; van der Kaap-Deeder, 2021: $N = 226$). Consistent with those studies, we aimed to collect data from around 240 participants. Initially, 196 undergraduates were recruited to take part in a 15-minute Time 1 survey for extra course credit. After one month, students were instructed to complete Time 2 survey ($n = $

164 students completed the second survey). Before analyzing data, to increase the sample size I collected additional data ($n = 95$) through Prolific Academic. In total, I received 259 responses from individuals who completed both parts of the study.

After eliminating repeated answers, the final sample was composed of $N = 239$ individuals ranging in age from 18 to 52 years ($M = 20.43$ years). In this sample, 60.7 percent of the participants identified as women. Seventy-four percent were Caucasian, 9.6% Asian, 5.4% Black, 5.4% Mixed, 2.5% Hispanic, 2.1% Middle Eastern, and .8% identified with another race or ethnicity.

2.3.1.2. Measures

Emotion Regulation Styles. Intentional exploration, suppression, and dysregulation were measured through the *Emotion Regulation Inventory* (ERI; Roth et al., 2009). I also used five items from Baer et al. (2006) to assess receptive attention. Because I was interested in emotion regulation, broadly, the scale was slightly adapted so that items refer to negative emotions rather than to anxiety and stress with the prompt: "When I have negative emotions...". Intentional exploration consisted of seven items including, "…it is important for me to try to understand why I feel this way," and "… I usually try to understand the reasons I feel this way". Receptive attention focused on open attention to emotions and involved five items such as, "I notice how sensations of emotions express themselves through my body" and "I remain present with sensations and feelings even when they are unpleasant or painful". A moderate correlation was present between receptive attention and intentional exploration, $r_{T1} = .53, p < .001$; $r_{T2} = .46, p < .001$ suggesting the two are distinct but related constructs.

As controls, *suppression* was measured with seven items (e.g., "When I feel negative emotions, I almost always conceal it, so others will not notice"), and *emotion dysregulation* consisted of six items (e.g., "It's difficult for me to control my negative emotions and they turn up in ways I don't like"). Participants responded on a 5-point Likert-type scale, ranging

from 1 (*completely not true*) to 5 (*completely true*). Reliability for each scale was acceptable (Receptive attention α = .72; Intentional exploration α = .88; Suppression α = .86; Dysregulation, α = .77).

Brief-COPE Questionnaire (Carver, 1997) was used to measure coping styles at Time 2, one month later. The Brief-COPE consisted of 14 subscales with two items per subscale. Responses were provided on a 7-point Likert-type scale, ranging from 1 (*I have not been doing this at all*) to 7 (*I have been doing this a lot*). Consistent with Weinstein et al. (2009), I reduced the 14-factor structure to two dimensions: adaptive coping (e.g., active coping, positive reframing, planning, and acceptance) and maladaptive coping (e.g., denial, self-blame, and behavioral disengagement). Reliability was acceptable for each factor (adaptive coping, α = .84; maladaptive coping, α = .79).

2.3.2. Results

2.3.2.1. Correlations

Associations between emotion regulatory styles and coping strategies were evaluated using SPSS, as were primary analyses described below. Pearson correlations first explored the associations between four emotion regulatory styles. As shown in Table 1, intentional exploration was strongly correlated with receptive attention ($r = .53$, $p < .001$) but showed a moderate negative correlation with suppression ($r = -.31$, $p < .001$). Receptive attention also has a small negative correlation with suppression ($r = -.20$, $p < .001$), and suppression was negatively correlated with emotion dysregulation ($r = -.16$, $p < .005$). Emotion dysregulation did not relate to intentional exploration and receptive attention.

Table 1

Correlations Among Emotion Regulation Styles

	N	M	SD	1	2	3	4
1. Intentional exploration	239	3.66	.84		.53**	-.31**	.04
2. Receptive attention	239	3.46	.72	.53**		-.20**	.69

3. Suppression	239	3.09	.85	-.31**	-.20**		-.16*
4. Emotion dysregulation	239	3.15	.79	.04	.07	-.16*	

p <.05, **p* < 001

2.3.2.2. Main Effects

Analytic Strategy

I conducted linear regression analyses to model emotion regulation strategies at Time 1 as the independent variable and coping strategies at Time 2 as the dependent variable. To ensure the robustness of my findings, I controlled for baseline levels of the corresponding coping strategies at Time 1, age, and gender.

Hypothesis 1a: Integrative Emotion Regulation and Adaptive Coping Strategies

Intentional exploration at Time 1 was entered as independent variable predicting coping at Time 2. Positive coping at Time 1, age, and gender were included as control variables in the regression model. This analysis examined unique contributions of each variable on adaptive coping strategies at Time 2. The model was statistically significant, $F(4, 222) = 33.59$, p <.001, and explaining 38% of the variance in positive coping at Time 2 ($R^2 = .38$). Findings indicated that intentional exploration (Time 1) was positively associated with adaptive coping strategies at Time 2, ($\beta = .19$, $SE = .08$, $t(230) = 3.09$, $p = .002$, 95% *CI* [.08, .38]) even after controlling for adaptive coping at Time 1, age, and gender. As expected, adaptive coping at Time 1 predicted coping at Time 2; Age and gender were not significantly related.

The same analysis was conducted for receptive attention. Receptive attention at Time 1 was entered as an independent variable, with adaptive coping at Time 2 as dependent variable. I controlled for adaptive coping at Time 1, age, and gender. In this step of the model, receptive attention (Time 1) was associated with adaptive coping at Time 2, ($\beta = .18$, $SE = .09$, $t(228) = 2.99$, $p = .003$, 95% *CI* [.09, .44]). The model was statistically significant,

$F(4, 222) = 41.68$, $p <.001$, and explained 38% of the variance in positive coping at Time 2 ($R^2 = .38$). Similar to the previous analysis, adaptive coping at Time 1 related to such coping at Time 2, but age and gender were not related.

Hypothesis 1b: Suppression and Adaptive Coping Strategies

A linear regression analysis controlling for adaptive coping at Time 1, age, and gender indicated that suppression at Time 1 was negatively associated with adaptive coping strategies at Time 2, ($\beta = -.13$, $SE = .07$, $t (228) = -2.34$, $p = .020$, 95% CI [-.30, -.03]). The model was statistically significant ($F(4, 222) = 32.03$, $p <.001$), and explained 37% of the variance ($R^2 = .37$). Age and gender were not significant variables in the model. Findings are shown in Table 2.

Table 2

Study 1- Linear Regression Analysis Results for Adaptive Coping Strategies at Time 2

Independent Variables-T1	Dependent Variable: Adaptive Coping – Time 2				
	β	SE	t	p	95%CI [LL, UL]
Model 1: Step 1					
Intentional exploration (T1)	**.43**	**.08**	**7.09**	**<.001****	**[.38, .68]**
Model Summary	$F(1, 225) = 50.31$, $p <.001$ $R^2 = .18$, Adj $R^2 = .18$				
Step 2					
Intentional exploration (T1)	**.19**	**.08**	**3.09**	**.002***	**[.08, .38]**
Adaptive Coping (T1)	.50	.06	8.15	<.001	[.37, .61]
Age	.02	.02	0.41	.685	[-.03, .05]
Gender	-.03	.10	-0.50	.620	[-.25, .15]
Model Summary	$F(4, 222) = 33.59$, $p <.001$ $R^2 = .38$, Adj $R^2 = .37$				
Model 2: Step 1					
Receptive attention (T1)	**.40**	**.09**	**6.46**	**<.001****	**[.41, .77]**
Model Summary	$F(1, 225) = 41.68$, $p <.001$ $R^2 = .16$, Adj $R^2 = .15$				
Step 2					
Receptive attention (T1)	**.18**	**.09**	**2.99**	**.003***	**[.09, .44]**
Adaptive Coping (T1)	.51	.06	8.46	<.001	[.38, .62]
Age	.04	.02	0.73	.464	[-.02, .05]
Gender	-.03	.10	-0.62	.537	[.26, .14]
Model Summary	$F(4, 222) = 41.68$, $p <.001$ $R^2 = .38$, Adj $R^2 = .36$				
Model 3: Step 1					
Suppression (T1)	**-.29**	**.08**	**-4.61**	**<.001****	**[-.51, -.21]**

Model Summary	$F(1, 225) = 21.23\ p <.001$ $R^2 = .09$, Adj $R^2 = .08$				
Step 2					
Suppression (T1)	**-.13**	**.07**	**-.2.34**	**.020***	**[-.30, -.03]**
Adaptive Coping (T1)	.55	.06	9.61	<.001	[.43, .65]
Age	.03	.02	0.50	.621	[-.03, .05]
Gender	-.01	.10	-0.20	.843	[-.22, .18]
Model Summary	$F(4, 222) = 32.03$, $p <.001$ $R^2 = .37$, Adj $R^2 = .36$				
Model 4: Step 1					
Emotion dysregulation (T1)	-.06	.09	-0.90	.367	[-.25, .09]
Model Summary	$F(1, 225) = 0.82$, $p = .367$ $R^2 = .00$, Adj $R^2 = .00$				
Step 2					
Emotion Dysregulation (T1)	.04	.07	0.64	.525	[-.10, .19]
Adaptive Coping (T1)	.59	.05	10.59	<.001	[.47, .69]
Age	.03	.02	0.58	.561	[-.03, .05]
Gender	-.03	.10	-0.49	.628	[.15, -.01]
Model Summary	$F(4, 222) = 30.08$, $p <.001$ $R^2 = .35$, Adj $R^2 = .34$				

*Note: * Significant at <.05; ** Significant at <.001*

Hypothesis 1c: Emotion Dysregulation and Maladaptive Coping Strategies

Emotion dysregulation at Time 1 was associated with maladaptive coping at Time 2 in Step 1 of the hierarchical regression analysis ($\beta = .34$, $SE = .09$, $t\ (228) = 5.46$, $p <.001$, 95% CI [.33, .70]). This model was significant, $F(1, 230) = 29.84$, $p <.001$, and explained 12% of the variance ($R^2 = .12$). In Step 2, controlling for maladaptive coping at Time 1, age, and gender, emotion dysregulation was not significant ($\beta = .11$, $SE = .09$, $t(225) = 1.84$, $p = .068$, 95% CI [-.01, .33]). Findings are presented in Table 3.

Table 3

Study 1- Linear Regression Analysis Results for Maladaptive Coping Strategies at Time 2

Independent Variable – T1	Dependent Variable: Maladaptive Coping - T 2				
	B	*SE*	*t*	*p*	95%CI [LL, UL]
Model 5: Step 1					
Emotion dysregulation (T1)	**.34**	**.09**	**5.46**	**<.001****	**[.33, .70]**
Model Summary	$F(1, 224) = 29.84$, $p <.001$ $R^2 = .12$, Adj $R^2 = .11$				
Step 2					
Emotion Dysregulation (T1)	.11	.09	1.84	.068	[-.01, .33]
Maladaptive Coping (T1)	.58	.06	10.11	<.001	[.48, .72]
Age	-.03	.02	-0.64	.525	[-.05, .03]
Gender	.08	.11	1.43	.156	[-.06, 38]
Model Summary	$F(4, 221) = 37.96$, $p <.001$ $R^2 = .41$, Adj $R^2 = .40$				

Note: * Significant at $p <.05$; ** Significant at $p <.001$

Additional Analysis

I conducted an additional analysis to examine the effects of all four emotion regulation (ER) styles within a single multiple regression model. In Step 1, both intentional exploration ($\beta = .26$, $SE = .09$, $t(226) = 3.73$, $p < .001$) and receptive attention ($\beta = .24$, $SE = .10$, $t(226) = 3.56$, $p < .001$) were positively associated with adaptive coping. Conversely, suppression ($\beta = -.18$, $SE = .08$, $t(226) = -2.87$, $p = .005$) and emotion dysregulation ($\beta = -.12$, $SE = .08$, $t(226) = -2.05$, $p = .042$) were negatively associated with adaptive coping.

In Step 2, I controlled for baseline positive coping at Time 1, as well as age and gender. After accounting for these variables, the effects of integrative emotion regulation weakened. While receptive attention at Time 1 remained significantly associated with adaptive coping at Time 2 ($\beta = .13$, $SE = .09$, $t(226) = 1.97$, $p = .050$), intentional exploration at Time 1 did not show a significant relationship ($\beta = .12$, $SE = .08$, $t(226) = 1.79$, $p = .074$). In this model, suppression ($\beta = -.10$, $SE = .07$, $t(226) = -1.69$, $p = .093$) and emotion dysregulation ($\beta = -.02$, $SE = .074$, $t(226) = -0.34$, $p = .737$) did not show significant effects on adaptive coping. As expected, adaptive coping at Time 1 predicted coping at Time 2; age

and gender did not show significant relationships. Both models were statistically significant, (Step 1: $F(4, 222) = 19.79$, $p < .001$, $R^2 = .25$; Step 2: $F(7, 219) = 20.51$, $p < .001$, $p < .001$, $R^2 = .38$).

Mediation Analysis

I conducted a mediation analysis using JASP software (JASP Team, 2023) to examine whether receptive attention mediates the relationship between intentional exploration and adaptive coping. The results showed that receptive attention mediates this relationship, with an indirect effect of $B = .15$ (SE = .05, $p = .002$, 95% CI [.06, .24]).

2.3.3. Conclusion

Study 1 findings measuring emotion regulation styles at baseline and coping strategies one month later showed that individuals higher on the integrative emotion regulation (both intentional exploration and receptive attention) were more likely to report using adaptive coping. Other findings showed that suppression was negatively associated with adaptive coping, though emotion dysregulation did not show associations with maladaptive coping when controlled for maladaptive coping at Time 1. This is the first study differentiating receptive attention and intentional exploration in terms of their associations with coping strategies. However, it is unclear whether intentional exploration and receptive attention are associated with well-being. Indeed, it may be that both dimensions promote more well-being in daily life because they are both core indicators of a broadly adaptive emotion regulation process that encourages beneficial approach coping.

2.4. Study 2

Study 1 indicated that intentional exploration and receptive attention were associated with more adaptive coping across time. Study 2 was designed to explore the associations between both intentional exploration and receptive attention, now in relation to daily well-being. I investigated differences between receptive attention and intentional exploration in

their associations with perceived daily stress, anxiety, rumination and self-reflection, daily day satisfaction, and positive and negative mood. This daily diary study enabled me to test Hypotheses 2-4, concerning different aspects of daily well-being.

2.4.1. Method

2.4.1.1. Participants and Procedure

Previous research suggests that 150 participants are needed to achieve an acceptable statistical power level of .80-.90. This estimate accounts for up to seven observations, a moderate effect size, and also anticipates 20-40% data loss in these types of studies (Ohly et al., 2010). Participants were recruited to take part in seven-day daily diary study and compensated with course credit. One hundred forty-six students signed up and completed the initial individual questionnaire to participate in the diary study. After eliminating those who did not complete any daily surveys, the final sample size was 132 (and 843 observations). Participants were aged between 18-43 years old ($M = 21.13$ years, $SD = 4.33$). Students mostly identified as women (92.4%) and the majority of the sample was White/ Caucasians (60.6%; Asian 19.7%; Mixed 6.8%, Other 5.3%; Black 4.5%; Middle Eastern 2.3%; Hispanic .8%).

Participants completed an initial questionnaire followed by daily diary surveys. Diary data were sent through email after 5pm for seven consecutive days. Surveys were distributed at the end of the day so that scales could be used to measure current-day experiences. After data collection, participants were assigned a random participant number. All personal information were removed from these datasets.

2.4.1.2. Measures

Emotion regulation (initial survey). Intentional exploration and receptive attention were measured as in Study 1 (Intentional exploration: $\alpha = .89$; Receptive attention: $\alpha = .78$). In previous study, we slightly adapted to shift the focus from "stress and anxiety" to a

broader consideration of "negative emotions". However, in Study 2, because the context is heavily focused on stress and anxiety, I utilized the original items to ensure the measures align with the objective of the study.

As I did in Study 1, I conducted correlation analyses to test associations between receptive attention and intentional exploration. A medium correlation was observed between receptive attention and intentional exploration, $r = .30$, $p < .001$.

Diary Items

Perceived daily stress. Perceived Stress Scale (PSS) is one of the most widely used scales to measure the perception of the stress (Cohen, 2014; Lee, 2012). Each evening, participants completed three items of the Perceived Stress Scale (Cohen et al., 1983), shortened to reduce participant burden (Reis et al., 2014). Specifically, they responded to the items: "Today, how often have you been upset because of something that happened unexpectedly?", "Today, how often have you felt that you were unable to control the important things in your life?", "Today, have you been angered because of things that were outside of your control", using a scale ranging from 1(*never*) to 7(very often). McDonalds's Omega was used to evaluate the internal consistency of the scale. Results showed a high level of reliability across the three items *(ω = .86)*.

Daily day satisfaction. Day satisfaction refers to general evaluation of the day and is derived from life satisfaction (Weinstein, Vuorre, et al., 2023). Previous research showed that one-item day satisfaction is appropriate to measure daily level variations and they shows similar findings with multi-item surveys (Cheung & Lucas, 2014). In this study, I used Przybylski et al.'s (2021) one item "How was your day?" to measure daily day satisfaction. The scale ranged from 1(*very bad*) to 7(*very good*).

Daily mood. Participants responded to the Brief Mood Introspection Scale (BMIS; Mayer & Gaschke, 1998). The scale involved 16 items for positive and negative moods (e.g.,

calm, lively, sad, etc.; positive mood, $\omega = .77$; negative mood, $\omega = .81$) ranging from 1 (*not at all*) to 7(extremely). The scale showed high internal reliability (positive mood: $\omega = .77$; negative mood: $\omega = .81$).

Daily rumination and reflection. Six items measured rumination (3 items) and reflection (3 items) using the Rumination-Reflection Questionnaire; Trapnell & Campbell, 1999). Items included "Long after an argument or disagreement was over with, my thoughts kept going back to what happened", "I tended to "ruminate" or dwell over things that happened to me for a really long time afterward", and "Often I was playing back over in my mind how I acted in a past situation today" (rumination) and, "My attitudes and feelings about things fascinated me today", "I was very self-inquisitive by nature today", and "I liked exploring my inner self" (reflection). The items were paired with a scale ranging from 1*(not at all)* to 7*(nearly every day)*. Results showed a high level of reliability across the three items for each subscale (rumination, $\omega = .93$; reflection, $\omega = .88$).

Daily anxiety. Participants responded to the Generalized Anxiety Disorder (GAD-7; Spitzer et al., 2006). Again, to reduce participant burden (Reis et al., 2014), only randomized three items of six chosen items from the survey were presented such as "Feeling nervous, anxious or on edge". The scale ranged from 1*(not at all)* to 7*(nearly everyday).* Researchers showed that two survey items provided similar findings to the original survey on measuring anxiety (Spitzer et al., 2006).

2.4.2. Results

Analytic Strategy

I used JASP 0.18.1.0 software (JASP Team, 2023) and utilized multilevel (i.e., mixed) models to analyze effects of intentional exploration and receptive attention on the perceived daily stress, subjective well-being, rumination and reflection outcomes. Linear mixed model allowed me to nest days within individuals, accounting for shared variance across day-level

reports from a single individual. I controlled for participants' age. Findings are presented in Tables 3 and 4.

Subjective Well-Being: Day satisfaction and daily positive emotions (H2). I defined intentional exploration as an independent variable. Age was included in the model to control for its effect on the dependent variable. In this model, the effect of intentional exploration on day satisfaction was statistically significant, $F(1, 112.49) = 6.16$. $p = .015$. The model accounted for random variability at the between-person level, with a variance of 0.35 ($SD = .59$). Intentional exploration was positively associated with daily day satisfaction ($B = .26$, $SE = .11$, $t(112,49) = 2.48$, 95% CI [.06, .47]). Individuals with higher intentional exploration were more likely to experience higher levels of daily day satisfaction. Contrary to intentional exploration, receptive attention did not reveal significant associations with daily day satisfaction ($B = .05$, $SE = .01$, $t(112.69) = 0.37$, 95% CI [-.21, .31], $F(1, 112.69) = 0.14$, $p = .714$)).

Linear mixed model analyses showed that both intentional exploration and receptive attention did not show significant associations with positive and negative mood at daily level. The coefficients for the associations between intentional exploration and positive mood ($B = .16$, $SE = .10$, $t(112.76) = 1.62$, $p = .108$, 95% CI [-.03, .35]) and negative mood ($B = -.17$, $SE = .11$, $t(111.80) = -1.62$, $p = .108$, 95% CI [-.38, .04]) did not relate. Similarly, receptive attention did not reveal significant associations with positive mood ($B = .03$, $SE = .12$, $t(119.17) = 0.22$, $p = .824$, 95% CI [-.21, .27]) or negative mood ($B = .13$, $SE = .13$, $t(122.26) = 0.97$, $p = .334$, 95% CI [-.13, .39]). The findings are presented in Table 4.

Perceived daily stress and daily anxiety (H3). Intentional exploration, but not receptive attention, was negatively associated with perceived daily stress ($B = -.25$, $SE = .10$, $t(115.99) = -2.44$, 95% CI [-.45, -.05]). The findings were statistically significant $F(1, 115.96)) = 5.96$. $p = .016$) and the model accounted for random variability at the between-

person level, including a variance of 0.38 (*SD* = .62). These findings suggest that intentional exploration may serve as a protective factor against stress. In contrast to intentional exploration, receptive attention did not relate to perceived daily stress (*B* = .06, *SE* = .13, *t*(116.02) = 0.43, *p* = .671, 95% *CI* [-.20, .31]).

Similarly, there were no significant associations between either integrative emotion regulation dimensions and anxiety at daily levels (intentional exploration: *B* = .-30, SE = .17, *t(*114.81) = -1.73, *p* = .087, 95% *CI* [-.64, .04]; receptive attention: *B* = .09, *SE* = .21, *t*(116.54) = 0.42, *p* = .673, 95% *CI* [-.33, .51]). These findings are shown in Table 4.

Daily self-reflection and rumination (H4). The effect of intentional exploration on daily self-reflection was statistically significant, *F*(1, 112.22) = 4.91 *p* = .028. Intentional exploration was positively associated with self-reflection (*B* = .42, *SE* = .19, *t*(104.34) = 2.21, 95% *CI* [.05, .79]). Individuals with higher intentional exploration reported more daily self-reflection. In contrast, receptive attention did not relate to self-reflection (*B* = -.03, *SE* = .24, *t*(114.22*)* = -0.12, *p* = .906, 95% CI [-.49, .43]). These findings are summarized in in Table 4.

In contrast to self-reflection, integrative emotion regulation dimensions did not relate to daily rumination (intentional exploration: *B* = .-36, SE = .20, *t*(112.88) = -1.78, *p* = .078, 95% *CI* [-.76, .04]; receptive attention: *B* = .33, *SE* = .25, *t*(113.88) = 1.33, *p* = .187, 95% *CI* [-.16, .81]), as summarized in Table 4.

Table 4

Study 2- Linear Mixed Model Analysis Results: Associations Between Emotion Regulation and Daily Variables

Independent Variables (Level 2)	*B*	*SE*	*t*	95%CI [LL, UL]	*p*	*F*	*Variance*	*SD*
Perceived Daily Stress (Level 1)								
Fixed Effects								
Intentional exploration	**-.25**	.10	-2.44	[-.45, -.05]	**.016***	5.96		
Age					.737	0.71		
Random Effects								
Random Intercept (Between-person)							.38	.62
Fixed Effects								
Receptive attention	.06	.13	0.43	[-.20, .31]	.671	0.18		
Age					.881	0.55		
Random Effects								
Random Intercept (Between-person)							.41	.64
Daily Day Satisfaction (Level 1)								
Fixed Effects								
Intentional exploration	**.26**	.11	2.48	[.06, .47]	**.015***	6.16		
Age					.896	0.52		
Random Effects								
Random Intercept (Between-person)							0.35	0.59
Fixed Effects								
Receptive Attention	.05	.01	0.37	[-.21, .31]	.714	0.14		
Age					.907	0.51		
Random Effects								
Random Intercept (Between-person)							0.37	0.61
Rumination (Level 1)								
Fixed Effects								
Intentional exploration	-.36	.20	-1.78	[-.76, .04]	.078	3.16		
Age					.615	.83		
Random Effects								
Random Intercept (Between-person)							1.80	1.32
Fixed Effects								
Receptive Attention	.33	.25	1.33	[-.16, .81]	.187	1.76		
Age					.374	1.09		
Random Effects								
Random Intercept (Between-person)							1.83	1.35
Reflection (Level 1)								
Fixed Effects								
Intentional exploration	**.42**	.19	2.21	[.05, .79]	**.028***	4.91		
Age					.881	.55		
Random Effects								
Random Intercept (Between-person)							1.62	1.27
Fixed Effects								
Receptive Attention	-.03	.24	-0.12	[-.49, .43]	.906	.01		
Age					.910	.50		

Random Effects								
Random Intercept (Between-person)							1.72	1.31
Anxiety (Level 1)								
Fixed Effects								
Intentional exploration	-.30	.17	-1.73	[-.64, .04]	.087	2.98		
Age					.999	0.18		
Random Effects								
Random Intercept (Between-person)							1.25	1.12
Fixed Effects								
Receptive Attention	.09	.21	0.42	[-.33, .51]	.673	0.18		
Age					.993	0.27		
Random Effects								
Random Intercept (Between-person)							1.32	1.15
Positive Mood (Level 1)								
Fixed Effects								
Intentional exploration	.16	.10	1.62	[-.03, .35]	.108	2.63		
Age					.914	0.50		
Random Effects								
Random Intercept (Between-person)							.34	.58
Fixed Effects								
Receptive Attention	.03	.12	0.22	[-.21 .27]	.824	0.05		
Age					.873	0.56		
Random Effects								
Random Intercept (Between-person)							.38	.63
Negative Mood (Level 1)								
Fixed Effects								
Intentional exploration	-.17	.11	-1.62	[-.38, .04]	.108	2.62		
Age					.968	0.38		
Random Effects								
Random Intercept (Between-person)							.46	.68
Residual Variance							.59	.77
Fixed Effects								
Receptive Attention	.13	.13	.97	[-.13, .39]	.334	0.94		
Age					.905	0.51		
Random Effects								
Random Intercept (Between-person)							.47	.68

*Note: * Significant at <.05; ** Significant at <.001*

2.4.3. Conclusion

Study 2 examined the associations between two qualities of integrative emotion

regulation – receptive attention and intentional exploration – and daily well-being. I

hypothesized that both integrative emotion regulation dimensions would be associated with

lower perceived daily stress, greater day satisfaction, self-reflection, and greater positive mood. Findings partially supported my hypotheses, showing that intentional exploration, but not receptive attention, associated with lower perceived daily stress, greater day satisfaction, and self-reflection at daily level. Individuals with higher intentional exploration were more likely to experience greater day satisfaction and reflection in day-to-day life, suggesting that intentional exploration may serve as a protective factor against stress. Given the moderate correlation between these variables, receptive attention may influence daily experiences indirectly through a mediating effect. As mentioned in previous studies (Roth et al., 2014; Roth et al., 2018), receptive attention may prepare individuals for the next step: intentional exploration of emotional experiences through open and nonjudgmental attention.

2.5. General Discussion

Little is known about intentional or motivated pursuit of one's emotions as an emotion regulation strategy, but this active form of regulation may be similarly important to openness and receptivity in driving active and adaptive coping and greater awareness for processing stress and negative emotions. To date only a few studies (Benita et al., 2017; Roth et al., 2009; Roth et al., 2019; van der Kaap-Deeder et al., 2021; Weinstein, 2009; Weinstein et al., 2009) have examined the components of integrative emotion regulation, but none have modelled both forms of integrative emotion regulation simultaneously to consider the independent effects of being receptive, or active, in approaching and processing one's emotions. In this chapter, I compared two integrative emotion regulation components – receptive attention and intentional exploration (Roth et al., 2018, 2019). In a series of ecologically valid studies, I sought to explore the links between these two integrative emotion regulation dimensions, coping strategies, and well-being in daily life.

Receptive attention is a specific form of mindfulness that particularly concerns the relationship one has with one's emotions. This regulation style represents a nonjudgmental

attention to and acceptance of emotional experiences (Roth et al., 2019). The findings from Study 1 indicated that receptive attention was associated with adaptive coping strategies, but in Study 2 I did not observe relations with perceived daily stress, day satisfaction, and positive mood. Findings partially supported previous findings from a broader literature connecting mindfulness to coping. For instance, a series of studies by Weinstein et al. (2009) showed that mindfulness improves adaptive coping and mindful individuals (i.e., those high in receptive attention) use more approach and less defensive coping strategies.

Little work has been conducted on intentional exploration, or *motivated* and active pursuit in processing one's emotional experience. Unlike receptive attention, intentional exploration represents more motivated exploration of emotional experiences and involves an active interest in influencing the processes in experiencing and exploring emotions, and altering behaviors related to these emotional experiences (Roth et al., 2019). The findings across two studies suggest mixed but promising results for integrative emotion regulation. The most consistent of these findings concerning intentional exploration were associations between this form of emotion regulation and adaptive coping styles (Study 1). Mixed findings observed in the current research suggested more work is needed to understand downstream implications on daily well-being.

In contrast, intentional, motivated exploration of emotional experiences was associated with greater day satisfaction and lower perceived daily stress in Study 2, suggesting benefits of this active form of emotion regulation to well-being. My results were consistent with the literature showing intentional exploration promotes well-being and integration of negative emotional experiences (Benita et al., 2020; Roth et al., 2019), or a recent study (Waterschoot et al., 2022) examining the role of emotion regulation in adaptation process to the COVID-19 crisis in Belgium ($N = 6584$ adults). In the latter study, individuals who have higher scores in intentional exploration reported less stress, more life

satisfaction, and better sleep quality compared to maladaptive emotion regulation styles (e.g., suppression and emotion dysregulation groups). The findings may point to a need to differentiate when benefits occur, for example individuals may only benefit under high-stress situations, a possibility I did not test in this paper. Additional studies are needed to explore how each of the two dimensions ultimately contribute to everyday well-being, and whether they may do so indirectly through promoting better daily practices in relation to emotions, for example through their links with adaptive coping styles.

Previous researchers pointed out the need to expand the focus other theoretically defined emotion regulation styles (Gross, 2002). The literature is considering a growing number of such regulatory styles. Among others, adaptive strategies described in the literature include emotional acceptance, mindfulness, and emotional flexibility. Mindfulness refers to increased attention to current experiences (Brown & Ryan, 2003), while acceptance refers to acknowledging difficult emotions or experiences without attempting to change them (Hayes et al., 2006). Emotional flexibility – another key construct receiving growing attention – refers to the ability to regulate emotions considering situational necessities (Aldao et al., 2014). In addition, positive impacts of interest in regulatory processes, are recognized in the broaden-and-build theory (Fredrickson, 1998, 2001). According to this theory, positive emotions (e.g., interest, joy, or love) broaden individuals' attention and momentary thought-action repertoires. This process, in turn, facilitates the development of enduring personal sources that help to further regulate emotions. In contrast, negative emotions restrict individuals' repertoires.

In this study, I relied on the emotion regulation framework of Self Determination Theory (Ryan & Deci, 2017). Future studies examining integrative emotion regulation should explore the relationship adopting an open and receptive attitude towards emotional experiences and showing active, intentional exploration of our emotions. For example, in this

chapter, I only examined distinct relations between receptive attention and intentional exploration and coping and well-being. I did not examine more nuanced relationships between them. However, it is possible that receptive attention is an important first step to intentional exploration because when individuals engage their emotions with nonjudgmental receptive attention this cognitive state minimizes automatic and defensive responses (Roth et al., 2017). With such openness, people can more effectively integrate the emotional experience with other parts of the self, such as values, goals, and needs (Ryan et al., 2006; Roth et al., 2017, Roth et al., 2023). Further studies are needed to explore these two aspects of integrative emotion regulation in relation to one another and consider whether intentional exploration might mediate links between receptive attention and well-being outcomes. I suggest that future research building on the current studies consider SDT conceptualizations of emotion regulation alongside the other approaches described. Within SDT, flexibility or the valence of emotions (whether they are positive or negative), are less important characteristics than the extent to which emotions are recognized or integrated into the self – these regulatory styles are theorized to be consistently important (Roth et al., 2023). These expectations merit further tests examining everyday and long-term well-being outcomes, including under conditions of high stress.

2.6. Limitations

There are several limitations of this research. First, most of the participants were young adult undergraduate students. In two studies, they reported education stress was the most common stress type in their lives. Findings may be especially relevant to this context and may be more robust in high-stress or negative emotion situations where emotion regulation strategies are called on and may provide an immunization effect (Roth et al., 2018). Second, in both studies, most of the participants were women, potentially limiting the generalizability of findings. Further, my tests of well-being concerned short-term spans

across a week of our participants' lives. However, benefits of integrative emotion regulation are likely to be incurred in the long term after an initial *increase* in negative emotions (e.g., fear, anger) in short term. That is, it may be that both receptive and intentional integrative regulation styles would relate to greater well-being consistently and robustly, but only after a delay. Such long-term trends have been observed in past research linking integrative emotion regulation to positive emotions, a decrease in negative emotions, higher acceptance and less defensiveness (Roth & Benita, 2023a; Roth et al., 2014; Roth et al., 2019). Finally, although I used two different methodologies, longitudinal and daily diary designs, all studies were based on self-report tests. Future studies should include other designs such as physiological measurement.

2.7. Conclusion

In this study, I examined two forms of integrative emotion regulation from the lens of self-determination theory: intentional exploration and receptive attention. I expected that both receptive and active and motivated form of emotion regulation may provide benefits to adaptive coping and greater well-being. My findings across two studies showed that both intentional exploration and receptive attention were positively associated with adaptive coping in a first study, but that only intentional exploration related to well-being indicators in Study 2. In all, intentional exploration showed a stronger association with daily day satisfaction, lower stress, and daily self-reflection. It may be that intentional exploration of emotional experiences may serve as a protective factor against stress and detrimental impacts of negative emotions within everyday life.

Chapter 3

Delving into Intentional Exploration in Processing Shame Experiences

Abstract

Shame creates a pull to hide and avoid, but what if emotion regulation helped people to instead move towards themselves? I explored the possibility that one form of emotion regulation – intentional exploration of emotions that principally involves taking an interest in one's emotions – could encourage constructive engagement with the shame emotion. Across three studies (experiments: Studies 3 ($N = 129$) and 5 ($N = 129$), brief daily diary study: Study 4 ($N = 103$, 283 observations), trait-level intentional exploration was positively associated with engagement in self-reflection, need for self-reflection, insight, and introspection (Studies 4-5), as well as self-improvement motivation and approach orientation (measured only in Study 5). In addition, participants were randomly assigned to receiving questions that promoted their interest in the feelings of shame experiences, or to a control group where they answered neutral questions focusing on sensations of shame. Contrary to expectations, interest was difficult to elicit (Study 5), and condition-elicited interest-taking did not predict indicators of constructive shame regulation.

Keywords: Intentional exploration, interest-taking, self-focused attention, self-reflection and insight, shame.

3.1. Introduction

In Sophocles' tragedy, Oedipus Rex, King Oedipus learns he killed his father and married his mother, Iocaste. When he discovers the truth, Oedipus blinds himself and leaves Thebes, while Iocaste kills herself. The shame is too much for them to bear. Shame is understood to be among the most difficult emotions to regulate (Elison et al., 2014). This may be because the emotion threatens the need to belong (DeWall & Bushman, 2011; Dolezal, 2017), reflects feeling flawed, unworthy of acceptance and connection with others (Brown, 2006), and represents feeling inferiority and worthlessness (Muris et al., 2014). As is depicted in the story of Oedipus, shame is characterised by a desire to disappear (Lear et al., 2022; Muris et al., 2014). What if, instead, people feeling shame were prepared to move towards, rather than away, from their feelings and their self-concept and reaffirm the value of their experiences? Would they be able to reflect constructively and insightfully on their emotion, and would doing so help alleviate negative affect associated with their shameful recollections, including reducing the feeling of shame itself? Three studies were designed to explore the potential benefits of emotion-focused interest-taking – motivated pursuit of one's own emotions – to the challenging emotion of shame, to ask for the first time whether pursuing knowledge of oneself, constructively and with curiosity, would help individuals to downregulate shame experiences through insight gained about the self.

3.1.1. Shame as a Challenge to Emotion Regulation

Shame is a self-conscious emotion characterised by awareness of a rejecting social environment (Tangney, 1999; Tracy & Robins, 2004). Although shame is a "master emotion of everyday life", it is still considered a taboo (Scheff, 2003). It arises when a person perceives that their identity, experience, or behaviour stands in contrast with social norms in a way that reflects failure or unlovability (Muris et al., 2014). Because social acceptance and assimilation are so fundamental to human nature, this threat of losing social standing is

among the most painful experiences (Carter et al., 2020; Duarte et al., 2017; Tracy & Robins, 2004). As a result, a person feeling shamed may also feel anger, aggression (Elison et al., 2014), and sadness (Mikolajczak et al., 2008; Sawashima, 2018). To protect the self from negative evaluation, they may feel a desire to disappear (Schmader & Lickel, 2006), and to disconnect from self-experiences such as their thoughts and emotions (Leach & Cidam, 2015; McLachlan et al., 2011).

3.1.2. A Promising Approach to Regulating Shame: Integrative Emotion Regulation

It may be that focusing attention on one's own personal experiences as distinct from the social context may free people from the burden of shame, and indeed, movement towards, rather than away from the self, would facilitate constructive processing of the emotion. Self-determination theory (SDT; Ryan & Deci, 1985), a macro theory of human motivation and personality, may help to explain how shame can be encountered constructively, and therefore effectively downregulated. SDT describes interest, in particular, as a state of curious attention, which motivates action towards a valued end-goal (Litman, 2009; Loewenstein, 1994; Ryan & Deci, 1985; Weinstein, 2009). SDT theorizing further suggests that interest can be turned inwards, towards openly exploring and ultimately, a better understanding, of one's personal experiences, and argues that such an experience can affirm the self (Deci & Ryan, 2013; Weinstein et al., 2012).

Emotion regulation research stemming from the SDT tradition argues that interest-taking is an essential component of what is termed intentional exploration, a form of integrative emotion regulation (Roth et al., 2019), wherein emotions are better incorporated (integrated) into the self-functioning through motivated, active pursuit of knowledge about them. Intentional exploration refers to an ability to experience emotions, explore the sources of them, and use this information to alter behaviours volitionally (Roth et al., 2009). Taking an interest improves the assimilation process of emotional experiences with other aspects of

self, for instance, values, needs, goals, and preferences (Kaap-Deeder et al., 2016; Roth & Benita, 2023b; Ryan et al., 2015b; Weinstein et al., 2013). This active interest allows individuals to acknowledge and assimilate both acceptable and unacceptable parts of their emotional experiences (Roth et al., 2019). Given this, intentional exploration can be understood to be an indicator of flexible adaptation to the environment (Spielberger & Starr, 1994). Intentional exploration, and its core component – interest-taking – reflects a natural inclination to engage with our inner processes and outer events; and this intentional tendency promotes awareness and insight into experiences and the self (Weinstein et al., 2012). For this reason, intentional exploration may move us from an avoidance mindset that is natural when we feel shame (McLachlan et al., 2011; Schmader & Lickel, 2006) to one that is natural when we take an interest (Weinstein et al., 2012; 2013). Additionally, shame is characterised by low intrinsic motivation (McLachlan et al., 2011; Pekrun et al., 2009), which represents the lack of volition and choice. For this reason, I expected that promoting interest-taking with curiosity and interest, may facilitate the adoption of an approach orientation, which is associated with intrinsic motivation.

I explored a mechanism that might explain the connection between interest and shame regulation. Taking an interest can result in insight because the freedom and lack of defensiveness that comes with intentional exploration may help individuals understand their emotions in a constructive and insightful way (Weinstein et al., 2012). This understanding might help them alleviate negative affect related to their shame experiences. Across three studies, to test this notion, I measured state level private self-focused attention variables such as self-reflection, insight, and introspection which have been related to well-being. Self-reflection is an adaptive form of self-focus which is energised by curiosity and epistemic interest in self-related processes and is related to openness (Grant et al., 2002; Takano &

Tanno, 2009; Trapnell & Campbell, 1999). This awareness facilitates self-knowledge and improves mental health (Takano & Tanno, 2009).

3.2. The Current Studies

Three studies were designed to investigate the role of interest-taking in down-regulating shame experiences through expressive writing. All three tested if taking an interest could be an effective tool to down-regulate the feeling of shame. I examined the expectations that intentional exploration of emotions as an antecedent to shame experiences may predict lower subsequent feelings of shame, higher self-reflection, insight, and introspection, and greater self-improvement motivation and approach orientation.

Across three studies (two experimental studies and one daily diary study), participants were assigned to one of two conditions: (1) the Interest-Taking condition received questions aiming to promote constructive interest in the feelings of shame experiences, while the (2) Control condition responded to neutral questions focusing on awareness of sensations related to shame. Together with the manipulation, I measured individual differences in intentional exploration as a more stable characteristic across time. Following the manipulation, participants reported on state-level shame and private self-consciousness/self-focused attention (i.e., self-reflection, insight, and introspection). In Study 5, I also included self-improvement motivation and avoidance versus approach mindset orientation to examine potential consequences of the proactive nature of integrative emotion regulation (Roth et al., 2009).

Three hypotheses (H) concerned the interest-taking manipulation, and three additional hypotheses concerned individual differences in intentional exploration:

H1) Condition would predict less state-level shame after five minutes of the emotion-focused interest-taking writing task (Studies 3, 4, and 5).

H2) Condition would predict greater state-level self-reflection and insight (i.e., engagement in self-reflection, need for self-reflection, and insight (Studies 3, 4, and 5)), and introspection scores (only measured in Studies 4 and 5).

H3) Condition would predict more self-improvement motivation and approach orientation (Study 5).

H4) Individual differences in intentional exploration would relate to lower state-level shame after five minutes of emotion-focused interest-taking writing task (Studies 3, 4, and 5).

H5) Individual differences in intentional exploration would relate to greater state-level self-reflection (i.e., engagement in self-reflection and need for self-reflection), insight (Studies 3, 4, and 5), and introspection scores (measured in Studies 4 and 5) after five minutes of emotion-focused interest-taking writing.

H6) Individual differences in intentional exploration would relate to self-improvement motivation and approach orientation following (Study 5).

3.3. Study 3

Writing about one's emotions can help to process those emotions (Pennebaker & Chung, 2011), but shame is among the most difficult emotions to process (Elison et al., 2014; Lewis, 1971). Are writing benefits amplified when taking an interest? A first experimental study manipulated instructions to take interest in feelings of shame to understand if taking an interest, and its individual different counterpart – intentional exploration – may facilitate constructive processing of shame experiences.

3.3.1. Method

3.3.1.1. Participants and Procedure

I planned to recruit $N = 128$ participants based on power analyses conducted in G*Power that anticipated a small effect size of $d = .25$, $\alpha = .05$, at 80% power. A total of 129

individuals, recruited through Prolific Academic, participated in the study. Participants (48.5% women; 47.8% men) were aged between 18-72 years ($M = 38.49$ years, $SD = 12.28$). Most were White/Caucasian (87.6%). Other ethnicities reported including Black/Black British (5.4%); Asian/Asian British (3.9%); Mixed/Multiple ethnic groups (1.6%); and Other (.8%). Ethical approval for this study was attained by the Psychology Department's Ethics Committee at the University of Reading before undertaking study procedures.

At the start of the study, all participants were asked to recall a recent experience in which they felt ashamed and write about this memory for 30 seconds. They were then randomly assigned to receiving one of two conditions (Interest-Taking: $n = 63$, Control: $n = 66$). Individuals assigned to the interest-taking condition answered questions, adapted from Roth et al. (2009), which were designed to encourage them to think and write about their feelings of shame, with interest, for five minutes. Participants received the following instructions: "*For the next five minutes, please write your thoughts and feelings about your shame experience. In your writing, we would like you really go and explore your thoughts and emotions. We ask you to try to take interest in your emotions and try to understand what you're really feeling and why. Please think about the questions we ask below and try to be attentive to your emotions.*"

In the control group, participants were instructed to write their thoughts and feelings when they recall their recent shame experiences for the same amount of time. Participants in this group received the following instructions: "*For the next five minutes, please write your thoughts and feelings about your shame experience. In your writing, we would like you really go and explore your thoughts and emotions.*" Participants responded to each of five questions for one minute.

Interest-taking versus neutral expressive writing tasks. Because I was interested in manipulating interest, the presented items were adapted from *Emotion Regulation Scales* (Roth et al., 2009).

Individuals in the interest-taking promoting condition received the following questions:

1. Think back to the feelings you had. Try to explore with interest what was so personal in it for you – where did the feeling come from? Explore your feelings from a place of curiosity - there are no right or wrong answers. Please describe your experiences in paragraph form, as if you were writing in your diary.

2. Still writing as if journaling about your experiences, explore the meaning of the feelings and experience for you, personally. Take a moment to be curious about yourself and your emotions in that situation.

3. Consider the experience as a learning opportunity. What can you learn about yourself, past or future, from it?

4. Explore the feeling in an active way– What can the feelings you had during this time tell about the situation you were in that helps you to understand yourself better?

5. Consider the source of the feeling to learn more about it. What made it matter so much? What was the significance for you? Feel free to go as far back in your own history as you feel comfortable.

Those in control group answered the following questions:

1. How do sensations of your shame express themselves through your body? a. A sunken body posture; b. Blushing cheeks; c. Increased body temperature; d. Sweating; e. Queasiness

2. Be open to the sensations of shame in your thoughts and behaviours. What are those sensations? Please describe your experiences in paragraph form, as if you were writing in your diary.

3. Still writing as if journaling about your experiences, remain present with the sensations of shame. How do you feel?

4. Be attentive to pleasant as well as unpleasant experiences related to this moment. Write a bit about this attention.

5. What else do you want to share about your experience?

3.1.1.2. Measures

The following measures were delivered after the manipulation.

Quality check. A quality check asked participant: "Did you have enough time to write about emotions?", "Did you reflect on your feelings of shame?", "Did the task have you think on the experience of shame?", "Did you write about your negative emotions?". Most of the participants reported that they had enough time to write about their emotions (124 people, 92.5%), reflected on their feelings of shame (127 participants, 94.8%), wrote about their negative emotions (124 participants, 92.5%), and the task had them think on the experience of shame (127 participants, 94.8%).

Shame. Five items of the *State Shame and Guilt Scale* (SSGS; Marshall et al., 1994) measured shame. Participants responded to items such as "I want to sink into the floor and disappear." and "I feel humiliated, disgraced.", using a scale from 1 (*Not feeling this way at all*) to 7 (*Feeling this way very strongly*). Scale reliability was high ($\alpha = .93$).

Self-Reflection and Insight. *The Self-Reflection and Insight Scale* (SRIS; Grant, 2002) is used to measure individual differences in self-focused attention/ private self-consciousness. The 20-item scale consisted of three parts: engagement in self-reflection, need for self-reflection, and insight. Some examples of the engagement for self-reflection and need

for self-reflection are "I spent time in self-reflection", "I thought about the way I feel about things", "I was very interested in examining what I thought about", and "It was important to me to be able to understand how my thoughts arose". The insight component of the survey consisted of items such as "I was aware of my thoughts" and "I had a very clear idea about why I behaved in a certain way". In this scale, participants randomly received only 3 items for each part of the scale, a total of nine items. Items were anchored on a scale (1 = *Completely not true* to, 7 = *Completely true*).

3.3.2. Results

Condition Effects

H1) To test H1, that condition would predict lower subsequent shame, I conducted independent *t*-test analyses for this and future hypotheses concerning condition to explore intervention-type differences on observed variables (Field, 2009). There were no statistically significant state-level shame differences between interest-taking and control groups after five minutes of expressive writing ($M_{\text{interest-taking}} = 3.47$, $SD = 1.59$, $M_{\text{control}} = 3.79$, $SD = 1.75$; $t(127) = 1.07$, $p = .286$, $d = 1.07$).

H2) Independent *t*-test analyses showed that, against expectations, there were no differences between conditions regarding engagement in self-reflection ($M_{\text{interest-taking}} = 6.17$, $SD = 1.14$, $M_{\text{control}} = 6.07$, $SD = 1.00$; $t(96) = -0.46$, $p = .649$, $d = 2.10$), need for self-reflection ($M_{\text{interest-taking}} = 5.29$, $SD = 1.80$, $M_{\text{control}} = 4.95$, $SD = 1.91$; $t(65) = -0.76$, $p = .453$, $d = 1.86$), and insight ($M_{\text{interest-taking}} = 5.57$, $SD = 1.98$, $M_{\text{control}} = 5.61$, $SD = 1.38$; $t(94) = 0.17$, $p = .868$, $d = 1.28$) levels after five minutes of expressive writing. These results are presented in Table 5.

Table 5

Study 3- Means (and Standard Deviations) of Self-Reported Variables by Condition

Outcome State-level	Interest-taking	Control group					
	M (SD)	*M (SD)*	*df*	*t*	*p*	95%CI [LL, UL]	*Cohen's d*
Shame	3.47 (1.59)	3.79 (1.75)	127	1.07	.286	[-,16, .54]	1.07
Engagement in SR	6.17 (1.14)	6.07 (1.00)	96	-0.46	.649	[-,49, .31]	2.10
Need for SR	5.29 (1.80)	4.95 (1.91)	65	-0.76	.453	[-.66, .30]	1.86
Insight	5.57 (1.98)	5.61 (1.38)	94	0.17	.868	[-.37, .44]	1.28

Note. SR = Self-reflection

3.3.3. Conclusion

Study 3 did not show effects on shame, self-reflection and insight across the two conditions after five minutes of expressive writing. Thus, my hypotheses were not supported. However, this study manipulated writing at one time-point, with a manipulation that may have been too short-lived to be effective in regulating an emotion as strong as shame. Building on the emotional engagement and habituation hypothesis (Foa & Kozak, 1986; Lepore et al., 2002), strong negative emotions may show gradual declines with repeated exposure to constructive regulation of them. For example, individuals report more negative mood after initial writing sessions as compared to the subsequent days (Lepore et al., 2002; Smyth et al., 1999). I designed Study 4 to address this concern.

3.4. Study 4

Study 4 expanded on my first study in two ways. First, to address the possibility that Study 3 did not have sufficient time to build constructive self-interest in the shame experience, I used a daily diary methodology to measure regulation of shame following five minutes of expressive writing sessions across three consecutive days. My expectation was that engaging in interest-taking promoting writing sessions on shame experiences for three days may help individuals reduce feelings of shame. Second, I measured individual differences in intentional exploration alongside the interest manipulation, to account for the

possibility that stable individual differences facilitate regulation of shame alongside my brief intervention. Thus, in this study I tested five of my hypotheses, Hypotheses 1-3 concerning outcomes of my manipulation and Hypotheses 4-5 concerning individual differences in intentional exploration.

3.4.1. Methods

3.4.1.1. Participants and Procedure

As in Study 3, my objective was to collect data from a $N = 128$ individuals to achieve .80 power to detect a small effect. Ultimately, 103 students from the psychology department at the University of Reading provided a total of 283 observations. Most of the participants were female (84.5%; 10.1 % men; 4.7% gender neutral; 0.8% prefer not to disclose) and White/Caucasian (58.1%; Asian 21.7%; Mixed 12.4%; Black 3.9%; Middle Eastern 2.3%; Other 1.6%). Participants were aged between 18-46 years ($M = 20.60$ years, $SD = 3.71$). The Psychology Department's Ethics Committee at the University of Reading obtained ethical approval for this study before the study procedures were undertaken.

Initially, all participants received a trait-level intentional exploration questionnaire. After that, for the next three days, every evening at 5:30 pm, participants completed interest-taking or neutral questions related to their recent shame experiences. After five minutes of expressive writing tasks, they reported on their state-level shame, self-reflection, insight, and introspection. At the end of the study, all participants were asked to engage in an affirmation exercise designed to improve mood and self-evaluation.

3.4.1.2. Measures

Intentional exploration (initial survey). At the beginning of the study, participants completed a seven-item survey measuring their intentional exploration of emotional experiences with the *Emotion Regulation Inventory* (ERI; Roth et al., 2009). Participants responded to their response to emotions with items such as "…it is important for me to try to

understand why I feel this way" and "… I usually try to understand the reasons I feel this way". Participants responded on a 7-point Likert-type scale, ranging from 1 (*completely not true*) to 7 (*completely true*). Intentional exploration showed higher internal reliability (α = .85).

Daily surveys. As in Study 3, I used shame part of the *Shame and Guilt Scale* (SSGS; Marshall et al., 1994) to measure the feelings of shame after expressive writing exercises for three consecutive days. The scale showed high internal reliability (α = .93). I also used *The Self-Reflection and Insight Scale* (SRIS; Grant, 2002) to measure engagement in self-reflection, need for self-reflection, and insight. Reliability analyses showed high internal reliability for each subscale (i.e., engagement in self-reflection: α = 0.85; need for self-reflection: α = 0.90; insight: α = 0.88).

Daily introspection. Participants were asked to answer six items of the introspection scale (Itzchakov et al., 2020). The scale prompted: "Writing about my feelings of shame …". Examples of the items are "…helped me to understand myself better", "…made me think more deeply things", and "…helped me connect with myself" (α = .94).

Quality Check. Similar to Study 3, participants responded to four quality check items. Most of them reported that during this three-day experimental study they had enough time to write about their emotions (261 participants, 90.6%), reflected on their feelings of shame (267 participants, 92.7%), wrote about their negative emotions (274 participants, 95.1%), and the task had them think on the experience of shame (274 participants, 95.1%).

3.4.2. Results

ICC analyses

Analytic approach

I conducted multilevel analysis using JASP 0.18.1.0 software (JASP Team, 2023) to explore condition differences (i.e., interest-taking vs. control group) on observed variables.

Mixed model analysis groups daily reports by individuals, accounting for shared variance across days experienced by the same person. Level 1 included daily constructs: shame, engagement in self-reflection, need for self-reflection, insight, and introspection. Level 2 consisted of individual differences in intentional exploration. The condition effect was also defined at Level 2, as participants were assigned to the same condition (interest-taking or control condition) for the three days of the study. Models simultaneously defined intentional exploration as an individual difference predictor of daily experiences (H4-H5).

Condition Effects

H1) H1 concerned effects across the two conditions predicting daily state-level shame scores. There were no differences between groups across the three days of the study, $M_{\text{interest-taking}} = 2.70$ ($SD = 1.58$); $M_{\text{control}} = 2.61$ ($SD = 1.62$, $t(101.74) = 0.20$, $p = .842$). H1 was not supported.

H2) In contrast to my expectations, I found no differences between conditions regarding engagement in self-reflection ($M_{\text{interest-taking}} = 5.09$, $SD = .89$, $M_{\text{control}} = 4.99$, $SD = .82$; $t(100.85) = 0.37$, $p = .714$), need for self-reflection ($M_{\text{interest-taking}} = 4.97$, $SD = 1.32$, $M_{\text{control}} = 4.95$, $SD = 1.22$; $t(100.51) = -0.39$, $p = .699$), and insight ($M_{\text{interest-taking}} = 4.75$, $SD = 1.13$, $M_{\text{control}} = 4.89$, $SD = 1.21$; $t(102.24) = -0.66$, $p = .510$) scores after 5 minutes of expressive writing across three days. Similarly, introspection did not show significant differences between groups ($M_{\text{interest-taking}} = 4.66$, $SD = 1.39$, $M_{\text{control}} = 4.57$, $SD = 1.59$; $t(100.45) = -0.23$, $p = .820$). The descriptive statistics for daily experiences in both conditions are summarized in Table 6 and the effects of condition on shame related experiences are presented in Table 7.

Table 6

Study 4- Means (and Standard Deviations) of Self-Reported Variables by Condition

Variable	Interest-taking				Control Group			
	N	*Mean*	*SD*	Min-Max	*N*	*Mean*	*SD*	Min-Max
Trait (Level 1)								
Intentional ex.	140	5.23	0.92	3.29-7.00	143	5.16	1.05	2.86-6.86
State (Level 1)								
Shame	140	2.70	1.58	1.00-7.00	143	2.61	1.62	1.00-7.00
Engagement in SR	140	5.09	0.89	1.00-6.33	143	4.99	0.82	2.17-6.50
Need for SR	140	4.97	1.32	1.67-7.00	143	4.95	1.22	1.00-7.00
Insight	140	4.75	1.13	1.88-7.00	143	4.89	1.21	2.13-7.00
Introspection	140	4.66	1.39	1.33-7.00	143	4.57	1.59	1.00-7.00

Note: SR=Self-Reflection

Table 7

Study 4- The Effects of Condition on Shame Related Experiences

Independent Variable: Condition Fixed Effects	*B*	*SE*	*df*	*t*	95%CI [LL, UL]	*p*
Shame (Level 1)						
Condition	.03	.15	101.74	0.20	[.01, .57]	.842
Engagement in SR (Level 1)						
Condition	.03	.07	100.85	0.37	[-.11, .16]	.714
Need for SR (Level 1)						
Condition	-.04	.11	100.51	-0.39	[-.26, .18]	.699
Insight (Level 1)						
Condition	-.07	.10	102.24	-0.66	[0.27, .14]	.510
Introspection (Level 1)						
Condition	-.03	.13	100.45	-0.23	[-.29, .23]	.820

Note: SR=Self-Reflection

Individual Differences in Intentional Exploration

H4. Individual differences in intentional exploration did not predict daily state-level shame scores. Individuals with higher intentional exploration did not report less state-level shame ($B = -.03$, $SE = .15$, $t(101.63) = -0.17$, $p = .864$).

H5. Findings showed that higher intentional exploration of emotions predicted greater engagement in self-reflection (*B* = .17, *SE* = .07, *t*(101.72) = 2.43, *p* = .017), need for self-reflection (*B* = 42, *SE* = .11, *t*(100.63) = 3.91, *p* < .001), insight (*B* = 29, *SE* = .10, *t*(103,30) = 2.84, *p* = .005), and introspection (*B* = .34, *SE* = .13, *t*(100.86) = 2.58, *p* = .011). These findings are presented in Table 8.

Table 8

Study 4- Linear Mixed Model Analysis Results: Effects of Intentional Exploration on Daily Shame Experiences

Independent Variable: Intentional Exploration (Level 2)	*B*	*SE*	*df*	*t*	95%CI [LL, UL]	*p*	*Variance*	*SD*
State Shame (Level 1)								
Fixed Effects								
Intentional exploration	-.03	.15	101.63	-0.17	[-.32, .26]	.864		
Random Effects								
Intercept (Between-person)							1.91	1.38.
Engagement in SR (Level 1)								
Fixed Effects								
Intentional exploration	**.17**	**.07**	**101.72**	**2.43**	**[.03, .31]**	**.017***		
Random Effects								
Intercept (Between-person)							.35	.59
Need for SR (Level 1)								
Fixed Effects								
Intentional exploration	**.42**	**.11**	**100.63**	**3.91**	**[.21, .63]**	**< .001****		
Random Effects								
Intercept (Between-person)							.90	.95
Insight (Level 1)								
Fixed Effects								
Intentional exploration	**.29**	**.10**	**103.30**	**2.84**	**[.09, .49]**	**.005***		
Random Effects								
Intercept (Between-person)							.87	.93
Introspection (Level 1)								
Fixed Effects								
Intentional exploration	**.34**	**.13**	**100.86**	**2.58**	**[.08, .59]**	**.011***		
Random Effects								
Intercept (Between-person)							1.38	1.18

*Notes: * Significant at p <.05; ** Significant at p <.001*
Level 1: Daily level; *Level 2:* Individual level

Moderation analysis

I conducted linear mixed model analyses in JASP to examine whether condition moderated the effects of intentional exploration on state-level shame, engagement in self-reflection, need for self-reflection, insight, and introspection. Examining main effects underlying moderation, intentional exploration predicted all

outcomes except for shame, though condition did not show any significant main effect on any outcome. When predicting state-level shame, analyses showed the interaction between intentional exploration and condition was not significant $F(1, 99.64) = .06, p = .807$). Findings also suggested there were no significant interaction effects, showing no evidence that condition moderated the associations between intentional exploration and other outcome variables; engagement in self-reflection ($F(1, 99.52) = .01, p = .932$), need for self-reflection ($F(1, 98.79) = .21, p = .652$), insight ($F(1, 100.85) = 1.48, p = .226$), and introspection ($F(1, 98.97) = .01, p = .932$). These findings indicated the effect of intentional exploration on state-level shame, self-reflection, insight, and introspection do not differ based on interest-taking or control conditions.

3.4.3. Conclusion

Study 4 involved a three-day daily diary study conducted to understand the extent that the effects of emotion-focused interest-taking writing exercises facilitate constructive processing of shame experiences when delivered in a more intensive intervention across three days. Findings did not support my condition-relevant hypothesis was that writing exercises designed to increase interest-taking would predict lower shame (Hypothesis 1) and more constructive processing of shame (Hypotheses 2). On the other hand, as hypothesized (Hypotheses 4-5) although individual differences in intentional exploration were, similarly, not associated with less shame, they were, as expected, associated with engagement in self-reflection, need for self-reflection, insight, and introspection across the three days of the study.

3.5. Study 5

In the next study I tested, once again, an in-lab writing manipulation and measured individual differences in intentional exploration, to replicate findings concerning Hypothesis 4 and 5 – that individual differences in intentional exploration would not relate to lower shame, but would instead relate to its constructive regulation. New to this study, I measured participants' self-improvement motivation (Breines & Chen, 2012) and approach (versus avoidance) orientation (Heller et al., 2007) to test if intentional exploration would promote

participants' orientation toward themselves rather than moving away from their feelings and self-concepts. Because shame is characterised by a desire to disappear (Elison et al., 2014; Lewis, 1971) and low intrinsic motivation (McLachlan et al., 2011), facilitating interest-taking may affect interested individuals' approach orientation and motivation to improve themselves. I expected that those instructed to explore their emotions intentionally (Hypothesis 3) or who were higher in intentional exploration (Hypothesis 6) would report greater self-improvement scores and a higher approach mindset given the conceptual proximity of the proactive and motivated search for knowledge about emotions that these constructive outcomes of shame reflect (McLachlan et al., 2011).

3.5.1. Methods

3.5.1.1. Participants and Procedure

This experimental study took place online. Participants were recruited through Prolific Academic. A total of 129 participants' ages ranged from 18 to 31 years ($M = 22.65$ years, $SD = 2.27$). Of the participants, 48.1% were female, 46.5% were male, and 0.8% identified as gender neutral. The sample comprised 42.6% White/Caucasian, 32.6% Black, 17.8% Asian, and 7.0% Mixed. The Psychology Department's Ethics Committee at the University of Reading obtained ethical approval for this study before the study procedures were undertaken.

Participants reported on their individual differences in intentional exploration. They were then assigned to interest-taking or neutral conditions and answered questions related to their recent shame experiences as in Study 4. After five minutes of expressive writing tasks, participants reported on their state-level shame, self-reflection, insight, and introspection. Additionally, they completed surveys measuring their self-improvement and approach orientation. At the end of the study, all participants were asked to engage in an affirmation exercise designed to improve mood and self-evaluation.

3.5.1.2. Measures

At the beginning of the study, all participants completed intentional exploration part of *Emotion Regulation Inventory* (ERI; Roth et al., 2009). The scale showed high internal reliability (α = .88). After five minute interest-taking versus neutral expressive writing tasks, all participants were asked to complete a set of state-level questionnaires; such as *Shame and Guilt Scale* (SSGS; Marshall et al., 1994), *the Self-Reflection and Insight Scale* (SRIS; Grant, 2002) and *Introspection Scale* (Itzchakov et al., 2020).

I slightly adapted need for self-reflection questions and final version of the survey included these items: "I was not interested in learning more about my feelings", "It was important for me to understand my experience", "I was very interested in exploring what I thought about", "It was important to me to try to understand what my feelings meant to me", "I sought to understand the meaning of my emotion", and " I was curious about how my thoughts arose". It is noteworthy that one item in engagement in self-reflection scale was missing in this study. Subscales demonstrated acceptable reliability (shame: α = .72, engagement in self-reflection: α = .77, need for self-reflection: α = .83, insight: α = .72; and introspection: α = .93). Along with these measures also tested in previous studies, I measured self-improvement motivation scale and participant' avoidance versus approach orientation mindsets.

Self-improvement motivation scale. The self-improvement motivation scale (Breines & Chen, 2012) consists of seven items. Items include: "I wanted to learn and improve myself", "I wanted to discover new strategies for improving myself", and "I didn't think there is much I could do to change this weakness (reverse coded)". The scale showed high internal reliability (α = 0.86).

Avoidance versus approach mindset. Participants' avoidance versus approach mindsets were measured through an adapted single-item measure used by Heller et al. (2007):

"Is your current mindset as you think about your experience best described as pursuing a positive outcome, such as to move towards the experience, or alternatively, as avoiding a negative outcome, such as moving away from the experience?" I presented six responses for participants to choose from. Of answers, three of them was referring to approach mindset at different levels, for example: +3 "*I feel strongly inclined to pursue a positive outcome, such as by moving closer towards my emotions and thoughts*", +2 "*I feel inclined to pursue a positive outcome, such as by moving closer towards my emotions and thoughts*", and +1 "*I feel slightly inclined to pursue a positive outcome, such as by moving closer towards my emotions and thoughts*". Three items referred to an avoidance mindset: -1: "*I feel slightly inclined to pursue a negative outcome, through moving away from my emotions and thoughts*", -2: "*I feel inclined to pursue a negative outcome, through moving away from my emotions and thoughts*", -3: "*I feel strongly inclined to pursue a negative outcome, through moving away from my emotions and thoughts*".

Manipulation Check. In this study, I used adapted need for self-engagement questions to check if there are significant differences between conditions in terms of their interests. Findings showed no significant differences between conditions in terms of interest.

3.5.2. Results

Condition Effects

H1) To test Hypothesis 1, I conducted *t*-test analyses. I did not observe significant state-level shame differences between interest-taking and neutral writing groups ($M_{\text{interest-taking}} = 3.12$ ($SD = 1.53$); $M_{\text{control}} = 3.86$ ($SD = 1.63$; $t(127) = -2.65$, $p = .778$), $d = 1.58$).

H2) The findings showed no significant differences between interest-taking and neutral conditions in terms of engagement in self-reflection, need for self-reflection, and insight. The only significant variable was introspection. Individuals instructed to take an

active interest in their shame experiences showed grater introspection ($M_{\text{interest-taking}} = 5.55$, SD = 1.21; $M_{\text{control}} = 4.96$, $SD = 1.51$; $t(127) = 2.46$, $p = .039$, $d = 1.37$).

H3) In contrast to expectations, I did not observe significant differences between conditions in terms of self-improvement motivation ($M_{\text{interest-taking}} = 5.61$, $SD = 1.02$; $M_{\text{control}} = 5.50$, $SD = 1.10$; $t(127) = 0.56$, $p = .389$, $d = 1.06$) and approach mindset scores ($M_{\text{interest-taking}} = 5.12$, $SD = .88$; $M_{\text{control}} = 4.95$, $SD = .98$; $t(127) = 1.04$, $p = .321$, $d = 0.93$). The results are shown in Table 9.

Table 9

Study 5- Means (and Standard Deviations) of Self-Reported Variables by Condition

Outcome	Interest-taking M (SD)	Control group M (SD)	df	t	p	95%CI [LL, UL]	Cohen's d
Trait							
Intentional exp.	5.20 (1.11)	5.46 (1.02)	127	-1.38	.859	[-.59, .10]	1.07
State-level							
Shame	3.12 (1.53)	3.86 (1.63)	127	-2.65	.778	[-.82, -.12]	1.58
Engagement in SR	5.80 (1.05)	5.49 (1.03)	127	1.67	.974	[-.05, .64]	1.04
Need for SR	5.44 (1.12)	5.10 (1.35)	127	1.59	.187	[-.07, .63]	1.24
Insight	4.89 (1.15)	4.73 (1.05)	127	0.83	.199	[-.20, .49]	1.10
Introspection	**5.55 (1.21)**	**4.96 (1.51)**	**127**	**2.46**	**.039***	**[.08, .78]**	**1.37**
Self-improvement	5.61 (1.02)	5.50 (1.10)	127	0.56	.389	[-.25, .44]	1.06
Mindset	5.12 (.88)	4.95 (.98)	127	1.04	.321	[-.16, .53]	.93

*Note: *$p < .005$

Individual Differences in Intentional Exploration

H4. I examined the direct effects of intentional exploration on state-level variables. Regression analysis showed that no differences were observed between conditions regarding state-level shame scores ($\beta = -.06$, $SE = .13$, $t = -0.65$, $p = .520$).

H5. Intentional exploration was found to significantly predict all other outcome variables: engagement in self-reflection ($\beta = .42$, $SE = .08$, $t(128) = 5.24$, $p < .001$, 95% CI [.26, .57]); need for self-reflection ($\beta = .50$, $SE = .09$, $t(128) = 6.43$, $p < .001$, 95% CI [.40,

.76]); insight ($\beta = .28$, $SE = .09$, $t(128) = 3.31$, $p = .001$, 95% CI [.12, .46]); and introspection ($B = .41$, $SE = .11$, $t(128) = 5.04$, $p < .001$, 95% CI [.32, .74]). Linear regression analyses demonstrated that individuals with higher intentional exploration scores showed greater self-reflection, insight, and introspection scores.

H6. Regression analysis demonstrated that individuals with higher intentional exploration reported more self-improvement motivation ($\beta = .50$, $SE = .08$, $t(128)= 6.42$, $p < .001$, 95% CI [.34, .64]) and approach mindset ($\beta = .35$, $SE = .07$, $t(128) = 4.22$, $p < .001$, 95% CI [.16, .45]). The results are shown in Table 10.

Table 10

Study 5- Direct Effects of Intentional Exploration on State-Level Shame Experiences

Independent Variable: Intentional Exploration (Trait)	State-level Shame Experiences					
	β	SE	df	t	p	95% CI [LL, UL]
Shame (State)						
Intentional exploration	-.06	.13	128	-0.65	.520	[.35, .18]
Engagement in SR (State)						
Intentional exploration	**.42**	**.08**	**128**	**5.24**	**< .001****	**[.26, .57]**
Need for SR (State)						
Intentional exploration	**.50**	**.09**	**128**	**6.43**	**< .001****	**[.40, .76]**
Insight (State)						
Intentional exploration	**.28**	**.09**	**128**	**3.31**	**.001***	**[.12, .46]**
Introspection (State)						
Intentional exploration	**.41**	**.11**	**128**	**5.04**	**< .001****	**[.32, .74]**
Self-improvement (State)						
Intentional exploration	**.50**	**.08**	**128**	**6.42**	**< .001****	**[.34, .64]**
Approach mindset (State)						
Intentional exploration	**.35**	**.07**	**128**	**4.22**	**< .001****	**[.16, .45]**

*Note: * Significant at p <.05; ** Significant at p <.001*

Moderation analysis

I conducted a series of moderation analyses using PROCESS (Hayes, 2022) to assess if condition moderates the relationship between intentional exploration and outcome variables. Findings showed that condition did not significantly moderate the effect of

intentional exploration on state-level shame ($b = .28$, $p = .292$), engagement in self-reflection ($b = .13$, $p = .403$), and need for self-reflection ($b = .25$, $p = .167$).

The link between intentional exploration and insight was marginally moderated by condition ($b = -.35$, $p = .050$). Intentional exploration was significant only in interest-taking condition ($b = .46$, $SE = .12$, $t = 3.91$, $p < .001$, CI [.23, .70]) but not in control condition ($b = .12$, $SE = .13$, $t = 0.90$, $p = .370$, CI [-.14, .37]).

In addition, a moderation effect was found predicting introspection (Interaction was significant ($b = .55$, $p = .006$). Intentional exploration predicted higher introspection in the control condition ($b = .88$, $SE = .15$, $t = 5.95$, $p < .001$, CI [.58, 1.17]) than in the interest-taking condition ($b = .32$, $SE = .14$, $t = 2.38$, $p = .019$, CI [.05, .59])).

Similarly, findings indicated that condition moderated the effect of intentional exploration on self-improvement motivation, $b = .41$, $p = .008$, and approach orientation, $b = .40$, $p = .006$. Conditional effects showed that intentional exploration predicted self-improvement motivation in both interest-taking ($b = .32$, $SE = .10$, $t = 3.13$, $p = .002$, CI [.12, .52]) and control conditions ($b = .72$, $SE = .11$, $t = 6.56$, $p < .001$, CI [.51, .94]). For approach orientation, the effect of intentional exploration on approach orientation was significant only in the control condition, $b = .54$, $SE = .10$, $t = 5,15$, $p < .001$, CI [.33, .74], but not in the interest-taking condition, $b = .14$, $SE = .10$, $t = 1.43$, $p = .154$, CI [-.05, .33].

3.5.3. Conclusion

The findings indicated that there were no significant differences between conditions except for introspection. Individuals in interest-taking condition reported higher introspection compared to the control group. Regression analyses showed that intentional exploration was positively associated with engagement in self-reflection, need for self-reflection, insight, introspection, self-improvement motivation, and approach orientation. This suggests that those with higher intentional exploration experience greater self-reflection, insight, and

introspection. Specific to this study, those with higher intentional exploration also report greater motivation for self-improvement and more approach mindset.

3.6. General Discussion

Three studies were designed to explore if interest-taking focused on one's experiences related to the feeling of shame may be used as an effective strategy to down-regulate the feeling of shame, or whether, alternatively, stable individual differences in the tendency to take an interest (i.e., individual differences in the regulatory style characterised by "intentional exploration", which reflects active and motivated pursuit of one's own emotions (Roth et al., 2009; Roth et al., 2018; Roth et al., 2019)) would be needed to regulate this challenging emotion. To this end, I sought to encourage participants' interest in their feelings of shame and tested intentional exploration following previous approaches (Roth et al., 2009; Roth et al., 2018; Roth et al., 2019). I expected that interest-taking focused on one's own emotions, the key quality of intentional exploration, may help individuals to process the feelings of shame.

Across three studies, participants were assigned to receiving instructions designed to elicit their interest or to a control group. My findings across three studies failed to demonstrate short-term benefits of responding questions designed to elicit interest, but across the latter two studies they showed that individual differences in intentional exploration led to constructive regulation of shame while at the same time showing no correlation with the strength of the shame, itself. Specifically, individual differences in intentional exploration tested in Studies 4 and 5 related to private self-consciousness/self-focused attention variables (e.g., self-reflection, insight, and introspection).

Findings concerning intentional exploration, in relation to both self-reflection, insight, and introspection, are intriguing in the context of current research on both intentional exploration and shame. First, the literature on intentional exploration has identified that

individuals employ a "differentiated awareness" towards their inner selves and emotional states to experience and explore their emotions, and this brings volitional change informed by their inner selves, needs, goals, and values (Roth et al., 2009; Ryan et al., 2015b). Similarly, self-reflection and insight, investigation of thoughts, feelings, behaviours, and clear understanding of them, influences an organism for a purposeful change (Grant et al., 2002; Roberts & Stark, 2008). While shame creates distance from one's true self, intentional exploration encourages individuals to understand their shame experiences through self-reflection, insight, and introspection. They are also noteworthy given that shame is a self-focused emotion characterised by negative self-awareness and self-representations (Tracy & Robins, 2004), and for this reason, people are naturally inclined to *move away* from seeking insight about the emotion, choosing instead to attempt to avoid the emotion altogether (McLachlan et al., 2011). In this study, intentional exploration may have linked with active movement towards, not away from, the emotion.

Thus, while the feeling of shame motivates individuals to move away from their inner selves, intentional exploration of shame experiences facilitated individuals' pursuit of self-knowledge and exploring internal experiences. In other words, the studies suggested that the active exploration may have facilitated a positive attentiveness to inner processes (e.g., engagement in self-reflection and need for self-reflection) and a clearer understanding of themselves (e.g., insight and introspection). Supporting this view, in Study 5, I further found that intentional exploration related to an approach orientation after five minutes emotion-focused interest-taking writing (Finset et al., 2002; Roth & Cohen, 1986). This suggests that individuals with higher intentional exploration showed approach orientation in processing their feelings of shame.

Typically, processes of self-reflection and insight, yield positive well-being outcomes (Bansal et al., 2023; Harrington & Loffredo, 2011; Nesbitt et al., 2023), help to move

individuals towards change (Grant et al., 2002; Roberts & Stark, 2008), and are indeed seen to be essential in psychotherapeutic contexts (Dimaggio & Lysaker, 2018; Grant, 2001; Jennissen et al., 2018; Sauter et al., 2010). I cannot speak to downstream benefits of these processes within the current studies, but I suggest future studies could explore these processes to understand whether intentional exploration, and other individual differences that conduce self-reflection, insight, and introspection in the context of shame, help individuals to process this emotion over the long-term.

Such future studies may approach the question with sensitivity to context and the understanding that costs, as well as benefits, may result from the reflective process. Private self-focused attention refers to directed attention toward inner thoughts and feelings and represents a rich self-understanding of oneself (Harrington & Loffredo, 2011; Trapnell & Campbell, 1999). Even though it relates to well-being, this enhanced access to inner processes may associate with some negative characteristics as well, for example depression, anxiety, or neuroticism (Harrington & Loffredo, 2011; Trapnell & Campbell, 1999). This multifaceted nature of private self-focused attention is called "*the self-absorption paradox*" by Trapnell and Campbell (1999). For example, a positive form of self-focused attention, self-reflection, represents a self-attentiveness which is energised by curiosity or epidemic interest in the self, while rumination, a negative form of self-attentiveness, refers to repetitive thoughts, motivated by potential thread, losses, and feelings of unfairness toward oneself (Trapnell & Campbell, 1999).

Along with findings linking intentional exploration to self-reflection, insight, and introspection, Study 5 findings identified links between intentional exploration and greater state-level self-improvement motivation. Self-improvement motivation, an approach motive that reflects a desire to use experience for change and growth (Halliwell & Dittmar, 2005; Kurman, 2006; Sedikides & Hepper, 2009), offered a first glance at the potential for positive

change that intentional exploration might facilitate when processing shame. The findings of Study 5 suggested that intentional exploration was linked to greater self-improvement motivation after engaging in writing exercise, suggesting it may play a role in the kind of constructive change that allows individuals to gain and learn from their shame emotion (Roth et al., 2019; Stichter, 2020).

Unlike my findings concerning individual differences in the emotion regulatory style of intentional exploration, which largely supported hypotheses, I found no support for the interest-taking activity that was attempted. It may be the intervention needed stronger or more lasting exposure. Recent studies suggest that reappraisal could be more adaptive than integrative emotion regulation in the short term. Benita et al. (2024) examined integrative emotion regulation (e.g., intentional exploration) and reappraisal on goal pursuit at both trait and daily levels. Findings indicated that reappraisal was a more significant predictor of positive affect, increased goal progress and goal effort on a daily basis compared to integrative emotion regulation (specifically intentional exploration). On the other hand, at the trait level, integrative emotion regulation showed greater overall goal effort and progress than habitual reappraisal. Studies focusing on the effectiveness of reappraisal on the feelings of shame (Cândea & Szentágotai-Tătar, 2020; Krishnamoorthy et al., 2020; Zhu et al., 2024) revealed that reappraisal significantly reduced the feelings of shame. For example, Zhu et al. (2024) showed that both positive reappraisal and detached reappraisal reduced shame and guilt effectively. Similarly, Cândea and Szentágotai-Tătar (2020) showed that cognitive reappraisal significantly reduced state shame. In summary, reappraisal appears to be more adaptive in regulating feelings of shame, while the benefits of interest-taking may be more pronounced in the long run.

Across three studies, I asked participants to write about their recent experiences in which they felt ashamed. When individuals rely on their retrospective self-reports to recall

these memories, they tend to aggregate their experiences mentally. This process leads them to rely more on their semantic knowledge rather than their episodic memories (Benita et al., 2024). As a result, retrospective studies tend to reflect both within-person and trait variations in the feelings of shame. Instead of using retrospective reports, conducting lab-based inductions for momentary self-report could better effectively induce feelings of shame. These momentary self-report assessments allow individuals to report their experiences in real-time.

In the current research, all participants were relatively high in interest-taking towards the shame emotion, regardless of condition, suggesting that consequential variance in interest-taking exists at the individual-difference level, rather than at the state level. It may also be that, to the extent that interest towards shame requires practice to slowly build comfort with this emotion, more time is needed for participants to adopt an interest-taking mindset that would change their relationship with shame. Previous expressive writing studies highlight that strong negative emotions may show gradual declines with multiple exposure (Foa & Kozak, 1986; Lepore et al., 2002). Expressive writing directs individuals' attention toward the source of stress, individuals adopt *emotional habituation* which means decreased emotional reactions to the repeated stimulation (Groves & Thompson, 1970; Lepore et al., 2002), thereafter they may show *cognitive change/restructuring,* and emotional changes for this research topic. The act of writing itself facilitates processing emotional experiences and an integrative process that reduces differences between conditions. This encourages the integrative process even in individuals in control condition. Consequently, it is important for future studies to carefully design their control conditions to minimize unintended emotional integration. It would also be beneficial to measure and control for the intensity of shame in future studies to account for individual differences in emotional reactivity.

Future research can explore this with targeted interventions or by evaluating the role of intentional exploration and interest within existing interventions. For example,

multifaceted interventions such as Compassion-Focused Therapy (Gilbert, 2020), Cognitively Based Compassion Training (Pace et al., 2019), Mindful Self-Compassion (Neff & Germer, 2013), Acceptance and Commitment Therapy (Hayes et al., 1999), Dialectic Behavioural Therapy (Linehan, 1993), and Mindfulness Bases Stress Reduction (Kabat-Zinn, 1990) may have components of interest-taking that drive or enhance certain benefits they hold for emotion regulation.

Further, although intentional exploration was linked to positive indicators of processing shame, it did not link with lower shame in any of the current studies. That both individual differences and condition-inspired interest-taking failed to shift feelings of shame countered my expectations, but may be understood in light of the deep-rootedness of shame. Shame reflects our perception of decreased social status, lack of lovability, and feelings of inferiority and worthlessness (Lewis, 1971); it can only be alleviated when the situation that elicited shame or our perceptions of the situation change over long spans of time. To illustrate, shame occurs in the presence of others whether this is real or imagined (Muris et al., 2014). These feelings emerge regardless of the individual's volition in actions, resulting in shame, but the person internalize and experience a negative evaluation about the self in response to perceived failures. For this reason, in contrary to rejecting social environments, the supportive presence of others can positively influence their negative evaluation of themselves.

Further, the influence of environment and more generally society shapes our perceptions as well. Cross-cultural studies show variances in experiences of shame; for instance, individualistic cultures (e.g., US, UK) tend to experience guilt, a particular assessment of one's specific behaviour and more adaptable than shame (Lewis, 1971), while collectivistic cultures (e.g., Japan, China) are prone to experience shame (Sznycer et al., 2012; Wallbott & Scherer, 1995). By combining these findings in shame from individual and

social contexts, the positive impact of exploratory and investigatory approaches in emotional experiences may be more visible and observable in the presence of supportive others.

3.7. Limitations

These series of studies attempted a manipulation to encourage interest in shame, but indeed I observed a relatively high level of interest in Study 5, even when participants were not directly instructed to take an interest, but rather just encourage to mindfully reflect on their experiences. Most of the participants, regardless of their conditions, may have shown high interest in their shame experiences, maybe because of the highly distressing and painful nature of shame experiences. For future studies, individual differences in interest may show more noticeable differences than eliciting interest at a state level.

Next, emotion focused expressive writing tasks would demand longer time and multiple sessions especially in processing feelings of shame because of its complex and deep-rooted nature of shame. For instance, previous researchers highlighted that change occurs after directed attention towards the source of stress and following habituation (Lepore et al., 2002). The time period - one or three-point writing sessions – that I offered to participants may not be adequate to process the feelings of shame. The potential benefits of interest-taking, or intentional exploration, may be more visible in the long term, after multiple exposures to supportive opportunities to take a curiosity-driven stance towards one's negative emotions. Such lasting interventions are also in line with recommendations by Roth et al. (2018).

In this research, I utilized an experimental design and a three-day daily diary methodology, observing participants for only a short period of time. However, other designs, such as longitudinal studies, will allow researchers to observe changes in participants (Farrington, 1991), and these approaches, observing participants for long time periods, may

be more beneficial to examine shame, which is strongly instilled emotion (Fredrickson, 1998).

3.8. Conclusion

The current research examined the effects of interest-taking in processing shame experiences and the role of intentional exploration on these shame-related state-level variables. My starting point was that pursuing knowledge of oneself with interest and curiosity, rather than moving away from feelings and self-concept, would decrease the negative effects of shame experiences. Findings largely showed no direct benefits of state-level interest-taking on shame experiences. On the other hand, the individual difference of intentional exploration did not predict having lower state-level shame, but instead it seemed to facilitate thinking and intention towards the experience, including greater state-level self-reflection (engagement in self-reflection and need for reflection), insight, introspection, self-improvement motivation, and approach orientation, processes which may indicate long-term benefits to processing emotions such as shame. In all, the intentional or motivated pursuit of the shame feelings facilitated individuals' self-knowledge and gave them a clear understanding of their inner selves.

Chapter 4

Intentional Exploration of Emotions Fosters Self-Connection in Solitude, With Implications for Solitude Emotions and Cognitions

Abstract

Solitude can be difficult because time alone is relatively devoid of external distractions from one's thoughts and emotions. But when individuals regulate emotions effectively, they can instead use the undistracted time to build self-connection, with subsequent well-being benefits. Across three studies (Studies 6 and 7: daily diary; Study 8: experimental study), I investigated whether intentional exploration of emotions influences solitude experiences by promoting self-connection. Study 8 explored whether intentional exploration affects private (distracted; watching a show) and complete (undistracted) solitude differently, after participants were exposed to the Trier Stress Task. Results of three studies showed that that intentional exploration relates to greater self-connection (Studies 6, 7, and 8), greater introspection (Studies 7 and 8), greater rumination (Studies 7) and greater peaceful affect (Study 8) when in solitude. Across studies, self-connection mediated the link between intentional exploration of emotions and peaceful affect (Studies 7 and 8), but showed mixed findings in mediating the link between intentional exploration of emotions and rumination (Studies 7 and 8). Whereas intentional exploration did not moderate condition in Study 8, students watching television reported more peaceful affect in solitude.

Keywords: Intentional exploration, solitude, self-connection, peaceful affect, rumination.

4.1. Introduction

Solitude, time spent on one's own and away from social (Burger, 1995), offers opportunities to attend internally towards the self because this time is naturally free of external social demands on attention and behaviour (Larson, 1990). People have different reactions to solitude's relative lack of attentional distractions from one's own internal experiences (Weinstein, Vuorre, et al., 2023). For some, spending time alone can be experienced as an unpleasant, isolated, state. For others, solitude can be a constructive state (Galanaki, 2013) that allows individuals to improve their rest and relaxation, resulting in a sense of peaceful emotions (Nguyen et al., 2022).

Qualitative research has suggested that well-being in solitude occurs when people in solitude, left with the connection with the self as the dominant relationship, embrace this opportunity for self-connection (Thomas, 2023b), and more so, that this capability comes about when individuals can approach solitude as an opportunity for embracing and even pursuing their own emotions, among other internal experiences (Weinstein, Hansen, et al., 2023b). This research points to a capability identified in the emotion regulation literature, namely integrative emotion regulation (hereafter, intentional exploration) – the tendency to take an interest in one's emotions, investigate the causes of those emotions, and use this information to inform the volitional regulation of behaviour (Roth et al., 2014). Intentional exploration may promote self-connection and introspection during solitude, with implications for downstream well-being. This chapter integrates the two literatures, the first concerning emotion regulation and the second concerned with solitude, to test this assertion.

4.1.1. Solitude Can Have Benefits and Costs

Recent studies have shed light on the role that solitude plays in emotional well-being and suggest solitude can have benefits for certain emotions, in particular. One notable emotion-relevant solitude phenomenon has been labelled the *deactivation effect*. This refers

to the tendency for individuals in solitude to exhibit reductions in high arousal affect (Nguyen et al., 2018). Those and other studies have related time spent in solitude to lowered stress. For example, having a 15-minute solitude period helped mothers decrease their average stress levels of week (Study 4; Nguyen et al, 2018). In another study, students were more relaxed, less aroused, and in a better mood after spending approximately six minutes of silence in a room alone (Pfeifer et al., 2019). More recently, results of a 21-day diary study suggested that spending more time in solitude on any given day is linked to lower stress on that day, and that those who spend more time alone across several weeks experience lower stress overall (Weinstein, Vuorre, et al., 2023). In addition to feeling peaceful, solitude also offers an opportunity for introspection, a positive attention to inner experiences, and a deeper reflection and understanding of oneself (Itzchakov et al., 2020). This is because time in solitude frees individuals from external demands on their attention (Long & Averill, 2003) and as a result, it provides opportunities for introspection and self-reflection (Goossens, 2013; Long et al., 2003; Thomas, 2023b).

Much uncertainty still exists about the presence and importance of ruminative thoughts in solitude. Despite solitude's potential benefits to peaceful affect, stress reduction, and introspection, solitude has also been linked to *increased* cortisol (Pauly et al., 2017). In an experimental research, participants showed *drops* in positive and negative affect after spending time alone (Rodriguez et al., 2020). Researchers argue that, because when they are in solitude, individuals left to their own internal experiences and thoughts and relatively free from external distractions may ruminate, and that rumination stands as a barrier to solitude as a resource for feeling peaceful (Thomas, 2023a; Weinstein, Hansen, et al., 2023b). Rumination – a process of persistently and unproductively thinking about one's emotions and concerns rather than productive or insightful reflections (Nolen-Hoeksema et al., 2008)– may come about as a result of poor emotion regulation (Lian et al., 2023).

4.1.2. Integrative Emotion Regulation: Intentional Exploration of Emotional Experiences

Individual differences in the ability to adjust and manage time spent alone may drive comfort when alone (Larson & Lee, 1996), and can help to explain why solitude appears to facilitate peaceful affect and introspection for some but results in rumination for others. For example, in interviews exploring how people's self-identified individual differences help them to experience positive solitude, participants have pointed to an important role that their own self-driven and curious emotion regulation plays to either enable the well-being benefits of solitude (Weinstein, Hansen, et al., 2023b). Such findings suggest that curious pursuit of one's own emotions helps individuals to see solitude as an opportunity and to take advantage of their time alone for pursuing greater self-connection and introspection. They point to a possible role of *integrative emotion regulation* in driving solitude benefits.

Stemming from self-determination theory (SDT; Ryan & Deci, 2017) views that curious, autonomously motivated – fully internalized and volitional – engagement with the self underlies adaptive functioning (see also Weinstein et al., 2013), integrative emotion regulation represents an autonomous form of emotion regulation energised by interest and curiosity. Intentional exploration specifically refers to active interest and *intentional* (i.e., motivated) *exploration* (i.e., pursuit of additional knowledge) of emotional experiences that plays an important role in one's ability to experience emotions, explore the sources of them, and use this information in the volitional regulation of behaviour (Roth et al., 2009; 2014). Ultimately, intentional exploration results in emotional integration that is recognized non-defensively, understood in light of people's other values, needs, emotions, and experiences, and used as information in regulating behaviour (Ryan et al., 2015b). Such intentional exploration, and presumably, subsequent integration, allows individuals to incorporate emotional experience more fully and effectively with other aspects of the self, including their values, goals, and behaviours.

4.1.3. Self-Connection as an Important Quality Within Solitude

In the current chapter, I explored the links between intentional exploration of emotional experiences and self-connection in the context of solitude. Despite an extensive literature on connecting to others digitally or in person, few studies have been conducted to examine the benefits of connecting to the self (see review, Klussman et al., 2022) .

I operationalize self-connection as a subjective experience consisting of three elements: self-awareness, self-acceptance, and self-alignment (Klussman, Curtin, et al., 2022). The first component of self-connection is self-awareness, which refers to awareness of one's inner states, such as values, goals, preferences, resources, instincts and understanding of the true self. Individuals rely on their true selves to create meaning as this true self-concept allows them to establish a personally meaningful worldview which in turn influences their choices and actions (Schlegel et al., 2013). Self-awareness is also essential in pursuing the self-actualizing process, which refers to personal growth and a greater connection with the self (Rogers, 1961; 1964). It enables individuals to gain insights into their inner processes and be more open to them. Self-acceptance, the second component of self-connection, refers to fully embracing one's inner self, including values, goals, preferences, and resources, regardless of their positive and negative aspects. The last component, self-alignment, describes actions informed by and aligned with self-awareness and acceptance of this awareness (Klussman, Curtin, et al., 2022). According to self-connection theory, one's ability to connect with oneself is essential to well-being as it harmonizes their inner desires and outside actions, and allows them to embrace and acknowledge those inner desires (Klussman, 2020; Klussman, Nichols, et al., 2022). This deeper understanding of the self underlies subjective well-being and meaning (Klussman, Nichols, et al., 2022).

It is worth noting that integrative emotion regulation (and intentional exploration, specifically) may give rise to, but is not interchangeable with, self-connection. While

integrative emotion regulation requires an active, intentional and motivated exploration that considers self-processes, self-connection reflects a sense of understanding, acceptance, and alignment with one's authentic self. In addition, integrative emotion regulation refers to an adaptive emotion regulatory process that regulates emotions by deeply considering inner processes. This process involves incorporating emotions into the self and integrating them with other critical cognitive and affective aspects of themselves (Kaap-Deeder et al., 2016; Weinstein et al., 2013). In contrast, self-connection is the experience of feeling connected with oneself and congruent with one's experience, which may result from the interested pursuit of one's emotions and internal experiences (Weinstein et al., 2013).

4.2. The Current Studies

Theoretical work suggests that solitude is experienced positively when people in solitude, left with the connection with the self as the dominant relationship, embrace this opportunity for knowledge about the self (including through pursuing an understanding thoughts and feelings) and self-connection (Thomas, 2023b; Weinstein, Hansen, et al., 2023b). Building on these insights, the current work investigated the links between integrative emotion regulation (e.g., *intentional exploration*) – an internal resource for adaptive, self-connecting processing of emotional content – and solitude contexts, periods of time where self-connection is important for well-being.

The current studies tested the following hypotheses (H):

H1) Intentional exploration of emotional experiences would relate to greater self-connection in solitude (Studies 6, 7, and 8).

H2) Intentional exploration of emotional experiences would relate to higher peaceful affect (Studies 6, 7, and 8) and introspection (Studies 7 and 8), but lower rumination (Studies 7 and 8) in solitude.

H3) Self-connection would mediate the links between intentional exploration of emotional experiences and peaceful affect (Studies 7 and 8), introspection (Studies 7 and 8), and rumination (Studies 7 and 8).

Along with these three hypotheses, I set out to explore one research question. Specifically, I anticipated that solitude activities would influence how intentional exploration affects self-connection, and emotional and cognitive well-being (peaceful affect, introspection, and rumination) in solitude. I contrasted two forms of solitude: Complete, involving sitting alone with your thoughts, and Private, involving a distraction activity (Weinstein, Hansen, et al., 2023a). I speculated that intentional exploration would relate to greater self-connection and well-being in solitude across these two forms of solitude and may even interact with condition: for example, intentional regulation may be less important when a distracting activity protects even those low in intentional exploration of emotional experiences from rumination and low well-being (Study 8).

4.3. Study 6

Study 6 tested the role of intentional exploration in relation to self-connection and peaceful affect, partially evaluating H1-3. I focused on older adults, who spend more alone time than adolescents and middle-aged adults (Larson, 1990; Long & Averill, 2003; Pauly et al., 2017). Although older adults do not experience solitude more negatively than other age groups and indeed, they feel more comfortable with it, restricted social networks and functional limitations provide stressors during this period that can interfere with positive solitude providing overwhelming emotions arise (Ost Mor et al., 2021; Weinstein, Vuorre, et al., 2023). Research has also suggested that older individuals have greater emotional control and fewer negative emotional experiences (Gross et al., 1997) but the impacts of intentional exploration in older adulthood have received limited attention despite the importance of emotion regulation during this age (Carstensen et al., 1997).

4.3.1. Method

4.3.1.1. Participants and Procedure

I set out to collect data from approximately 150 individuals, considering potential data loss. Participants in this study were collected in a community sample using word of mouth and snowball techniques. In total, 141 individuals took part in the study. Of these, 136 completed both parts of the study for a total of 410 observations. Participants (58.8% men; 40.4% women) were aged between 50-89 years ($M = 66.31$ years, $SD = 10.23$). Most were White/Caucasian (83.8%). Other ethnicities reported including Black/Black British (9.6%); Asian/Asian British (3.7%); Mixed/Multiple ethnic groups (1.5%); and Other (1.5%). Ethical approval for this study was attained by the Psychology Department's Ethics Committee at the University of Reading before undertaking study procedures.

In the first part of the study, individuals provided written consent forms and completed initial baseline surveys. To target on specific moments of solitude time and equalize them across participants, all engaged in a 'Solitude Crafting' exercise (Adams & Weinstein, 2023) where they were instructed and guided in making a plan to be in solitude and planned their time alone. For the next three days, they were asked to spend at least 30 minutes alone in solitude during each of the days of the study.

4.3.1.2. Measures

Intentional exploration (initial survey). Participants first completed an individual-difference questionnaire measuring their intentional exploration of emotional experiences with the *Emotion Regulation Inventory* (ERI; Roth et al., 2009). This survey consisted of seven items. The items of the survey refer to anxiety and stress with the prompt: "When I have stress and anxiety...". Intentional exploration survey consisted of items including, "…it is important for me to try to understand why I feel this way," "… I usually try to understand the reasons I feel this way", "…I try to understand what this indicates about me and my

situation", and "On occasions, feelings of anxiety or stress helped me to understand

something about the situation I was in". The reliability of the scale was high (α = .87).

Daily peaceful affect in solitude. For the next three days, participants reported on

their peaceful affect during their solitude time. Peaceful affect was measured through a four-

item serenity subscale of *Positive and Negative Affect Schedule* (PANAS-X; Watson &

Clark, 1999). Participants reported how they felt during the solitude activity with four items:

calm, relaxed, at ease, peaceful; each was paired with scale responses ranging from 1(*not at*

all) to 7(*extremely*). Peaceful affect showed high internal reliability (α = .94).

Self-connection after three days. After completing three days of solitude activities,

participants completed another survey at the end of the study, considering their self-

connection during the past three days' solitude experiences (Klussman, Nichols, et al., 2022).

They reported to what extent each statement reflected their thoughts during the solitude

activity. Self-awareness sub-scale consisted of items such as "I had a deep understanding of

myself", "It was easy for me to identify and understand how I am feeling in any given

moment". Self-acceptance items involved four items as well including "I tried not to judge

myself.", "When I found out things about myself that I don't necessarily like, I tried to accept

those things". Two examples for the last part of self-connection, self-alignment, are "I found

small ways to ensure that my life truly reflected the things that are important to me" and "I

spent time making sure that I was acting in a way that is was a reflection of my true self".

Self-connection subscales showed acceptable internal reliability (self-awareness, α = .63;

self-acceptance, α = .73; self-alignment, α = .90). The total score across self-connection items

showed high reliability, α = .87.

4.3.2. Results

Analytic Strategy for Primary Models

Regression and multilevel (i.e., mixed) models were conducted to investigate relationships between intentional exploration as an individual difference, self-connection, and finally individuals' peaceful affect measured across multiple days. In predicting daily experiences, models nested days within participants and considered within-person and between-person variance components allowing us to understand how much variance is explained at the daily level (Level 1) and individual-difference level (Level 2). Multilevel models are particularly advantageous for diary studies because, along with accommodating nested data structures, these models can handle missing data (e.g., Bolger & Shrout, 2007; Bryk & Raudenbush, 1992). One hundred twenty-nine participants (94.85%) responded to questions on all three days. Others provided surveys on one (3.11%) or two (2.33%) days.

Direct Effects

H1) Intentional exploration of emotional experiences would relate to greater experience of self-connection in solitude. Intentional exploration of emotional experiences was positively associated with self-connection in solitude ($\beta = .43$, $SE = .07$, $p < .001$), including all three of its components: self-awareness ($\beta = .31$, $SE = .08$, $p < .001$), self-acceptance ($\beta = .29$, $SE = .09$, $p < .001$), and self-alignment ($\beta = .45$, $SE = .09$, $p < .001$). Hypothesis 1 concerning self-connection was supported in this study.

H2) Intentional exploration of emotional experiences would relate to higher peaceful affect in solitude. Contrary to expectations, there were no significant links between intentional exploration of emotional experiences and peaceful affect in solitude ($\beta = .03$, $SE = .07$, $p = .705$). These findings are presented in Table 11.

Table 11

Study 6 - Direct Effects of Intentional Exploration on Self-connection after 3-Day Solitude Experiences

Independent Variable: Intentional Exploration (Level 2)	β	SE	t	p	95% CI
Self-connection					
Intentional exploration	.43**	.07	5.33	< .001	[.24. .53]
Self-awareness					
Intentional exploration	.31**	.08	3.73	< .001	[.15, .47]
Self-acceptance					
Intentional exploration	.29**	.09	3.48	< .001	[.14, .50]
Self-alignment					
Intentional exploration	.45**	.09	5.74	< .001	[.34, .71]
Peaceful affect (Level 1)					
Intentional exploration	.03	.07	0.38	.705	[.00, .05]

Note: I conducted regression analysis to examine the links between intentional exploration of emotional experiences and self-connection after 3-day solitude experiences, and mixed model analysis to investigate the relations between intentional exploration and daily peaceful affect in solitude. *DF* = 133

4.3.3. Conclusion

Study 6 investigated the links between individual differences in intentional exploration of emotional experiences and daily solitude experiences in older adults. Intentional exploration was related to greater self-connection, and to the three subscales that comprise self-connection: self-awareness, self-acceptance, and self-alignment. Contrary to my predictions, intentional exploration was not directly related to greater peaceful affect, although it was indirectly related through its links with self-connection. I may have observed weaker effects on peaceful affect because older adults generally have greater well-being in solitude and tend to regulate emotions effectively during this time (Urry & Gross, 2010). Therefore, to test Hypotheses H1-H3 once again, I turned to a younger population of emerging adult students who struggle with solitude and tend to experience greater stress and rumination during their time alone (Pauly et al., 2017).

4.4. Study 7

Study 7 examined the first three hypotheses using a daily diary methodology through testing the relations between intentional exploration, daily self-connection in solitude, and

daily emotional and cognitive well-being (peaceful affect, rumination, introspection) in solitude. In doing so, it expanded on the first study in three ways. In Study 6, I explored the links between intentional exploration, self-connection, and peaceful affect in solitude among older adults. In Study 7, I sought to conceptually replicate effects observed in Study 6 when testing older adults who feel more comfortable with solitude (Larson & Lee, 1996; Ost Mor et al., 2021), now with younger adults' solitude experiences, which may be more difficult (Pauly et al., 2017). In addition, in the previous study I did not measure rumination (i.e., repetitive thinking about the past) or introspection (i.e., a process of having access to their internal states and becoming aware of present mental states and processes (Robbins, 2006)). Self-focused attention tendencies (e.g., rumination, reflection, introspection) are important indicators of self-regulation. For instance, rumination is associated with less internalized self-regulation and goals, and more avoidance whereas reflection represents more internalized self-regulation, goals, and less avoidance (Thomsen et al., 2011). Finally, Study 7 measured self-connection daily to examine within-subject variations in this construct, alongside within-subject variations in well-being as tested in Study 6.

4.4.1. Method

4.4.1.2. Participants and Procedure

The sample size was determined a-priori following principles for diary study recruitment. For multilevel analysis, 150 people are needed to attain an acceptable power of .80-.90 and give up to seven observations and a moderate effect size, considering 20-40% potential data loss (Ohly, et al., 2010). Ethical approval for this study was attained by the Psychology Department's Ethics Committee at the University of Reading before undertaking study procedures.

Participants were recruited through the psychology department at the University of Reading or through word of mouth for a five-day diary study examining, titled 'everyday

experiences study'. Although 151 participants took part in the baseline survey of the study, 129 completed the diary portion of the study. The final sample size therefore consisted of 129 participants (559 observations) aged between 18-46 years ($M = 20.60$ years, $SD = 3.71$). Most were women (84.5%; 10.1% male; 4.7% gender neutral; 0.8 prefer not to disclose) and White/ Caucasian (58.1%; Asian 21.7%; Mixed 12.4%; Black 3.9%; Middle Eastern 2.3%; Other 1.6%).

Participants provided their written consent for the study and completed an initial baseline survey and five daily diary surveys. As was done in Study 6, all of them engaged in a 'Solitude Crafting' exercise (Adams & Weinstein, 2023) to plan their time alone. They were then asked to spend at least 10 minutes alone in solitude during each of the days of the study. Each day, they received a survey at 8:30 pm asking about their solitude time (10 min for 5 days) and experiences during their time alone.

4.4.1.3. Measures

As in Study 6, participants first completed surveys measuring their intentional exploration of emotional experiences with the *Emotion Regulation Inventory* (ERI; Roth et al., 2009, $\alpha = .87$). They spent a minimum of ten minutes in solitude for five days. During this time, they chose to pursue some goals through solitude activity from the menu. This involved creativity, relaxation, spirituality, self-care, intellectual pursuits, nature connection, meditation/ reflection, and exercise. The following surveys were completed each day of the daily diary study and concerned the solitude period of that day; short versions of the scale were used for otherwise long measures to reduce participant burden across the days of the study. Participants responded to the serenity subscale of *Positive and Negative Affect Schedule* (PANAS-X; Watson & Clark, 1999, $\alpha = .85$). Participants' self-connection was assessed on the *Self-Connection Scale* (Klussman, Nichols, et al., 2022) including three subscales: self-awareness ($\alpha = .66$), self-acceptance ($\alpha = .75$), and self-alignment ($\alpha = .81$).

Rumination. Three items of the *Rumination-Reflection Questionnaire* (Trapnell & Campbell, 1999) measured state rumination. Participants reported to what extent each statement reflected their thoughts during the solitude activity. Items included "Long after an argument or disagreement was over with, my thoughts kept going back to what happened", "I tended to "ruminate" or dwell over things that happened to me for a really long time afterward", and "Often I was playing back over in my mind how I acted in a past situation today". The items were paired with a scale ranging from 1(*not at all*) to 7(*all the time*); (α = .85).

Introspection. Participants responded to six items of the introspection scale (Itzchakov et al., 2020) starting with this prompt: "Spending time alone today…". Items included, "Helped me to understand myself better", "Made me think more deeply things", "Helped me to discover new or different insights about myself"; (α = .91).

4.4.2. Results

Analytic Strategy for Primary Models

As in Study 6, I conducted multilevel models to analyse direct effects of intentional exploration on daily solitude experiences, such as peaceful affect, introspection, and rumination. The 129 participants completed an average of 4.33 diary entries. Ninety participants (69.8%) responded to questions on five days. Thirteen participants reported on four days (10.1%), 24 participants responded for three or less than three days (18.6%), and two participants (1.6%) responded for an additional day, or six days in total.

Direct Effects

H1) Intentional exploration of emotional experiences would relate to greater experience of self-connection in solitude. Results of models examining direct effects of intentional exploration on daily solitude experiences showed that higher standing on intentional exploration linked to greater daily self-connection ($B = .21$, $SE = .06$, $p < .001$)

and two of its three components: self-awareness ($B = .25$, $SE = .07$, $p < .001$) and self-alignment ($B = .26$, $SE = .07$, $p < .001$). Hypothesis 1 was partially supported.

H2) Intentional exploration of emotional experiences would relate to lower rumination, higher introspection and peaceful affect in solitude. In contrast to my expectations, intentional exploration *positively* related to rumination ($B = .26$, $SE = .10$, $p = .009$) in solitude. It was also associated with higher introspection ($B = .33$, $SE = .08$, $p < .001$) in solitude, as expected. As was the case in Study 6, I did not observe links between intentional exploration and peaceful affect in solitude. These findings are shown in Table 12.

Table 12

Study 7 - Direct Effects of Intentional Exploration on Daily Experiences in Solitude

Intentional Exploration	Daily Solitude Experiences (Level 1)							
(Level 2)	*B*	*SE*	*t*	*p*	*95% CI*	*F*	*Variance*	*SD*
Self-connection (Level 1)								
Fixed effects								
Intentional Exploration	**.21***	**.06**	**3.84**	**< .001**	[.00, .42]	14.75		
Random effects								
Intercept (Between-person)							.27	.52
Self-awareness (Level 1)								
Fixed effects								
Intentional Exploration	**.25***	**.07**	**3.82**	**< .001**	[.00, .50]	14.57		
Random effects								
Intercept (Between-person)							.39	.62
Self-acceptance (Level 1)								
Fixed effects								
Intentional Exploration	.13	.07	1.85	.067	[.00, .26]	3.41		
Random effects								
Intercept (Between-person)							.42	.65
Self-alignment (Level 1)								
Fixed effects								
Intentional Exploration	**.26****	**.07**	**3.80**	**< .001**	[.00, .51]	14.40		
Random effects								
Intercept (Between-person)							.37	.61
Rumination (Level 1)								
Fixed effects								
Intentional Exploration	**.26***	**.10**	**2.66**	**.009**	[.00, .51]	7.03		
Random effects								
Intercept (Between-person)							.07	.84
Introspection (Level 1)								
Fixed effects								
Intentional Exploration	**.33****	**.08**	**3.96**	**< .001**	[.00, .65]	15.68		
Random effects								

							.54	.73
Intercept (Between-person)							.54	.73
Peaceful affect (Level 1)								
Fixed effects								
Intentional Exploration	.01	.08	0.13	.895	[.00, .51]	.017		
Random effects								
Intercept (Between-person)							.52	.72

*Notes: DF = 128; * Significant at p <.05; ** Significant at p <.001*

H3) Self-connection would mediate the link between intentional exploration of emotional experiences and peaceful affect, introspection, and rumination. I conducted mediation analysis through JASP 0.18.1.0 software (JASP Team, 2023). As hypothesized in H3, self-connection mediated the link between intentional exploration and peaceful affect (indirect effect, $B = .14$, SE = .03, p < .001, 95% CI [.09, .19]) and introspection (indirect effect, $B = .16$, SE = .03, p < .001, 95% CI [.11, .22]). However, there were no indirect effects through self-connection for the link between intentional exploration and rumination (indirect effect, $B = -.04$, $SE = .02$, $p = .051$, 95% CI [-.07, .00]) in solitude.

4.4.3. Conclusion

Study 7 evaluated the links between individual differences in intentional exploration of emotional experiences and emerging adults' well-being (rumination, introspection, and peaceful affect) in solitude. Results suggested that individuals who have higher intentional exploration scores experience greater self-connection in solitude, and particularly benefited on two subscales of self-connection: self-awareness and self-alignment. The third – self-acceptance – was not related; those higher in intentional exploration did not feel self-acceptance differently to those lower in intentional exploration when they were alone. Furthermore, intentional exploration of emotions was associated with greater introspection during time alone but did not relate to peaceful affect; the latter null effect is similar to what I found in Study 6. Although a direct effect was not evident, mediation analysis showed that self-connection linked intentional exploration and peaceful affect in solitude – individuals

higher in intentional exploration felt more self-connected in solitude and this experience may have conduced peaceful affect. Though some benefits were observed, I also saw costs of this form of emotion regulation. Contrary to my expectations, intentional exploration was also related to *higher* rumination in solitude; individuals high in intentional exploration reported more ruminative thinking during their time alone.

4.5. Study 8

Studies 6 and 7 explored the role of intentional exploration of emotions on cognitive and emotional well-being in solitude in different age groups – emerging adults and older adults. Both studies showed that intentional exploration was positively associated with greater self-connection in daily solitude experiences. Study 8 employed a lab approach to build on these studies in two ways.

First, in Study 8, I examined the effects of individual differences in intentional exploration on the solitude experiences after a stress-inducing task, the Trier Task (Kirschbaum et al., 1993). Solitude is especially difficult when people are under stress or experienced a difficult emotional experience on which they may ruminate when alone (Weinstein, Hansen, et al., 2023b), but intentional exploration can help promote resilience during such solitude moments. I attempted to capture this, in part, in the lab and thereby increase variability in outcomes for those who could not effectively process the stressor and those who could. Second, I explored two forms of distraction: complete solitude (sitting alone with thoughts) and private solitude (with a distracting activity; sitting alone and watching a Netflix show; Weinstein, Hansen, et al., 2023a) because the former leaves participants open to reflecting constructively or ruminating on their thoughts, and might therefore show different patterns for intentional exploration. Given there is little data on this, I assumed the effects could go either way: intentional exploration might be especially important for well-being in solitude during Complete Solitude, or otherwise Complete Solitude may be a

boundary condition to intentional exploration, where the challenge of reflecting is more than optimal. Across conditions, I also tested indirect effects of intentional exploration on well-being outcomes through self-connection in solitude in an attempt to conceptually replicate findings from Studies 6 and 7.

4.5.1. Method

4.5.1.1. Participants

Given this experiment included two conditions, I sought to recruit 130 participants based on power analyses that anticipate effect size $d = .25$, alpha prob. = .05, and power = .80. Power analysis through G*Power allowed me to reach an effect size of $d = .25$ difference between the groups. Participants were recruited through SONA or word of mouth with course credit and compensated with financial payment of £4 or .75 credits for this study.

One hundred thirty people took part in this study. One asked to withdraw their dataset, one did not participate in the second portion of the study, and two participants did not complete the stress trial. The final sample size consisted of 127 students (aged between 18-66 years ($M = 22.84$ years, $SD = 5.95$). Most were women (81.1%; 18.9% male) and White/Caucasian (63.8%; Asian: 18.1%; Black: 7.1%; Mixed: 3.9%, Hispanic: 3.1%; Other: 2.4%; Middle Eastern: 1.6%).

4.5.1.2. Procedure

After providing their consent, participants received a simplified version of Trier paradigm, which is commonly used in many studies for inducing short-lasting perceived stress (Kirschbaum et al., 1993). They were instructed to spend one-minute preparing a five-minute speech on "Why I would be a good candidate for a job as an administrative assistant"; the speech was ostensibly recorded by video camera. Participants were fully debriefed on the nature of the study, including the Trier Stress Task intervention.

Following the stress-inducing task, participants were invited to take 15 minutes to sit alone with their thoughts (in Complete solitude; Weinstein, Hansen, et al., 2023a), or to engage in 'private' solitude (Weinstein, Hansen, et al., 2023a) and watch a television show on the Platform Netflix. Assignment to the Complete or Private Solitude conditions was random. Those sitting alone with a distractive activity condition watched one of five episodes from *Chef's Table* – an American documentary series streamed on Netflix – Grant Achatz (McGinn, 2016), Ana Roš (Fuller, 2016) Jeong Kwan (Gelb, 2017), Virgilio Martínez (Jeter, 2017), Alain Passard (Gelb, 2016). Each episode focused on a successful international chef and documented their approach to cooking to the viewers.

4.5.1.3. Measures

Measures used in previous studies. Participants completed surveys measuring their intentional exploration of emotional experiences (Roth et al., 2009; α = .85), self-connection (Klussman et al., 2022; α = .85; self-awareness α = .65; self-acceptance α = .74; self-alignment α = .85), peaceful affect (PANAS-X; Watson & Clark, 1999; α = .94), and introspection (Itzchakov et al., 2020; α = .91).

Rumination. An extended survey was used in Study 8 to measure rumination: the full Brief Rumination Inventory (BSRI); Marchetti et al., 2018). Participants reported to what extent each statement reflected their thoughts during the solitude activity. This survey consisted of thirteen items ranging from 1 (*Not at all*) to 7 (*Very much*). Items include "I was dwelling on negative aspects of myself that I wish I'd stop thinking about" and "I was thinking: "why can't I handle things better?". The scale showed high reliability (α = .92).

At the end of the study, all participants were asked to engage in an affirmation exercise designed to improve mood and self-evaluation.

4.5.2. Results

Analytic Approach. I conducted linear regression analysis to test the links between intentional exploration of emotions and solitude experiences. Intentional exploration of emotions served as the independent variable, and the experiences of solitude were the dependent variable in my investigation. Additionally, I conducted a mediation analysis through Process Macro (Hayes, 2013) to explore a mediating role of self-connection in relation to intentional exploration and peaceful affect, introspection, and rumination.

Differences in Solitude Experiences Between Two Forms of Solitude. Levene's Test for Equality of Variances revealed that state-level variables including self-connection (i.e., self-awareness, self-acceptance, and self-alignment), introspection, and rumination was normally distributed for both groups and there was homogeneity of variance. Peaceful affect was the only variable that was not normally distributed. I conducted independent samples *t*-tests to compare the given variables between complete solitude and solitude with distracting activity groups. There were no significant differences in these variables between solitude conditions, except for when predicting peaceful affect. Those sitting alone and watching TV shows for 15 minutes reported higher peaceful affect ($M = 5.45$, $SD = 1.11$, $p = .020$) than those sitting alone with their thoughts ($M = 5.10$, $SD = 1.38$; $p = .020$). These findings are presented in table 13.

Table 13

Study 8 - Means (and Standard Deviations) of Self-Reported Variables by Condition

Outcome	Complete Solitude M (SD)	Solitude with TV M (SD)	p	Main Effect of Condition B	t	p	Condition X Intentional Exploration B	t	p
Self-connection	4.64 (.87)	4.42 (.98)	.555	-.11	-0.76	.449	.26	3.98	<.001
Self-awareness	4.88 (1.02)	4.55 (1.02)	.826	-.32	-1.79	.077	.25	2.92	.004
Self-acceptance	4.08 (1.16)	3.95 (1.26)	.398	-.13	-0.59	.558	.29	2.83	.005
Self-alignment	4.95 (1.03)	4.77 (1.30)	.106	-.19	-0.90	.372	.33	3.37	.001
Rumination	3.23 (1.29)	3.45 (1.23)	.861	.22	0.99	.326	.104	0.94	.348

Introspection	4.84 (1.34)	4.84 (1.25)	.484	.00	0.00	1.00	.44	4.14	<.001
Peaceful affect	5.10 (1.38)	5.45 (1.11)	.020*	.44	1.85	.068	.24	2.15	.033

Findings also revealed that self-connection, along with its three components — self-awareness, self-acceptance, and self-alignment—, introspection, and peaceful affect all showed significant positive interaction effects with intentional exploration. This indicates that higher levels of intentional exploration were associated with these outcomes, regardless of condition. In contrast, rumination did not show any significant interaction effect.

Direct Effects of Intentional Exploration

H1) Intentional exploration of emotional experiences would relate to greater experience of self-connection in solitude. Intentional exploration related to self-connection (β = .31, *SE* = .08, *p* < .001) and its three components: self-awareness (β = .24, *SE* = .09, *p* = .007), self-acceptance (β = .24, *SE* = .10, *p* = .006), and self-alignment (β = .28, *SE* = .10, *p* = .001) in solitude after the stressful event.

H2) Intentional exploration of emotional experiences would relate to lower rumination, higher introspection and peaceful affect in solitude. There were no significant links between intentional exploration and rumination. However, intentional exploration was positively associated with introspection (β = .35, *SE* = .11, *p* < .001) and peaceful affect (*B* = .18, *SE* = .11, *p* = .047) in solitude. These findings are shown in Table 14.

Table 14

Study 8 - Direct Effects of Intentional Exploration on Solitude Experiences

Intentional exploration (Trait)	Solitude Experiences (State-level)					
	β	*SE*	*df*	*t*	*p*	*95% CI*
Self-connection						
Intentional exploration	**.31****	**.08**	**126**	**3.65**	**< .001**	**[.13, .44]**
Self-awareness						
Intentional exploration	**.24***	**.09**	**126**	**2.74**	**.007**	**[.07, .41]**
Self-acceptance						
Intentional exploration	**.24***	**.10**	**126**	**2.78**	**.006**	**[.08, .49]**
Self-alignment						

Intentional exploration	.28*	.10	126	3.29	.001	[.13, .52]
Rumination						
Intentional exploration	.09	.11	126	1.01	.314	[-.11, .33]
Introspection						
Intentional exploration	.35**	.11	126	4.15	< .001	[.23, .65]
Peaceful affect						
Intentional exploration	.18*	.11	119	2.01	.047	[.00, .44]

*Note: * Significant at p <.05; ** Significant at p <.001*

H3) Self-connection would mediate the link between intentional exploration of emotional experiences, peaceful affect, introspection, and rumination. I tested the expectation that self-connection, as a composite of its three subscales, would mediate the link between intentional exploration, peaceful affect, introspection, and rumination in solitude. As I hypothesized, self-connection mediated the link between intentional exploration and peaceful affect (indirect effect, β = .10, SE = .04, p = .012, 95% CI [.02, .18]). I also found that self-connection mediated the link between intentional exploration and rumination (indirect effect, β = -.07, SE = .04, p = .046, 95% CI [-.14, -.00]) and introspection (indirect effect, β = .16, SE = .05, p < .001, 95% CI [.07, .25]) in solitude.

4.5.3. Conclusion

Study 8 findings indicated that after a stressful task, participants experiencing solitude with a distracting activity (watching television) reported greater peaceful affect compared to those sitting alone with their thoughts, but no other benefits or costs of distraction to downregulating stress in solitude. Across those two activities, intentional exploration of emotional experiences was positively related to self-connection. In this study, intentional exploration was linked to greater standing on all components of self-connection: self-awareness, self-acceptance, and self-alignment. It was also linked to greater introspection, and peaceful affect. Unlike in Study 7, those with greater intentional exploration did not report ruminative thinking during the 15-min solitude activity. Replicating Study 7 results, self-connection mediated the link between intentional exploration and peaceful affect and

introspection. Additionally, unlike Study 7, self-connection mediated the links between intentional exploration and rumination.

4.6. General Discussion

Time spent alone enables self-connection that can calm the spirit (Storr, 1989), but the ways in which we relate to our emotions may be key to unlocking its potential (Thomas, 2023b). In three studies, I examined the role that greater *intentional exploration* (i.e., motivated pursuit of knowledge) concerning emotional experiences plays in experiences of solitude as serene, insightful, and low in rumination, and explored the extent that intentional exploration links with well-being because it fosters greater self-connection when in solitude.

I set out to conduct this research with the expectation that while solitude is an opportunity for peaceful affect (Nguyen et al., 2018; Pfeifer et al., 2019), feeling peaceful may be pronounced for those who regulate with interest and curiosity (Weinstein, Hansen, et al., 2023b), such as for those individuals who are higher in intentional exploration. In data from two diary studies, I found no evidence linking intentional exploration to peaceful affect in older adults (Study 6) or emerging adults (Study 7). On the other hand, supporting my initial expectations, intentional exploration appeared to link to more peaceful affect among young adults who had 15 minutes of solitude following a stressful task – the Trier Stress Task – in the lab (Study 8). The Trier Stress Task was introduced in this study to increase variation in solitude experiences as participants higher or lower in intentional exploration were tasked with processing this difficult experience. And while it is difficult to know precisely why I observed links between intentional exploration and peaceful affect in the final lab study and not in the diary studies, it may be that the use of a salient stressor and subsequent solitude provided participants an opportunity to down-regulate in a way that everyday life events did not require of my samples. Providing these results are replicated in future studies, intentional

exploration may facilitate peaceful affect only during high-stress times that may otherwise disrupt it.

Previous studies have shown that taking an active interest in challenging moments or exploring negative emotional experiences can initially elevate negative affect. In a series of three studies, integrative emotion regulation (e.g., intentional exploration) at the within-person level was associated with increased negative affect (Benita et al., 2024). Researchers highlighted that experiencing negative emotions is not always harmful; for example, it can motivate individuals to overcome challenges in pursuing goals, particularly when they are more interested in their emotional experiences. Although confronting negative emotions can be challenging, they also provide valuable informational cues about an individual's inner experiences, which can guide action and growth (Deci & Ryan, 2000; Ryan et al., 2015a). By acknowledging and embracing these negative emotions, individuals can gain a deeper understanding of themselves.

In Studies 7 and 8, I explored the effects of intentional exploration on introspection and rumination in solitude. Both are key indicators of constructive or difficult solitude, respectively. Rumination reflects a maladaptive type of self-focus (Nolen-Hoeksema et al., 2008) that reduces positive mood and exacerbates mental health difficulties (Liu et al., 2020; Marchetti et al., 2018; Watkins & Roberts, 2020). In contrast, introspection refers to a positive and open attention to inner processes that yields self-relevant knowledge (Itzchakov et al., 2020). In both studies that included this measure, intentional exploration was associated with greater introspection among emerging adults. Those with higher intentional exploration capacity were able to use solitude time as an opportunity to get in touch with their inner process with positive attention. The role of intentional exploration is important in this process because curiosity coming with intentional exploration may promote individuals' engagement in solitude and this can maximize their benefits from solitude.

In contrast to introspection results, I observed mixed findings predicting rumination. In a daily diary study (Study 7), intentional exploration correlated with *higher*, not *lower*, rumination, while students high in intentional exploration who spent 15 minutes in solitude after a stressful task (Study 8) effectively used this time to relax and did not show ruminative (or non-ruminative) thoughts. These findings are in line with the studies showing that rumination is one of the negative experiences of solitude (Lay et al., 2019; Thomas, 2023a; Vanhalst et al., 2012). My findings suggest that in the absence of stress-inducing circumstances, solitude time might be used to develop ruminative thoughts about the past, but after high arousal emotions such as stress, this time can bring peacefulness and not rumination. In other words, individuals increase positive emotions after removing the source of stress. Previous researchers showed that solitude can help to reduce stress and promotes peaceful affect and relaxation in stressful circumstances (Nguyen et al., 2018); however, in non-stressful situations, this freedom coming with solitude may lead to ruminative thoughts about the past.

In addition to findings described above, the current research was the first to quantitatively model self-connection in solitude, building on qualitative research showing that solitude can be an opportunity for individuals to connect with the self because in the absence of others, one's thoughts and feelings become more salient (Weinstein, Hansen, et al., 2023b). This idea is not new and stems back to Abraham Maslow (1971) views that, as individuals distance themselves from other people, they gain a sense of freedom that allows them to explore and embrace their true selves and authentic personalities, and D. W. Winnicott's views that as individuals act from the true self they are constructively attuned to their needs and emotions (Winnicott, 1965). Findings across all three of the current studies indicated that intentional exploration was positively associated with self-connection; those who generally employed intentional reflection felt more self-connection when they were

alone. In all, intentional exploration of emotional experiences consistently related to greater self-awareness – awareness of one's inner states including values, goals, resources, instincts – and self-alignment – congruence informed by and aligned with self-awareness and acceptance – when people, both younger and older, were in solitude.

A notable deviation from my expectations was that, although intentional exploration linked to greater self-awareness and self-congruence – two aspects of self-connection – this form of emotion regulation did not consistently link to greater self-acceptance across Studies 6- 8. These mixed findings bear mention in light of theory that alongside intentional exploration, a second adaptive form of regulation – namely, non-judgmental and receptive attention given to emotional experiences (*receptive attention*, in short) – fosters such self-acceptance (Roth et al., 2018; Ryan et al., 2015b). The second component of emotional integration, not examined in the current studies, is associated with mindfulness (Brown & Ryan, 2003) and inherently, involves acceptance (Hayes et al., 1999). Such acceptance of one's emotions as they emerge may ultimately be responsible for promoting self-acceptance during moments of solitude in daily life, and therefore it may be that receptive attention ultimately underlines the self-acceptance sub-component of self-connection when people are in solitude.

Another explanation for these mixed findings might be that achieving self-acceptance—fully accepting and acknowledging one's true self, irrespective of one's positive or negative characteristics— may require other attitudes not linked to intentional exploration dimension of integrative emotion regulation that I did not measure in the current research. For example, self-compassion—a positive attitude towards self, protecting a person against self-judgment, isolation, and rumination (Neff, 2003), may play a more important role in self-acceptance than does emotion regulation. Previous researchers highlighted that self-compassion could be the antithesis of various harmful thoughts and opinions that individuals

may hold about themselves (Neff, 2003; Scoglio et al., 2018). For instance, self-compassion improves adopting a nonjudgmental approach towards all emotions and difficult life experiences in light of the common human experience, instead of harshly evaluating the self to meet some norms (Neff, 2003). Self-compassionate individuals show more acceptance of their own and others' imperfections (Zhang et al., 2020). In this way, practices improving self-compassion may help individuals identify and accept their difficult emotions (Ogden et al., 2006). It would be fascinating to explore both aspects of the relationship with the self, namely, emotion regulation that moves individuals towards the self (such as intentional exploration), and evaluations of the self (such as by testing self-compassion), in future studies examining how each contributes to aspects of self-connection.

Indeed, in the current research I expected that self-connection would be an important antecedent of positive experiences of solitude and tested its mediating role linking intentional exploration and well-being. Findings supported this expectation and showed that despite a lack of direct effects between intentional exploration and peaceful affect during daily periods of solitude, self-connection mediated the relations between intentional exploration and peaceful affect in my studies. The findings suggested that while time in solitude may help to foster relaxation and peaceful mood (Nguyen et al., 2018; Weinstein et al., 2023), its benefits may be attained by individual differences that support self-connection. I tested intentional exploration in the current research, but other individual differences such as personality traits (e.g., openness or non-defensiveness; Ryan et. al., 2019), mindfulness (Brown & Ryan, 2003), and authenticity (Kernis & Goldman, 2006) may play a part in supporting self-connection because these concepts require to get in touch with inner self (Klussman, Curtin, et al., 2022).

Furthermore, self-connection may yield benefits apart from peaceful affect not tested in this study. For instance, self-connection improves positive functioning and well-being

(Klussman, Curtin, et al., 2022), enhances life satisfaction and meaning and purpose in life (Klussman, Curtin, et al., 2022; Klussman, 2020), and is related to decreased depression and anxiety (Klussman et al., 2020). Similarly, other researchers highlighted that having a sense of knowing the true self positively predicts self-actualization, vitality, active coping, psychological need satisfaction, positive affect, and self-esteem (Kernis & Goldman, 2006; Schlegel et al., 2012). And more recently, researchers speculated that time apart from external social demands can help individuals engage in self-relevant thoughts or desired activities (Long & Averill, 2003). In this way, individuals may use this solitude time for self-discovery, spiritual growth, and creativity (Long et al., 2003).

In addition to my primary models, Study 8 examined two solitude types of solitude (i.e., sitting alone with thoughts vs. solitude with a distracted activity —watching a television show for 15 minutes) after a stressful task to examine its effect on self-connection and well-being in solitude (Study 8). Although private solitude refers to be physically alone, individuals can interact with smart devices during this time (Weinstein, Hansen, et al., 2023a). For this reason, researchers highlighted that engaging in media activities while being alone, even a passive experience, can still be considered a social experience. However, complete solitude (or *truly alone*: Thomas et al., 2021) refers to the absence of any form of social interaction. Complete solitude can be more difficult than private solitude because whereas private solitude offers distraction, complete solitude challenges individuals to be fully within their emotions (Weinstein et al., 2022). The findings from Study 8 showed that neither group had significant differences in self-connection. However, those watching television reported greater peaceful affect in solitude.

These findings were consistent with previous findings. For example, a more recent study showed that adolescents who were engaged in virtual social interaction reported less loneliness (Coplan et al., 2022). These emerging adults also perceived being alone more

positively and less negatively when they spent more time in virtual engagement. Similarly, another study showed that young individuals when alone on their technological devices reported better mood (e.g., happiness) compared with being truly alone (Thomas et al., 2021). On the other hand, findings showed that solitude type did not matter for intentional exploration. Across types of solitude, there was no evidence that intentional exploration either protected people or exacerbated problems in complete solitude, when people had full attention on their thoughts and feelings.

4.7. Limitations and Directions for Future Research

Findings described above should be considered in light of several limitations. First, across three studies, I tested intentional exploration of emotions as an antecedent to solitude experiences within both older (Study 6) and emerging (Studies 7 and 8) adults. However, I did not test all the constructs of interest in older adult sample, and I was not able to directly compare differences across developmental periods. These developmental differences would be fascinating to explore in future research because research suggests that as individuals age they regulate emotions better in solitude, but it is unclear the role that strategies such as integrative emotion regulation play a role in these changes. First, the capacity to be alone increases as people age and older individuals report less loneliness in solitude as compared to young and middle-aged participants (Larson, 1990). Research also indicates that older individuals show increased high arousal positive affect and decreased low arousal negative affect in momentary solitude (Pauly et al., 2017) and demonstrate enhanced emotion regulation (Urry & Gross, 2010). Future research might examine processes of emotion regulation, self-connection, and well-being across the lifespan to understand how these processes develop and are depended on across time.

The second limitation of this study is that all studies are based on self-reports. While self-report tests are valuable sources of data, future studies could benefit from the inclusion

of physiological measurements to provide more objective and accurate measurements of the variables being studied. This would help to provide a more comprehensive understanding of the role of stress in the phenomenon being studied. So far there is no worldwide recognized standard measurement to examine stress (Kim et al., 2018). Although, traditionally, stress is measured via self-report questionnaires, in recent years, a considerable number of studies have been conducted to understand psychophysiological reactions of stress and negative emotions (Burghardt, 2019). For example, hearth rate variability (HRV) provides an appropriate measurement for researchers to examine physiological differences in emotion regulation (Balzarotti et al., 2017; Burghardt, 2019; Godfrey et al., 2019; Porges, 2007). In addition to HRV, galvanic skin response (GSR) and cortisol (a glucocorticoid hormone triggered by the adrenal gland through stimulation of the hypothalamic-pituitary-adrenal (HPA)) have been used in many studies as a well-accepted indicator of physiological arousal and reliable measurement to examine autonomic expressions of emotions (King & Hegadoren, 2002; Scavone et al., 2020). Future studies may benefit from these methodologies to measure physiological responses to stress and emotion regulation.

Finally, although I measured the effects of intentional exploration on well-being in solitude in daily life (Studies 6 and 7) and under stressful circumstances through the use of the Trier Stress Task (Study 8), the current studies did not manipulate stress levels. To better understand the effects of stress on well-being in solitude, researchers should consider including a non-stressful condition in future studies. Including a non-stressful condition can allow researchers to compare the effects of stress and provide a more comprehensive understanding of the role of investigated variables in stress and non-stress conditions (see also Liu & Zang, 2020).

4.8. Conclusion

Despite these limitations, the current research examined across three studies the extent to which integrative emotion regulation (e.g., intentional exploration) relates to cognitive and emotional well-being (peaceful affect, rumination, introspection), and self-connection, in solitude. My findings across studies showed that intentional exploration is linked with a greater likelihood to connect with the self when alone, especially in terms of experience self-awareness and self-congruence; that is, this regulation style may prepare individuals to build a closer relationship with themselves when on their own. Such self-connection furthermore related to greater peaceful affect when in solitude. In all, self-interest and self-connection may help to unlock some of the benefits of solitude and contribute to time alone that is felt to be more rewarding than difficult.

Chapter 5

Thesis General Discussion

Integrative emotion regulation has received relatively little empirical attention but shows great potential for sustained well-being that results from proactive engagement with one's emotions. In this thesis, I examined intentional exploration, a component of integrative emotion regulation, in the context of challenging moments, by focusing on coping and stress regulation (Chapter 2), experiences of shame (Chapter 3), and self-connection, positive emotions, and rumination in solitude (Chapter 4). Across these foci, I expected intentional exploration would help individuals to process these difficult moments, and experience greater well-being. This is because this motivated form of integrative emotion regulation involves active interest and curiosity in exploring and experiencing emotional experiences, brings emotions to awareness and considers this knowledge as an important guide in the volitional regulation of behaviour. The findings suggested that intentional exploration was linked to greater well-being that emerged from movement towards the self and adaptive coping, constructive processing of shame experiences, and self-connection in solitude.

The empirical findings reported in Chapter 2 indicated that the intentional exploration of emotional experiences was associated with adaptive coping and daily well-being. Specifically, in Study 1 (which implemented a longitudinal design), I contrasted three emotion regulation styles (integrative emotion regulation involving receptive attention and intentional exploration, suppression, and emotion dysregulation) in terms of their effects on adaptive and maladaptive coping. Factor analysis grouped the coping strategies into adaptive (e.g., active coping, positive reframing, planning, and acceptance) and maladaptive coping (e.g., denial, self-blame, and behavioural disengagement). The findings indicated that both integrative emotion regulation dimensions at baseline were associated with adaptive coping strategies one month later.

Previous studies have shown that integrative emotion regulation promotes well-being and the integration of negative emotional experiences (Benita et al., 2020; Roth et al., 2019; Weinstein et al., 2011), and facilitates volitional functioning, high-quality relationships (Roth et al., 2019), and self-esteem (Brenning et al., 2015). Other regulatory styles such as suppression – consistent avoidance of negative emotional experiences (Roth et al., 2009) – and emotion dysregulation – inability to regulate emotions – negatively relate to well-being (Gross & John, 2003; Houle & Philippe, 2020). The extant literature has associated suppression with psychological need frustration (Benita et al., 2020; Brenning et al., 2021), worse interpersonal functioning (Gross & John, 2003), and lower positive and higher negative affect (Brans et al., 2013; Gross & John, 2003), especially during stressful events (Richardson, 2017). This regulatory style is also associated with decreased self-esteem and increased depressive symptoms (Brenning et al., 2015).

According to SDT, autonomy (i.e., a basic psychological need and a sense of volition and authorship in actions) plays an important role in facilitating individual's integrative tendencies through intrinsic motivation (a prototype of autonomous motivation), internalization, integrative emotion regulation, and identity development (Meng & Ma, 2015; Ryan et al., 2016). Studies have shown that autonomy-supportive environments; i.e., those that support individuals' autonomy, foster integrative emotion regulation, whereas controlling environments contribute to emotion dysregulation. For instance, Roth and Assor (2012) and Roth et al. (2009) found that that autonomy-supportive parenting is positively associated with emotional integration. In another study, perceived maternal autonomy support was associated with increases in emotional integration and decreases in suppressive regulation (Brenning et al., 2015). By contrast, emotion dysregulation has been associated with decreased perceived autonomy supportive parenting.

Emotion regulation difficulties involve the absence or limited access to awareness and understanding of emotions, acceptance of emotions, the ability to engage in goal-directed behaviours when experiencing negative emotions, and the ability to select effective emotion regulation strategies when needed (Gratz & Roemer, 2004). Emotion dysregulation has also been considered as a transdiagnostic process that augments internalizing and externalizing problems among adolescents (Brenning et al., 2021). Although the initial findings of Study 1 showed that both integrative emotion regulation dimensions were positively associated with adaptive coping, other findings indicated that suppression was negatively associated with adaptive coping, and emotion dysregulation was positively correlated with maladaptive coping strategies. These findings are aligned with the current literature.

To date, most studies examining integrative emotion regulation have mainly measured intentional exploration and have not included receptive attention. One possible explanation is that intentional exploration involves the additional step of active interest, and encompasses awareness provided by receptive attention. Previous research on intentional exploration has consistently shown that intentional exploration is associated with greater well-being. For instance, Benita et al. (2020) demonstrated that integrative emotion regulation (e.g. intentional exploration in the current study) was positively associated with basic psychological need satisfaction for autonomy, relatedness, and competence and negatively related to psychological need frustration in college students in Israel, Peru, and Brazil. In addition, the relationship between intentional exploration and psychological well-being (e.g., personal growth, purpose in life, and self-acceptance) was mediated by psychological need satisfaction, suggesting that psychological need satisfaction played an important role in linking emotion regulation to well-being.

In a second study, a cross-sectional study of non-clinical and clinically-referred adolescents, Brenning et al. (2021) showed that integrative emotion regulation (specifically,

intentional exploration) was related to psychological need satisfaction for autonomy, relatedness, and competence, and negatively associated with need frustration. Further, intentional exploration played a buffering role in the links between low need satisfaction and high need frustration with internalizing problems such as depression and anxiety.

Apart from these findings on intentional exploration, a number of other studies have investigated mindfulness or mindful emotion regulation, which is similar to forms of emotion regulation involving receptive attention. One study (Weinstein et al., 2009) demonstrated that mindful participants (i.e., those high in receptive attention) used less avoidant and more approach coping strategies. In my work, both integrative emotion regulation dimensions were associated with adaptive coping and aligned with the literature showing that integrative emotion regulation is associated with greater well-being (see also Brenning et al., 2021, Benita et al., 2020, and Weinstein et al., 2011).

In the following study (Study 2), I further explored two forms of integrative emotion regulation: Receptive attention and intentional exploration, in terms of regulating daily well-being over the course of a week. The findings indicated that intentional exploration, but not receptive attention, was associated with lower perceived daily stress, greater day satisfaction, and self-reflection. These findings are important in understanding the role of intentional exploration in promoting everyday well-being. Receptive attention and intentional exploration are two complementary dimensions of integrative emotion regulation. Both facilitate autonomous regulation and play an important role in the volitional regulation of behaviour (Deci et al., 2015; Roth et al., 2019). Receptive attention involves nonjudgmental attention to and acceptance of emotional experiences (Roth et al., 2019). The aim is to acknowledge and to be fully aware of experience, instead of changing the experience. The second component, intentional exploration, represents *motivated* and active pursuit of one's emotional experiences through curiosity or interest in the emotion (Roth & Assor, 2012; Roth

et al., 2019). Intentional exploration involves an active effort to coordinate emotional experience while also considering other aspects of oneself, such as goals, needs, and values.

Integration involves the acceptance of emotional experiences. However, doing so is not always easy, and negative emotional experiences are more threatening and difficult to integrate (Weinstein et al., 2011). A series of studies have shown that autonomously motivated individuals were more accepting of their negative and positive past experiences and characteristics, whereas controlled motivated individuals were accepting of only positive, and not negative experiences (Weinstein et al., 2011). In a three-month longitudinal study (Houle & Philippe, 2020) the participants described their most negative events/memories they had experienced since the first phase of the study. Acceptance and intrusion were used to assess whether these negative experiences were integrated or not. The findings showed that integrative emotion regulation (intentional exploration in the current study) predicted acceptance and integration of negative memories into the self and increases in well-being over time (Houle & Philippe, 2020). In contrast, emotion dysregulation predicted memory intrusions, poor integration and decreased well-being. These findings shed light on the integration process.

My initial findings indicated that both integrative emotion regulation dimensions were associated with adaptive coping strategies but only intentional exploration, not receptive attention, was linked to better daily well-being. In Chapter 3, I explored the role of intentional exploration in processing shame experiences across three studies (Studies 3 and 5: experimental; Study 4: daily diary). Shame can distance individuals from their inner selves and motivates avoidance tendencies to escape from negative affect (McLachlan et al., 2011; Schmader & Lickel, 2006) which in turn may facilitate a desire to hide or disappear. Although distancing from negative experiences or characteristics may protect one's current sense of self, it can also disconnect people from their past and themselves (Weinstein et al.,

2011). My starting point was the assumption that if shame, a painful self-conscious emotion, moves individuals away from their inner selves, interest-taking could help them connect with themselves again, and that this might be effective in reducing their feelings of shame. I conducted three studies involving five minutes of emotion-focused, interest-taking writing tasks about recent experiences of shame. In all studies, the participants were asked interest-taking questions related to their shame experiences or were assigned to the control group. The second goal of this chapter was to investigate the role of intentional exploration (measured in Studies 4 and 5), as a trait-level tendency in shame experiences.

Contrary to expectations, both groups showed high levels of interest in their shame experiences. On the other hand, individual differences in intentional exploration predicted the constructive regulation of shame, such as greater self-reflection (engagement in self-reflection and need for self-reflection), insight, and introspection, but not lower shame. Self-reflection, insight, and introspection are important outcomes of intentional regulation because understanding one's thoughts, feelings, and actions are known to contribute to self-regulatory processes, behavioural change, and personal growth (Grant et al., 2002; Schlegel et al., 2013). Study 5 also measured, approach mindset and self-improvement motivation since these constructs reflect a desire for positive change and growth (Finset et al., 2002; Halliwell & Dittmar, 2005; Kurman, 2006; Sedikides & Hepper, 2009). In Study 5 intentional exploration was associated with greater state-level self-improvement motivation and approach orientation after engaging in five minutes of an emotion focused interest-taking writing task. This suggests that intentional exploration may facilitate individuals' approach orientation and self-improvement motivation after engaging in writing exercises about shame experiences. Even though shame is a difficult emotion to process, intentional exploration may help individuals to learn from their shame experiences and adopt a constructive approach when processing these experiences.

To reduce the negative effects of shame, studies have often examined the effectiveness of compassion-based or mindfulness-based interventions such as Compassion-Focused Therapy (Gilbert, 2020), Cognitively Based Compassion Training (Pace et al., 2019), Mindful Self-Compassion (Neff & Germer, 2013), and Mindfulness Based Stress Reduction (Kabat-Zinn, 1990). In a two-week self-compassionate letter-writing study with a sample composed of individuals with atypical anorexia nervosa (Kelly & Waring, 2018), the participants reported observable decreases in daily shame. Thus, compassionate and self-compassionate interventions play an important role in reducing feelings of shame (Au - Birkett, 2011; Gilbert, 2017; Westerman et al., 2020).

Shame is one of the most difficult emotions and involves negative evaluations about the entire self (Lewis, 1971). The intentional, *motivated*, exploration of one's own feelings can enhance the benefits of these interventions. For example, intentional exploration facilitated individuals' approach tendencies after engaging in emotion-focused interest-taking writing exercise about shame experiences in Study 5. As shame is characterised by avoidance tendencies, facilitating intentional exploration might help individuals to process this negative emotion constructively. Future studies could explore the role of intentional exploration on mindfulness or compassion-based interventions in processing the feelings of shame. For example, one study showed that emotion regulation significantly mediated the relationship between self-compassion and mental health in community and clinical samples including depression, stress, and post-traumatic stress disorder (Inwood & Ferrari, 2018). Individuals with higher intentional exploration may benefit from these interventions more than others. The length of the intervention may also be important when processing difficult emotions. In the studies reported here, the participants engaged once in five minutes of shame-focused interest-taking writing sessions (Studies 3 and 5) or at three points in time (Study 4). Future work should consider a longer timeframe to observe and examine these effects.

Across studies I found that interest-taking interventions were not associated with decreased state-level shame. The immunization effect, as proposed by Roth et al. (2014, 2018), suggests that the advantages of integrative emotion regulation may not be immediately apparent. Although approaching and experiencing difficult emotions can be initially challenging, the repeated processing of events and negative emotions may produce significantly lower emotional arousal in the long term. Roth et al. (2018) found that individuals reported lower emotional arousal when they watched a fear-eliciting film for the second time. The participants who were instructed to take an interest in their emotional experiences exhibited an even larger reduction. A similar argument was made by Foa and Kozak (1986) and Lepore et al. (2002). They suggested that strong negative emotions may gradually decline after repeated exposure due to emotional engagement and habituation. Thus, the role of intentional exploration of shame experiences might also trigger an immunization process. For instance, as reported in Chapter 3, the questions encouraging participants to explore the sources and meaning of their shame experiences might have helped them develop an internal emotional compass for processing their difficult emotions.

Another goal of this thesis was to examine the role of intentional exploration in solitude experiences. Solitude has been a controversial topic throughout history. On one hand, the adverse effects of solitude have been recognized since biblical times (Coplan & Bowker, 2013), for instance, "It is not good for the man to be alone" (Genesis 2: 18). Solitude, loneliness, and isolation – an excessive condition of being alone – are associated with negative emotions (Bastian et al., 2015; Cacioppo et al., 2006; Coplan & Bowker, 2013; Kang et al., 2023). According to the World Health Organisation (WHO), loneliness and social isolation are becoming a serious global health issue in all age groups (World Health Organisation, 2023). The WHO data indicate that globally, 25% of all older individuals experience social isolation, while 5-15% of all adolescents suffer from loneliness. Thus, more

studies are needed to better understand solitude experiences, and help individuals use their

alone time effectively. Solitude plays an important role in self-discovery, spiritual growth,

and creativity and offers individuals an opportunity to connect with their selves if they have

the internal resources to do so (Long et al., 2003). In addition, solitude is essential for

developmental perspectives; for example, according to Winnicott (1965), the capacity to be

alone is critical to achieving developmental milestones (see also Galanaki, 2015). The

COVID-19 pandemic prompted increased research on the effects of solitude on well-being

and the potential positive aspects of solitude, in particular when solitude was enforced, such

as during lockdowns (Leary & Asbury, 2022).

To explore the extent to which intentional exploration can enhance experiences of

solitude, I examined how intentional exploration influences solitude experiences. The

solitude and self-connection literatures suggest that this private time devoid of social

distractions enables individuals to engage in self-relevant thoughts and activities (Long &

Averill, 2003). In addition, having a sense of perceived true-self and self-connection

facilitates positive functioning and well-being (Kernis & Goldman, 2006; Klussman, Nichols,

et al., 2022; Schlegel et al., 2012). In line with the current literature, the findings reported in

Chapter 4 indicated that trait-level intentional exploration was associated with self-

connection (self-awareness, self-acceptance, and self-alignment) and introspection in

solitude.

On the other hand, solitude may lead to ruminative thoughts, as previous studies have

shown (Lay et al., 2019; Thomas, 2023a; Vanhalst et al., 2012). I included rumination in

Studies 7 (daily diary study) and 8 (experimental study). In Study 7, intentional exploration

was correlated to rumination, but not peaceful affect in solitude. In Study 8, I examined the

ways in which intentional exploration relates to private (distracted: watching a show) and

complete (undistracted: alone with thoughts) solitude after stressful experiences. This study,

despite its limitations, provided a window on intentional exploration when individuals are alone. The findings showed that intentional exploration was not associated with rumination but was related to peaceful affect after a stressful task. These findings are consistent with previous studies showing that solitude leads to relaxation after stressful events (Nguyen, 2018). Further, in Study 8, the participants watching TV in solitude reported greater peaceful affect than participants who were alone with their thoughts. Previous studies have presented similar findings; for instance, emerging adults who were alone on their technological devices showed better mood (e.g., happiness) than those who were truly alone (Thomas et al., 2021).

SDT-informed studies suggest that self-determined motivation is more pronounced in experiencing the positive impact of solitude because individuals have a chance to use this time to engage in activities they are interested in instead of dealing with internal demands and pressures (Nguyen et al., 2018; Thomas & Azmitia, 2019; Weinstein et al., 2021). Although the motivation for solitude was not a direct focus of this thesis, in my daily diary studies, the participants engaged in activities they were interested in. The findings showed that solitude enabled these individuals to connect with themselves.

Limitations

The findings reported in this dissertation offer insights into the potential benefits of intentional exploration, but should be viewed with caution, given their limitations. The first is that the findings were correlational. Although a correlational design allows researchers to examine the links between variables, it does not show causality (Hung et al., 2017). In other words, it remains unclear whether intentional exploration of emotions leads to greater well-being or vice-versa. For example, in the studies reported in Chapter 3, there were no significant differences between interventions to elicit interest. Examining state-level interest in future work might be difficult because of the importance and intense negative self-evaluations associated with some emotions, such as shame. However, examining variations in

trait-level interest might reveal more granular differences than generating interest at a broader level. Future studies should thus examine trait-level interest in processing challenging emotions.

In two chapters of my thesis, I examined daily stress and well-being (Study 2, Chapter 2) and solitude experiences after engaging in a stress-inducing task (Study 8, Chapter 4). However, an important limitation of Study 8 is that all the participants were stressed. Ideally, I should have included a non-stressed condition for comparison. This would have involved a 2 (stressed, non-stressed) X 2 (distracted, undistracted solitude) design. Doing so would have allowed comparisons of the participants' reactions under stress-inducing and control conditions. In this case, the participants in the non-stressful condition would ruminate, as in Study 7. Future studies should include stress level measurements before and after the simplified version of the Trier Stress Task (Kirschbaum et al., 1993) to observe whether the task effectively elicits stress. Further, in future studies, a comparison group would allow researchers to investigate how intentional exploration influences solitude experiences when experiencing stress versus control conditions.

Throughout this thesis, I utilized longitudinal, daily diary, and experimental designs, but all relied on self-report assessment tests. Self-report tests are one of the most widely used techniques for gathering valuable data on individuals' behaviours, attitudes, experiences, and personality constructs at little cost, particularly for large samples (Sallis & Saelens, 2000). On the other hand, self-report tests can be confounded by social desirability bias, response biases, selective memory, or a lack of objectivity (Hildebrand et al., 2018; Howard, 1994; Podsakoff & Organ, 1986). In addition, individuals may have limited access to their internal states – one topic of this thesis – and their limited self-reflection and insights may lead them to fail to perceive their experiences objectively. My studies mainly explored difficult moments, which are very personal experiences. Hence, this limited access to inner states was informative as to

the participants' emotion regulation abilities. However, individuals may also assess themselves inaccurately. Some participants may report in a manner that is socially desirable instead of showing their authentic selves. The inclusion of other methodologies, such as additional behavioural reports and physiological measurements would provide a more comprehensive understanding of the role of intentional exploration in processing difficult moments, such as during stressful times or when individuals are alone. For example, a recently developed questionnaire, The Behavioural Emotion Regulation Questionnaire (BERQ) by Kraaij and Garnefski (2019), measures five different behavioural emotion regulation strategies related to behavioural reactions after stressful experiences. These strategies include seeking distraction, withdrawal, actively approaching, seeking social support, and ignoring. Future studies should integrate both integrative emotion regulation and the behavioural aspects of emotion regulation strategies. This would shed light on the ways in which individuals respond to stressful events by down-regulating emotions to achieve greater well-being. Physiological measurements (e.g., heart rate variability (HRV), galvanic skin response (GSR), and cortisol) have been used to examine physiological arousal to autonomic expressions of emotions (Balzarotti et al., 2017; Godfrey et al., 2019; King & Hegadoren, 2002; Porges, 2007; Scavone et al., 2020) and should be considered in future work.

Implications and Future Research

Despite these limitations, the findings shed light on intentional exploration in challenging moments. The current literature on emotion regulation primarily has tended to focus on specific strategies such as cognitive reappraisal and expressive suppression, and has tended to ignore the exploration of integrative emotion regulation. As far as I know, my work in Chapter 2 is the first to compare two aspects of integrative emotion regulation.

Throughout this thesis, I investigated the role of intentional exploration on well-being using several indicators such as adaptive coping, private self-consciousness, and self-

connection. These contexts were all difficult in different ways. For instance, I mainly investigated the role of intentional exploration in stress regulation (Chapter 2), shame regulation (Chapter 3), and solitude experiences (Chapter 4). My studies largely dealt with difficult events, but intentional exploration within integrative emotion regulation needs be understood in a broader context.

Self-exploration leads to greater self-awareness and self-insight, which are essential to many therapeutic approaches (Lane et al., 2020). Previous studies have noted that insight is associated with subjective well-being (Lyke, 2009). In my studies, intentional exploration was consistently associated with reflection (Chapter 2-3), introspection (Chapters 3-4), self-connection (Chapter 4), and insight (Chapter 3). Intentional exploration represents *motivated* pursuits of knowledge about emotional experiences. In all therapeutic approaches, volitional engagement is considered key to therapeutic engagement and success (Ryan et al., 2016). Many studies have confirmed the potential benefits of autonomy support in therapeutic contexts. For instance, Steiger et al. (2017) found that autonomy support from therapists and non-therapists (e.g., peers and relatives) was associated with increased personal engagement in the treatment of eating disorders. Another study showed that autonomy support and autonomous motivation was associated with better treatment response (i.e., lower depressive severity) among depression patients during therapy (Zuroff et al., 2012). I suggest that integrative emotion regulation and specifically intentional exploration-informed interviewing in the first sessions may provide additional benefits in treatment. Miller and Rollnick (2002) developed a scientifically tested method to elicit behavioural change in clients. This method of counselling has been used for a variety of behavioural problems and diseases (e.g., addiction disorders, smoking cessation, weight loss, and anxiety) and other behavioural change interventions (e.g. decision-making, increasing physical activity) (Rubak et al., 2005; Westra & Dozois, 2006). My findings suggest that encouraging intentional exploration is

likely to increase clients' benefits from therapy, and result in more engagement in therapy, greater motivational readiness for change, and an approach orientation rather than avoidance.

People make many decisions throughout the day, such as what to eat for lunch, how to respond to others, what work to do first, how to deal with challenges, etc. People's emotions provide necessary informational inputs that influence their decisions (Lerner et al., 2015). When individuals are stressed or dealing with challenges, this increases risk-taking, and reward-seeking decisions compared to non-stress or other conditions (Starcke & Brand, 2016). Similarly, negative emotions restrict people's momentary thought-action capacity, as argued in Broaden and Built Theory (Fredrickson, 2001). Understanding these emotional experiences, their sources and meanings can influence people's judgments and decisions. Previous studies have shown that successful emotion regulation during decision making predicts less risky choices (Martin & Delgado, 2011). For example, traders engaging in antecedent-focused emotion regulation strategies improved their performance compared to those using response-focused strategies (Fenton-O'Creevy et al., 2011). Integrating intentional exploration of emotional experiences into decision-making processes may help individuals make better decisions because integrative emotion regulation considers needs, values, goals, present resources, and preferences in behavioural change. Having rich access to internal states increases self-knowledge and individuals can make better decisions through this increased insight about the self.

Alongside the decision-making literature, the emotion regulation literature is useful for understanding how goals are set and followed. Individuals need to regulate their emotions to successfully pursue their goals. Specifically, the intentional exploration component of integrative emotion regulation may be important in goal striving because this motivated form of emotion regulation can increase individuals' readiness for change. For instance, Benita et al. (2021) examined differential effects of integrative emotion regulation (intentional

exploration here) and suppressive emotion regulation on goal pursuit. Their findings showed that participants with higher intentional exploration reported more goal progress, and that this relationship was mediated by goal-related effort. On the other hand, those with higher suppressive emotion regulation showed lower goal progress, and higher goal-related depressed mood mediated this link. In this two-week longitudinal study, increases in intentional exploration facilitated goal progress, while increases in suppression predicted decreases in goal progress. SDT posits that autonomy supportive contexts facilitate more adaptive goal pursuits. Studies have shown that individuals were more likely to pursue emotional goals when they spontaneously chose to regulate their emotions (Benita et al., 2019). Similarly, positive feedback facilitated intrinsic motivation compared to those having no feedback (Ryan et al., 2016).

Autonomy-supportive contexts also promote the integration of emotional experiences (Benita et al., 2019; Brenning et al., 2015; Roth & Assor, 2012; Roth et al., 2009; Ryan et al., 2016). Autonomy-supportive environments provide non-defensiveness and openness (Weinstein et al., 2013). In this way, individuals can open up and show their unique and authentic selves without judgmental pressures in this safe and emotionally secure zone. They can feel they are the author of their lives, and autonomy promotes their sense of volition and self-determination. From parenting to teaching practices, autonomy-supportive strategies are likely to help children, adolescents, and students facilitate their integrative tendencies such as intrinsic motivation and integrative emotion regulation (Meng & Ma, 2015; Ryan et al., 2016). Through autonomy-supportive environments, young people can connect to themselves, improve their self-knowledge, and explore their interest and curiosity. In turn, they can set goals pursuing their interest and abilities, which may improve their decision-making because they have more self-knowledge. Thus, autonomy support can promote emotional well-being, life satisfaction, academic success, and relationships.

In addition to children, adolescents and students, the positive influence of autonomy support in emotional integration processes can be observed in the goals pursued during work, sport, and relationships contexts. For example, emotion regulation is essential for athletes in terms of their motivation, performance, psychological well-being, pursuit of their goals, maintenance of high-standard daily exercises, and even diet and physical health. Athletes use a variety of emotion regulation strategies to adapt situational needs and psychological demands to pursue their goals (Kucharski et al., 2018). As they effectively process their emotions, they can improve their ability to choose better strategies as a function of their situational needs.

I investigated the role of interest-taking when processing feelings of shame in community samples. However, shame also influences individuals with mental health conditions. A large number of studies have shown that shame is strongly associated with depression, social anxiety, eating disorders, dysmorphic disorders, borderline personality disorder, and immune related health problems (Azevedo et al., 2022; Mills, 2005; Troop et al., 2008; Weingarden & Renshaw, 2015). Some populations can exhibit more shame, including people with mental health conditions, economically disadvantaged groups (Walker et al., 2013), ethnic, religious, and cultural minorities (Sznycer et al., 2012), stigmatized groups (Scambler, 2009; Wood & Irons, 2017), and individuals with a history of trauma (DeCou et al., 2021; Platt & Freyd, 2011; Saraiya & López-Castro, 2016). Studies have suggested that shame may be gendered (Manion, 2003) given the multiple findings showing that woman experience and express shame much more than men (Benetti-McQuoid & Bursik, 2005; Ferguson & Crowley, 1997; Ferguson et al., 2000; Velotti et al., 2017). This difference between genders may however be an artefact that reflects the more threatening nature of situations for women's identity rather than an innate difference (Ferguson et al., 2000). Psychologist Michael Lewis in his book *Exposed Self* (1992) argued that women may

organise self- evaluative information about feelings of shame (see also Manion, 2003). It is interesting to note that women tend to blame themselves for failures and attribute their successes to external factors such as luck. On the other hand, men typically do the opposite; they are more likely to credit success to their own efforts while blaming external factors for failures (Lewis et al., 1992). For these reasons, researching shame-prone populations may help better identify the benefits of intentional exploration than explorations of the general population.

Although not assessed here, the potential benefits of receptive attention may be more pronounced through its effects on intentional exploration. For instance, individuals with greater receptive attention may experience more intentional exploration and better well-being. Future studies could investigate the mediating role of receptive attention on well-being, especially when processing difficult emotions.

Conclusions

Throughout this thesis, I examined intentional exploration of emotional experiences in processing difficult moments. The findings showed that intentional exploration was associated with adaptive coping, greater daily well-being, constructive processing of shame, and self-connection in solitude. Further, intentional exploration contributed more to daily well-being than receptive attention. Overall, this dissertation contributes to the literature through its empirical findings by examining two components of integrative emotion regulation. Individuals with higher trait-level intentional exploration did not report less state-level shame but showed positive and constructive processing of their shame experiences after engaging in expressive writing exercises aimed to improve interest-taking. Intentional exploration was associated with self-connection in solitude, but this active and motivated emotion regulatory style did not protect individuals from rumination when spending time

alone in daily life. However, participants reported greater peaceful affect, not rumination,

when experiencing solitude after engaging in a stress-inducing task in an experimental study.

Appendix

Study 1 Factor Analysis

	Factor loading			
	1	2	3	4
Factor 1: Adaptive Coping				
Active Coping	.817	.522	-.154	-.017
Positive reframing	.753	.329	-.192	.060
Planning	.792	.382	.180	-.080
Acceptance	.670	.157	-.233	.413
Factor 2: Maladaptive Coping				
Self-Blame	.040	.006	.718	.082
Denial	-.048	.228	.708	-.158
Behavioural disengagement	-.187	-.124	.721	.202
Factor 3: Coping through reliance on others				
Instrumental support	.440	.874	.033	.032
Emotional support	.426	.881	-.058	.095
Venting	.289	.724	.315	.082
Factor 4: Others				
Religion	.453	.164	.354	-.522
Humor	.003	.266	.153	.555
Substance use	-.066	.094	.544	.000
Self-distraction	.241	.072	.153	.648

Factor analyses showed a 3-factor structure. This included a first factor of adaptive coping (e.g., active coping, positive reframing, planning, and acceptance), which accounted for 26.12% of the varability in items. A second factor, maladaptive coping (e.g., denial, self-blame, self-distraction), accounted for 8.95% additional varaibility in items. Finally, a third factor – coping through reliance on others (e.g., use of emotional support, use of instrumental support, and venting), accounted for 16.68 % variability in items. Items were averaged within their respective factor. Consistent with Weinstein et al. (2009), I included only adaptive coping (e.g., active coping, positive reframing, planning, and acceptance) and maladaptive coping (e.g., denial, self-blame, and behavioural disengagement).

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