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A Matter of Perspective? Exploring Self-Distanced Reflections as an Emotion Regulation Strategy for Individuals in High-Stress Occupations

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Abstract

This study investigates the effects of a linguistic self-distancing technique during reflection on affect, challenge versus threat appraisal, and anticipatory stress for individuals in high-stress occupations. Research in the laboratory suggests that reflections using non-first-person pronouns can reduce emotional reactivity to stressors, improve challenge appraisal, and reduce stress anticipation for future stressors. This study was conducted through an online questionnaire including a short reflection task. Participants were asked to reflect on a recent stressful work event either from a self-distanced or a self-immersed perspective. Self-assessments of global affect were collected pre- and post-reflection, while post-reflection reports of positive and negative affect in particular, as well as challenge versus threat appraisal and anticipatory stress were recorded. General measures of work stress and emotion regulation skills were included as covariates. A repeated-measures ANCOVA revealed no significant changes in global affect at the group level, but the interaction of gender and time of assessment showed a significant decrease in global affect scores only for female participants in the control group. Univariate ANCOVAs further showed no significant effects concerning positive and negative affect scores, or challenge versus threat appraisal. Interestingly, there was a significant group difference in anticipatory stress, revealing higher stress scores for the self-distanced over the self-immersed condition. The results contradict current research and emphasise the need to consider gender-specific differences in the effects of self-distanced reflections. Implications towards their suitability in unguided, naturalistic contexts and for regulating occupational stress in specific will be discussed with regards to methodological limitations.

Keywords: emotion regulation, psychological distancing, construal level theory, self-talk, reflections, occupational stress

A Matter of Perspective? Exploring Self-Distanced Reflections as an Emotion Regulation Strategy for Individuals in High-Stress Occupations

The experience of emotions is intrinsically tied to human existence, as they accompany and guide us through everyday life. Successful emotion regulation is part of adaptive functioning (Haga et al., 2009) and therefore plays an important role in maintaining mental health and well-being (Gross, 2015). Interestingly, research has found that many people are rather unsuccessful in regulating their emotions (Haga et al., 2009). While there are many different strategies to improve emotion regulation, they can be difficult to apply as they require constant cognitive effort (Ortner et al., 2016; Sheppes & Meiran, 2008; Sheppes et al., 2009; Troy et al., 2018). This can be a major challenge for people who regularly experience stress, which is known to impair cognitive functions such as goal-directed behaviour (Plessow et al., 2015), cognitive flexibility (Alexander et al., 2007) or regulation of emotional responses (Raio et al., 2013). This demonstrates the significance of finding strategies for emotion regulation that can be applied successfully even when cognitive resources are low.

An emerging strategy for emotion regulation takes advantage of small changes in the way individuals approach a natural process of the inner mind: the way we talk to ourselves. Evidently, manipulating self-talk through a simple shift to non-first-person pronouns during reflections can create a sense of distance to the emotionally arousing experience. This leads to decreased emotional reactivity to negative stimuli, an increase in positive over negative emotions and higher challenge over threat appraisal (e.g. Kross et al., 2014; Moser et al., 2017; Streamer et al., 2017; Webster et al., 2022). Importantly, this type of distanced self-talk seems to be less effortful and requires less cognitive control than other emotion regulation strategies (Moser et al., 2017; Webster et al., 2022). The investigation of distanced self-talk is therefore especially relevant for populations that generally may have greater difficulty with emotion regulation.

This study will make use of a reflection task, guiding participants towards reflecting on negative and stressful recent events at work from a self-distanced versus a self-immersed perspective. The results will be able to provide insight into whether it is a suitable strategy for regulating emotions and enhancing challenge appraisal for work stressors within a vulnerable occupational group that is characterised by high emotional stress on the job. Further, this study provides information about the application of a distanced self-talk reflection task outside of the laboratory, in participants natural environments. The results can therefore be applied in further emotion regulation research and strengthen the suggested superiority over other emotion regulation techniques due to low cognitive efforts. Positive results may also be

applied in clinical settings, where emotion regulation strategies like cognitive reappraisal are widely used.

The Basis of Self- and Emotion Regulation

According to Gross (2015, p. 4-5), emotion regulation “refers to attempts to influence which emotions one has, when one has them, and how one experiences or expresses these emotions” (p.4-5). It can be defined as a subset of self-regulation qualities, which involve the regulation of all emotional, cognitive, and behavioural processes. As mentioned, the need to self-regulate is driven by our nature as social beings, as the need to belong shapes how we experience our surroundings and requires us to act in four different ways (Heatherton, 2011). The basis of this process lies in self-awareness, which can be defined as the “experience of the self as the object of attention” (Heatherton, 2011, p. 365) prompting people to reflect on their behaviour and measure it against their own as well as societal standards. Next, people need to evaluate other people's reactions to one's behaviour, detect possible social threats in the form of negative reactions or exclusion, and finally be able to resolve possible conflict. This involves the inhibition of impulses in order to control thoughts, emotions, and behaviours, and adapt to given social contexts (Heatherton, 2011). Therefore, self-regulation includes the modulation of emotional experiences and expression based on our social predisposition.

Grant et al. (2002), describe purposeful change through self-regulation as a cycle, starting with setting goals, then making a corresponding plan for action, carrying out the plan, monitoring and finally evaluating the outcome in order to achieve change. Emotion regulation takes place within this cycle, particularly in the monitoring phase, in which the thoughts and feelings associated with the process are reflected upon (van Seggelen-Damen, 2023).

These definitions all demonstrate how multifaceted the construct of self-regulation is and how it permeates through different aspects of daily life, may it be through monitoring or feedback processes, inhibition of short-term wants, planning of long-term goals, or in the way we experience emotions. However important self-regulation might be, it also is a resource that is limited. Exerting self-regulatory strength comes at a cost which can lead to a lack of regulatory resources for subsequent tasks, so-called ego depletion. Evidence for the impact of depleted self-regulatory resources has been consistently replicated across a variety of domains, including thinking and reasoning abilities, decision-making, impulse control, aggression, and impression management (Baumeister et al., 2006). As part of the self-regulatory network, emotion regulation can therefore also be described as an effortful process that requires the application of cognitive control (Moser et al., 2017), and that comes at a cost

of cognitive resources (Ortner et al., 2016; Sheppes & Meiran, 2008; Sheppes et al., 2009; Troy et al., 2018).

Learning how to regulate one's emotions via different strategies is part of many interventions, such as cognitive-behavioural therapy (Naragon-Gainey et al., 2017). Common strategies include cognitive reappraisal, which involves reinterpreting a stressor and changing how one thinks about it towards a more distant and impersonal manner that is free of emotional involvement (Webster et al., 2022), or positive reappraisal, which involves shifting the focus towards more positive interpretations (Qi et al., 2017). However, there are also downsides of implementing these strategies. While detached reappraisal can entail disengagement from the situation, which can negatively influence the appraisal of future stressors, positive reappraisal is less disengaging, but also does not achieve equally good results in dampening the negative emotional experience (Qi et al., 2017).

Given that emotion regulation further requires the availability of cognitive resources, there does not seem to be a perfect strategy for emotion regulation that is effortless, maintains task engagement and at the same time effectively dampens negative emotional experiences. However, current research suggests that self-distanced reflections may solve these problems of traditional emotion regulation strategies. The next paragraph will first introduce the basis of self-reflection with regard to the self-regulation cycle and then discuss the conflicted nature and implications of self-reflections. These considerations will then be combined with and interpreted in light of the concept of psychological distancing.

The Duality of Reflections and Self-Focused Attention

Reflecting on everyday experiences, thoughts and feelings has been identified as an important factor influencing quality of life. Riddell et al. (2023) describe reflections as “a meta-cognitive strategy, which [...] involves deliberately and consciously unpacking the ambiguities of real-world or simulated experiences for knowledge of strengths and weaknesses in how one behaved, and lessons learnt for improving future behaviour” (p.1). Therefore, reflections play an important role in how we see ourselves, evaluate our behaviour and develop over time. Positive effects of reflections on everyday functioning, health and well-being are evident, and reflecting is part of many approaches geared towards self-development, for example in professional settings or as a part of psychotherapeutic interventions (Riddell et al., 2023). As previously mentioned, emotion regulation as part of the self-regulatory framework requires self-awareness. Self-reflection occurs during the monitoring and evaluation of thoughts, emotions, and behaviour, which leads to heightened

self-focus. This is when emotion regulation through reflection can take place (van Seggelen-Damen, 2023). It is an easy-to-implement strategy that requires few resources and at the same time offers the possibility of variety and individuality in the process, ranging from simple pencil and paper documentations to supporting reflections through audio or video (Riddell et al., 2023). Therefore, reflections are seen as a practical strategy that can increase awareness of one's inner states, which promotes emotion regulation and in turn the above-mentioned positive effects on life quality.

However, these implications are rather controversial as a substantial amount of research findings are tying heightened self-awareness and self-focused attention to negative outcomes (Mor & Winquist, 2002). This phenomenon is described as the self-absorption paradox, referring to the double-sided and contradictory effects of high self-awareness, which has been positively associated with both high subjective well-being and high psychological distress (Trapnell & Campbell, 1999). In their investigation of said phenomenon, Trapnell and Campbell (1999) concluded that two different aspects of self-focused attention are responsible for the contradictory findings, distinguishing between self-reflection and self-rumination. Accordingly, the positive association between self-awareness and psychological well-being stems from self-reflection, whereas the association between self-awareness and psychological distress stems from self-rumination. Generally, self-focused attention in the form of rumination has been identified as maladaptive, pointing towards negative effects on well-being and life satisfaction, as well as associations with depression, negative affect, and neuroticism. Self-reflection on the other hand is described as rather adaptive and has further been related to need for knowledge and cognition as well as openness to experience (Mor & Winquist, 2002; van Seggelen-Damen, 2023). Therefore, it seems that self-reflection and self-rumination both regulate emotions, however, in different directions, distinguishing healthy self-reflection from maladaptive self-rumination. Van Seggelen-Damen (2023) suggests that this is because the line between self-reflection and self-rumination can easily be crossed, leading individuals to become "trapped" in the self-regulatory cycle, dwelling on negative self-referent thoughts, i.e. ruminating.

The key to utilizing reflections in a positive and adaptive manner seems to lie with how we use it. Over the years, different approaches have been shown to yield positive results (for a review of self-reflection approaches in the work context see Kross et al., 2023). One concept that has been investigated in the recent years are systematic stressor reflections, which involves reflecting on past stressor events according to a specific reflection protocol focusing on self-awareness of the emotional state and identifying triggers, reappraisal of the

event, and, finally evaluating one's stress response with the aim of finding changes to make in the future (Crane, Searle, et al., 2019). This proposed protocol is aimed at engaging a future-directed focus by increasing insight towards one's coping capacities, which in turn reflects in higher resilience when encountering future stressor events. First results from military samples suggest that this is a promising approach for high-stress work environments, as it increases coping insight (Falon et al., 2022) and reduces anxiety and depression by decreasing the frequency of perceived stressors (Crane, Boga, et al., 2019).

While this strategy shows positive results, it makes the implementation of reflections for emotion regulation more effortful, since it is tied to specific conditions and a protocol that has to be followed. Another perspective explores the concept of self-distancing during reflection and suggests that during reflection, individuals can adopt a self-immersed perspective, where one is highly involved in the emotional experience and can get stuck in rumination, or a self-distanced perspective, which leads to a detachment of the self from the emotional experience (Kross & Ayduk, 2017; van Seggelen-Damen, 2023).

Construal Level Theory and Psychological Distancing

At the core of understanding the mechanisms that underlie self-distanced reflections lies the framework of the Construal Level Theory (CLT; Trope & Liberman, 2003). The basis of CLT is the self in the here and now, the experience of the moment, and the question of how the past and future in the form of memories, plans, predictions, or even made-up scenarios can influence our thoughts, feelings, and actions if all we can experience is the here and now. This introduces the concept of psychological distancing, which is described as the "subjective experience that something is close or far away from the self, here, and now" (Trope & Liberman, 2010, p. 440). CLT proposes that the experience of the self in a moment serves as the reference point for how far away we perceive things. This distance can be related to time or space (temporal or spatial), related to others (social) or possibilities (hypothetical). Depending on the distance from the self, we can think about things either in a specific, concrete way, or in an abstract, more general way. As distance increases, so does the level of abstraction, and with abstraction, in turn, the perceived distance increases (Trope & Liberman, 2003). Therefore, the distance with which we look at certain events influences the way we think, feel, or react to it. We may be able to think about the bigger picture instead of smaller details, direct our focus to more long-term strategic planning over satisfying short-term desires, or reflect on our emotions from a distanced over an immersed perspective.

In line with the egocentric reference point in CLT, research suggests that the way

individuals naturally react to and reflect on events is from a self-immersed perspective, especially in more individualistic cultures (Nigro and Neisser, 1983; Robinson and Swanson, 1993). Combining these findings with the aforementioned considerations of potential negative impacts of self-focused attention in introspection, this suggests that it is possible to enhance psychological distance in order to improve outcomes of introspection and reflection.

This is supported by a large number of research papers that investigated the self-regulatory effect of increasing psychological distance to the self (for a review see Orvell & Kross, 2019). Psychological distance and high-level abstraction have repeatedly been prescribed an important role in self-control (Ayduk et al., 2002; Fujita et al., 2006) as well as emotion regulation (Ayduk et al., 2002). A multitude of studies have focused their research on spatial distancing, manipulating participants to recall past events from an outside observer-perspective versus reconstructing the event the way they saw it through their own eyes (e.g. Ayduk & Kross, 2010; McIsaac & Eich, 2002; Mischkowski et al., 2012; Robinson & Swanson, 1993). Further it is proposed that the different psychological distances are related to one another, therefore, promoting psychological distance in one domain transcends towards other domains (Trope & Liberman, 2010). In a study by Bar-Anan et al. (2007) participants were presented with photographs cueing either spatial proximity or distance paired with words denoting psychological (temporal, social, or hypothetical) proximity or distance. Participants responded faster to congruent stimuli (for example a geographically close cue paired with temporally close *tomorrow*) than incongruent stimuli (for example a geographically far cue paired with a socially proximal word *friend*). Similarly, Williams & Bargh (2008) showed how priming participants with spatially distanced cues led them to evaluate a larger social distance between themselves and family members, as well as people from their home town. Hypotheticality in form of likely versus unlikely events has also shown to influence the perception of these events as more spatially, temporally, and socially close or distant respectively (Wakslak et al., 2006). Lastly, the relationship between social, spatial, and temporal distance was investigated based on the assumption that the usage of more formal, polite language indicates social distance (Stephan et al., 2010). Results indicated that utilizing normative, polite language instead of colloquial, less polite language in conversation led participants to perceive the target as spatially and temporally more distant.

To summarize, CLT proposes the existence of multiple domains of psychological distance that individuals traverse between and that set the scene for how they evaluate events, exert self-control, and regulate their emotions. Simultaneously, the different domains are related to and influence one another, as well as the way people perceive their environments,

thoughts, and feelings. Enhancing psychological distance can therefore be utilized as a self-regulatory tool. This is based on the premise that intense emotions can cause individuals to be deeply immersed in their experiences, which creates difficulties in maintaining objectivity when thinking about their situation. Accordingly, “reducing a person’s egocentric involvement in their experience” through psychological distancing facilitates self-regulation, enabling individuals to engage in more objective reasoning (Orvell & Kross, 2019, p. 83). As the previous paragraph touched on, language can be a factor influencing psychological distance. While politeness in conversation can be an indicator as well as a result of perceived distance, recent considerations within psychological research are concerned with how people talk to themselves and engage in intrapersonal communication. More specifically, the language used to refer to oneself can be utilized as a strategy to create distance between experiences and the self (Cohn et al., 2004; Pennebaker & King, 1999). The next paragraphs will highlight how language and intrapersonal communication can influence the perception of psychological distance and their importance within the study of emotion regulation.

Intrapersonal Communication and the Relevance of Language

Intrapersonal communication, intrinsic to individual cognitive processes, unfolds in diverse modes, serving essential cognitive and emotional functions. One of these modes is the inner voice that we talk to ourselves with and that guides us through our everyday experiences. This type of intrapersonal communication is often referred to as inner speech, inner monologue, or simply self-talk. Moser et al. (2017, p. 231) describe such self-talk as “ubiquitous”, stating that “we all have an internal monologue we engage in from time to time”. While self-talk is usually defined as monological, Oleś et al. (2020) point out that the way people talk to themselves is individual and can be more complex, including dialogical features such as the expression of different *I*-positions. Self-talk can be comprised of full sentences or single words, it can be commands or live commentary of an experienced situation. Independent of such individual differences, self-talk is always self-directed or self-referent, and differs from self-dialogue in a distinctive way. Both sender and recipient are the same person, and self-talk does not require an answer (Brinthaupt et al., 2009). Self-dialogue on the other hand is defined by a representation of different inner voices that do not only involve the self, but also includes different viewpoints and confrontation with other people such as friends or family, or even imagined individuals (Oleś et al., 2020). Self-talk is therefore defined as more reactive or anticipatory to experiences and its main function lies in self-regulation (Brinthaupt et al., 2009; Oleś et al., 2020). Self-talk can further provide

motivational or instructional values, and serve self-referent functions such as self-awareness and evaluation, and consequently knowledge about and reflection of the self (Morin et al., 2018; White et al., 2015).

One aspect of self-talk that has been widely studied is its valence. Positive self-talk is defined as a form of praise promoting focus on the present over hang-ups on mistakes, while negative self-talk refers to criticism “that gets in the way because it is inappropriate, irrational, counterproductive, or anxiety-producing” (Theodorakis et al., 2000, p. 254). A further common distinction goes beyond just the valence of self-talk, differentiating motivational (“I can do it”) from instructional (“push”, or “to the left”) self-referent statements. Overall, results suggest that different types of self-talk can have performance-enhancing qualities (for a review see Hatzigeorgiadis et al., 2011).

In the more recent years, a new field of research has emerged within self-talk literature, which is not concerned with its content, but with self-distancing properties of self-talk (for a review see Murdoch et al., 2023). Language as the primary medium for articulating thoughts takes a crucial role in shaping our internal discourse. When referring to themselves, people naturally use the first-person singular pronouns *I* and *my* (Orvell & Kross, 2019). However, research has shown that the way people talk to themselves can change together with psychological change, for example through significant life events. Cohn et al. (2004) for example, investigated diary entries of 1084 US citizens before and after the 9/11 attacks. The authors observed more markers of psychological distancing in the language of the participants immediately after the attacks for a prolonged period of time. This included the decreased use of first-person pronouns, present-tense verbs, and words of disagreement, even among participants who barely wrote about this event. Similar results of text analyses were also found after adverse or traumatic events such as a tragic accident resulting in multiple deaths at a university (Gortner & Pennebaker, 2003) or the passing of Princess Diana (Stone & Pennebaker, 2002).

These results highlight the existence of spontaneous changes in individuals’ language in order to cope with adversity. However, more recent research is interested in bringing to light the power of actively manipulating language for the purposes of self-distancing. Of particular interest here is the manipulation of pronoun use, as first-person pronouns are used most in self-referent language and changes can be implemented rather easily. The next paragraph will take a look at the mechanisms behind self-distancing through pronoun-use and highlight the current state of research with regard to emotion regulation.

The Role of Perspective-Taking in Emotion Regulation

Most people would likely agree that it is often much easier to objectively evaluate a friend's problem and give good advice for their situation than it is to deal with one's own problems. This is a phenomenon called Solomon's paradox, implying that people reason more wisely and with more awareness and empathy about other people's problems than their own (Grossmann et al., 2021). First experimental results by Grossmann et al. (2021) validated this phenomenon by comparing two groups of participants who were instructed to imagine a friend being cheated on versus themselves being cheated on. Participants in the friend-condition scored higher on measures for wise reasoning than participants in the self-condition. Given that people use first person pronouns to refer to themselves, but non-first-person pronouns to refer to other people, Orvell & Kross (2019) have verbalised the idea "that when people use non-first-person parts of speech internally to refer to the self [...], it should allow them to reason about the self in a similar way to how they reason about others" (p. 83). To test whether a change of perspective through manipulation of pronoun-use would yield similar results, a second study prompted participants to imagine themselves or a friend in a scenario of unfaithfulness by the respective partner (Grossmann et al., 2021). Participants were then instructed to reflect on their emotions from an immersed ("Why am I feeling this way") or a distanced ("Why is he/she feeling this way") perspective. Results supported the enhancing effect of self-distancing through non-first-person pronoun-use on wise reasoning after the reflection task, therefore eliminating the self-other-asymmetry described by Solomon's paradox.

Given the previously discussed self-regulatory qualities of self-distancing, this logic has further been applied to emotion regulation research. As previously stated, CLT and supporting research results point towards an overarching effect from self-distancing in one domain to all other domains, and that this effect is also evident in emotion regulation contexts. Consequently, recent self-talk research has been concerned with the question whether a simple shift in pronoun-use during introspection can promote self-distancing and therefore facilitate emotion regulation. In a set of six studies, Kross et al. (2014) were able to first validate the self-distancing properties of a simple shift in pronoun-use during introspection after recalling negative autobiographical experiences. While the control group was instructed to use first-person pronouns during their reflections, the experimental group was prompted to use their own first name as well as the pronoun *you* as much as possible. The experimental group consequently displayed significantly higher visual distancing of the recalled event than the control group. The authors then examined impact of this shift in

pronoun-use for regulating emotions around two socially stressful events, i.e. a public speaking task and a task involving making a good first impression on a conversation partner of the opposite sex, resulting in lower distress and better performance for the experimental group (Kross et al., 2014). They further assessed post-event processing, by having participants sit quietly for 5 minutes before giving a written account of their stream of consciousness and completing a rumination measure. The self-immersed group produced more statements recounting the events and emotions as they experienced them (e.g. “I was feeling nervous and fidgeted a lot while I was speaking”) and reported higher rumination scores. The self-distanced group gave more statements that correspond to reconstruing, i.e. looking at an experience from a broader perspective (e.g., “I was only given 5 min to prepare my speech and was thus almost set up to not do well”) and reported lower rumination scores (Kross et al., 2014, p. 311). Generally, recounting negative experiences is associated with rumination and dwelling on negative emotions, while reconstruing has adaptive qualities and is associated with a sense of closure and decreasing emotional reactivity (Lee et al., 2020).

Following these results, Orvell et al. (2021) were concerned with the investigation of these positive effects of self-distanced reflections across a range of emotional autobiographical experiences of different intensities. Participants were first prompted to write about different personal events that they worry about in everyday life and rate the emotional intensity of these future events. They were then cued to reflect on each of the different events using either first-person pronouns or third-person singular pronouns (he/she/they) and their own name. Result showed decreased negative emotional reactivity when using distanced self-talk during reflections, independent of how emotionally intense the events were rated previously. In a second study, Orvell et al. (2021) focused on the reflection on particularly distressing past negative events, and further included a measurement of emotional vulnerability. Results again indicated lower negative emotional reactivity when using distanced self-talk, and this effect did not vary dependent on individual differences in emotional vulnerability. This result validates the effectivity of pronoun-use-based self-distancing for emotion regulation, even for vulnerable individuals.

Advantages of Self-Distanced Reflections for Regulating Emotions

The previous findings support the use of distanced self-talk during reflections as an effective emotion regulation strategy. As previously discussed, emotion regulation research consists of a large body of literature with a wide range of different emotion regulation strategies. As stated above, a common strategy that is of great importance in research and

practice, detached reappraisal, seems to show some parallels with distanced self-talk. Both concepts rely on creating distance between an individual's experience and their emotions, and detached reappraisal has been associated with reduced activity of the amygdala and reduced intensity of negative emotions (Qi et al., 2017).

But if there are emotional strategies such as distanced reappraisal that have been largely validated by research and have also proven themselves in practice, why do we need distanced self-reflection as an alternative? According to the recent state of literature, one could argue that distanced self-talk is emerging as a superior emotion regulation strategy over traditional emotion regulation strategies (for reviews see Orvell & Kross, 2019 or Murdoch et al., 2023). Two sets of research findings support that statement. Firstly, distanced self-talk does not seem to promote disengagement from the experience, which has a positive influence on the appraisal of future stressors. And secondly, distanced self-talk has been associated with low cognitive efforts, making it easier to apply in emotionally intense or stressful states.

Task Engagement and Future Stressor Appraisal

To elaborate, the former is related to the idea that individuals naturally approach stressors along a continuum from challenge to threat. (Blascovich & Tomaka, 1996). This theory proposes that individuals can perceive and approach potentially stressful future events either as a challenge or as a threat, depending on their evaluation of their resources, and their ability to cope, over the demands of the event. Two studies by Kross et al (2014) were concerned with the effect of self-distancing through pronoun-use on the appraisal of stressful or anxiety-inducing events. Kross and colleagues (2014) were able to demonstrate higher self-reported challenge over threat appraisal in participants in the self-distanced group when faced with a stress-inducing speech task.

Building on these findings, Streamer et al. (2017) aimed at replicating this effect in a more reliable way by using psychophysiological data. After recording baseline cardiovascular activity, participants were presented with a stress-inducing speech task and given a short window of 5 minutes to prepare. They were then instructed to reflect about their feelings concerning the speech, either from a self-immersed perspective using first-person pronouns or from a self-distanced perspective, using non-first-person pronouns (*he, she, or you*). Participants prompted to write down their reflections before giving their speech, during which cardiovascular activity was recorded. Participants then randomly received positive or negative feedback on their performance. This was followed by a second speech task on an unrelated topic. Results indicated cardiovascular responses in the self-distanced condition that are in

line with higher challenge over threat appraisal than in the self-immersed condition across both speech tasks and regardless of whether participants received positive or negative feedback in between. Importantly, cardiovascular markers for task engagement were not impacted by the use of self-distancing, implying that distanced self-talk promotes a positive evaluation of resources over demands in stressful situations without impeding the perception of task relevance or leading to disengagement.

The results by Kross et al. (2014) and Streamer et al. (2017) suggest that the emotion regulatory qualities of distanced self-talk go beyond simply dampening emotional intensity or reactivity but can actually promote a more positive appraisal of stressors and lead individuals to experience future stressors with more challenge over threat.

Effortlessness of Self-Distanced Reflections

The second argument for the superiority of distanced self-talk as an emotion regulation strategy is concerned with the actual applicability of the strategy. As mentioned above, there is a wide range of research on different strategies for emotion regulation, but it is often overlooked how effortful it can be to implement these strategies. Given that emotion regulation requires the use of cognitive resources, but these are generally exhausted under stress, the implementation of such strategies is the hardest when they are actually needed the most. This can be seen in studies investigating neural activity during emotion regulation efforts using the electroencephalogram (EEG) and/or functional magnetic resonance imaging (fMRI). Using a cue-picture paradigm including negative and neutral pictures from the International Affective Picture System (IAPS), Moser et al. (2017) investigated markers for cognitive efforts and emotional engagement with the EEG and fMRI. In the EEG study, participants were presented with linguistic cues prompting them to think about their emotions either using third-person distanced or first-person immersed self-talk when seeing neutral or negative images. Markers for emotional arousal showed a significant increase for negative over neutral images in the first-person immersed self-talk condition, but not in the third-person self-distanced condition. At the same time, there was no significant effect of type of self-talk on a marker of cognitive effort, suggesting that no additional cognitive efforts were recruited for the third-person self-talk condition. These results were further mirrored by self-reported difficulty-scores for implementing each self-talk strategy, as well as self-reported emotional arousal. These findings were largely replicated by Webster et al. (2022). In the distanced self-talk condition, the authors were able to confirm the reduced response in emotional arousal, while at the same time no increase in cognitive effort was observed.

The second study by Moser et al. (2017) aimed at investigating neural activity via fMRI neuroimaging. For this a memory-harvesting approach was used, where participants were first instructed to recall eight negative autobiographical events in writing. Participants then created event-specific cue phrases that could be used to trigger negative emotions (e.g. “rejected by Marc”). During fMRI scanning, each trial started with a linguistic cue indicating the type of speech they should use to reflect on their emotions within each trial (third person versus first person). They were then presented with one of their own generated cue-phrases and instructed to reflect on their feelings using the indicated type of self-talk. Compared to immersed-self talk, distanced self-talk resulted in lower activity in the left medial prefrontal cortex, which is associated with thinking about the self as opposed to thinking about others. Further, there were no significant differences in neural activity of the frontoparietal network associated with cognitive control between the two conditions.

To conclude all currently available results on neural activity during self-distanced reflections therefore indicated a dampening effect of third-person self-talk on emotional arousal, without increasing cognitive efforts compared to the immersed self-talk response. Overall, these results show that small changes in the way people talk about themselves during self-reflection can be a rather effortless strategy that significantly affects their ability to regulate thoughts, emotions, and actions during stressful and emotionally intense experiences.

Aims and Significance of the Current Study

The current study aims to contribute to the research literature on self-distanced reflections by providing a more naturalistic approach towards the effectivity as an emotion regulation strategy for a vulnerable, high work stress group. As mentioned, promising results of protocol-based, systematic stressor reflections have been seen in military samples (Crane, Boga et al., 2019). However, the simplicity and low engagement of cognitive control seen in self-distanced reflections makes this strategy much more suitable for populations who deal with high occupational stress. Occupational stress is continuously on the rise in today’s society, and arguably some of the most important jobs are also associated with higher levels of stress. Along with that, research also shows a link of occupational stress and deficits in emotion regulation skills in doctors (Jackson-Koku & Grime, 2019). Chronic work stress, in turn, impacts both mental and physical health, which can negatively influence job performance and even lead to job changes over time (e.g. McNeely, 2005).

This suggests that there is a great need for applicable, low effort emotion regulation strategies in occupations linked to high stress. For this study, a sample consisting of medical

professionals, as well as emergency and rescue personnel was chosen, given the high physical and psychological demands as well as frequent stress associated with time and limited resources. Despite the high relevance of emotion regulation in such high-stress occupations and the proposed superiority of self-distanced reflection in terms of cognitive effort, which may be particularly relevant for vulnerable samples, there are currently no studies investigating the use of self-distancing as an emotion regulation technique in such high-stress occupations.

Given the high demands that come with high-stress occupations, the current study further aims to test the applicability of self-distanced reflections in everyday, naturalistic environments. Most studies exploring self-distanced reflections as an emotion regulation strategy either take place in the laboratory (e.g. Kross et al., 2014; Moser et al., 2017; Streamer et al., 2017; Webster et al., 2020) or at least provide one instructional session in the laboratory at the beginning of the experiment (Riddell et al., 2023). This raises concerns about the generalisability of the positive results outside the laboratory, but also raises the question of the extent to which self-distanced reflections are applicable as a strategy in everyday life.

This study will address these aims with the use of a self-reflection task based on previous research, assigning participants to either the self-distanced or the self-immersed group and prompting them to reflect on stressful work events using either third-person or third-person pronouns. The task will be embedded within a survey so that the participants will be able to take part and utilise the self-distancing technique in their natural everyday environment, just like they might normally reflect on work events. I will investigate the connection between using distanced self-talk (versus immersed self-talk) during reflection on the change of emotional state pre- versus post-reflection, as well as positive and negative affect post-reflection. Further, group differences in challenge versus threat appraisal and anticipatory occupational stress will be assessed, while controlling for participants' perceived work stress and emotion regulation skills.

H1a: Self-distanced reflections will lead to a more positive global affect after the reflection task over self-immersed reflections.

H1b: The change in global affect from pre- to post-reflection will be more positive for the self-distanced condition.

H2a: The self-distanced group will show higher positive affect than the self-immersed group post-reflection.

H2b: The self-distanced group will show lower negative affect than the self-immersed group post-reflection.

H3a: The self-distanced group will display higher challenge over threat appraisal as opposed to the self-immersed group post-reflection.

H3b: The self-distanced group will display lower stress anticipation as opposed to the self-immersed group post-reflection.

Method

Design

A cross-sectional approach including both between- and within-subject factors was applied. The study was designed as an online questionnaire via Qualtrics including a short reflection task, to be carried out in the participants' natural environment. The independent variable was pronoun-use/perspective during this reflection task. Participants were randomly assigned to the experimental or the control group for this part of the study.

Multiple questionnaires were filled out before and after the reflection task. Dependent variables were emotional state or global affect, positive and negative affect, as well as challenge vs. threat appraisal and stress anticipation. Further, perceived work stress and emotion regulation abilities were included as covariates, and demographic data about age, gender and occupation of participants was assessed.

Participants

The study was aimed at practicing medical and nursing professionals, as well as rescue and emergency personnel. The questionnaire was targeted specifically at native German speakers in order to avoid introducing confounding effects evoked by reflecting in a non-native language, which has been shown to also cause psychological distancing.

The survey was spread through German speaking online communities consisting of members of the aforementioned occupations on the social media platforms Reddit and Facebook. A randomiser tool was used within the Qualtrics software to ensure randomised group assignment. However, at halftime the number of completed surveys was significantly lower in the self-distanced group than in the self-immersed group (ca. 60% lower). In order to be able to conduct meaningful statistical analyses the decision was made to manipulate the randomiser tool to present the self-distanced condition more often than the self-immersed

condition at a 5:2 ration to balance out participant numbers during the second half of data collection.

A total of 63 participants completed the study. 3 participants were excluded because they did not participate in the reflection task, and 4 participants indicated that they did not experience any stressful events in the last week. Finally, one participant in the self-immersed group was excluded for not following pronoun-use instructions, using the distanced German pronoun “man” meaning “one” (e.g. “one feels exhausted”). The final sample therefore consisted of 55 participants with a mean age of 34.9 ($SD = 11.9$), 47.3 % of which identified as female with a mean age of $M = 39.00$ ($N = 26$, $SD = 13.23$) and 52.7 % identified as male with a mean age of 31.14 ($N = 29$, $SD = 9.30$). A majority of 56.4% of the participants were employed in nursing, 18.2% worked as emergency responders, 12.7% were doctors and 12.7% worked in the police force. In total, the experimental group counted 28 participants, with 27 participants in the control group.

Materials

Global Affect

As a measure for global affect participants were asked to rate their current emotional state on a 7-point Likert scale from “very negative” to “very positive” (adopted from Kross et al., 2014).

Perceived Work Stress

As a measure of participants’ stress level regarding their occupation, the German version of the Perceived Stress Scale (PSS-10; Schneider et al., 2020) was adapted for the work context. The PSS-10 is a 10-item questionnaire with statements concerning the frequency of feelings of helplessness and self-efficacy within the last month, for example “In the last month, how often have you found that you could not cope with all the things that you had to do?” (helplessness) or “In the last month, how often have you felt that you were on top of things?” (self-efficacy). All statements are rated on a 5-point Likert-scale ranging from “Never” (1) to “Very Often” (5).

Emotion Regulation Skills

To assess participants’ ability to regulate their emotions in everyday life, the German version of the Difficulties in Emotion Regulation Scale (DERS, Ehring et al., 2013) was utilised. The questionnaire consists of 36 items, and measuring an individual’s problems with emotion regulation, such as “I experience my as overwhelming and out of control” or “I have

difficulty making sense out emotions of my feelings”. All items are rated on a 5-point Likert-scale from “Almost never” (1) to “Almost always” (5).

Reflection Task

Inspired by Riddell et al. (2023), both groups were instructed to think about the most stressful event they had experienced at work in the past week. The chosen event was supposed to be defined “as something that really challenged [them] psychologically, emotionally, and/or behaviourally” (Riddell et al., 2023, p.4). Based on previous research by Kross et al. (2014) participants were then instructed to reflect on which work-related event really challenged them, how they felt, and why they felt that way. While the experimental group carried out this reflection task from a self-distanced perspective, the control group utilised an immersed perspective, as this seems to be the way individuals naturally reflect on experiences (Nigro & Neisser, 1983; Robinson & Swanson, 1993). In the self-distanced group, participants were instructed to use their preferred pronoun of the third person, for example he, she or they, as well as their own name as much as possible, while the self-immersed group was instructed to use the first-person pronouns *I* and *my*. As a manipulation check to determine correct pronoun use, the participants were asked to then write down their reflections in an open text field. Further, to ensure an active engagement with the task, a non-visible timer of 2 minutes was included before participants were able to proceed to the next page. To account for differences in processing and writing speed between participants, they were asked to finish the task before proceeding to the next page in case they were not finished after 2 minutes. The full original instructions as well as their English translation can be found in Appendix A.

Positive and Negative Emotions

In order to complement the global affect scale and contrast more specific positive against negative emotions evoked by the reflection task, participants were presented with the German version of the Positive and Negative Affect Schedule (PANAS, Breyer & Bluemke, 2016), a 20-item questionnaire that presents participants with a range of different positive and negative emotions. The scale is scored on two subscales measuring positive affect with 10 items, such as “Enthusiastic”, “Excited” or “Interested”, and negative affect with 10 items, for example “Jittery”, “Irritable” or “Upset”. Participants were asked to rate the extent to which they are feeling each emotion in the moment with a 5-point Likert scale ranging from “Not at all” (1) to “Extremely” (5).

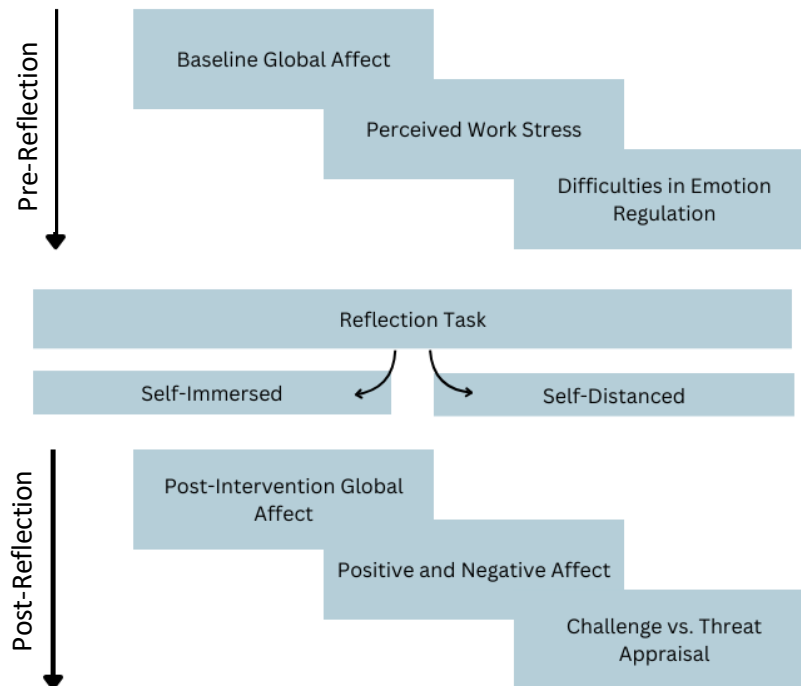
Challenge Versus Threat Appraisal and Stress Anticipation

In order to measure challenge and threat appraisal, a three-item scale by Kross et al. (2014) was adapted for the work context, with one item measuring challenge appraisal (“How demanding do you expect your upcoming work day to be?”), one item measuring threat appraisal (“How well do you think you will be able to cope with your upcoming work day?”) and one item measuring stress anticipation (“How stressed do you feel about the the upcoming work day?”). All three items were scored on a 7-point Likert-scale from “Not very demanding/well/stressed” to “Very demanding/well/stressed. A challenge to threat ratio score was calculated by dividing challenge by threat scores (Kross et al., 2014), so that higher scores relate to higher challenge over threat appraisal.

Procedure

After reading the information about data collection and privacy, participants were first asked to rate their current emotional state as a measure of global affect. This question was posed first, in order to avoid any bias from the following questionnaires and to get the most accurate momentary rating possible. This was followed by the measures for perceived work stress (PSS) and emotion regulation abilities (DERS).

In order to avoid emotional spillover from these questionnaires to the following reflection task, participants then submitted their demographic data, which included their age, gender, and occupation. Through the randomizer function in Qualtrics, participants were then assigned to either the control or the experimental group and further instructed to carry out the reflection task from the given perspective. After completing the reflection task, participants were again asked to rate their emotional state on the same global affect scale as previously. This was followed by the further nuanced measures of positive and negative emotions (PANAS). Lastly, the challenge versus threat and anticipatory stress measure was presented. Upon completion of the questionnaire, participants received further information about the study and the author’s contact information as a debriefing measure. The structure and procedure of this study is depicted in figure 1.

Figure 1*Structure of the Methodological Approach***Ethical Considerations**

Given the nature of the research topic and the involvement of emotional/stressful experiences, ethical approaches were considered throughout the study. Before beginning the study, participants were informed of its general topic and the inclusion of a short reflection task concerning stressful work experiences. They were further educated about their rights to discontinue the experiment at any point and were informed about anonymity of the collected data. Participants were also asked for their consent, and participants who did not consent were redirected to the end of the survey therefore data was only collected for consenting participants. No sensitive personal data was collected for this study. While participants in the self-distanced group were asked to refer to themselves with their own name and third-person pronouns during reflection, they were not required to write down their names in the open-text field. In the written text, some participants referred to themselves using an initial or *X* in place of their name. Given the random sampling method from internet forums without personal contact and consisting of members all throughout Germany, it was not possible to link data back to specific individuals, even for participants who chose to include their first names in the

written reflection. The manipulation check of the written text was based on third-person pronoun-use, not usage of one's own name.

It is not expected that the reflection would result in negative consequences for the participants. Any negative emotions evoked by the reflection task are expected to be momentary, and the study was designed to encourage conscious reflections one might also naturally have about everyday stressful experiences, only manipulating the language used for these reflections. Additionally, the participants received a debriefing after the study in which they were informed about the specific objectives and reasoning behind as well as manipulation of the reflection task. They were further provided with the authors contact information in case of further questions.

Data Analysis

All analyses were conducted with IBM SPSS Statistics version 29.0.2.0. Participant's global affect was analysed as a between-within-factor, being measured both pre- and post-reflection for a within-subject comparison, as well as a between-group comparison. Positive affect, negative affect, challenge vs. threat appraisal and stress anticipation were further assessed post-reflection as dependent variables at a between-subject level. Perceived work stress measured with the PSS and difficulties in emotion regulation measured with the DERS were included in the analyses as covariates. Gender was also controlled for by including it as a second between-subject factor.

In the present study, Likert scale items were employed to assess the participants global affect pre- and post-reflection as well as anticipatory work stress. All Likert scales utilised in this research consisted of seven response levels. According to previous research, Likert scale data can be assumed to approximate measurement at interval level, and therefore be used in the frame of parametric testing (e.g. Norman, 2010), especially as the use of between seven and ten response categories has proven itself in terms of reliability, validity and selectivity (Preston & Coleman, 2000). In line with this methodological approach, the present study treats the above-mentioned variables as continuous. This approach enables the utilization of parametric tests, which can enhance statistical power and provide more nuanced insights into the relationships among variables. This decision further aligns with previous research in the field. For instance, Kross et al. (2014) applied a similar approach for investigating the effect of self-distanced reflections on affect, social anxiety states and anticipatory anxiety, demonstrating a significant dampening effect of distanced over immersed reflections. This provides further validation for the appropriateness of this methodological approach.

Results

Preliminary Analyses

Given the manipulated randomisation of group membership, tests for group differences at baseline were conducted first. The assumptions of homogeneity of variances and normal distribution of the data for parametric tests were checked for the variables perceived work stress, difficulties in emotion regulation. The assumption of homogeneity of variances was met for both variables according to Levene's test ($p > 0.5$), however, the Shapiro-Wilk test was significant for the variable difficulties in emotion regulation ($p = .019$), indicating a non-normal distribution. After consulting the Q-Q-Plot, the distribution is seen as close enough to normal, despite the significance of the Shapiro-Wilk test. Taken together with the sample size of $N = 55$, the author decided to continue with a parametric t-test for difficulties in emotion regulation.

The groups did not differ in baseline global affect, $U = 310$, $p = .231$, level of perceived work stress $t(53) = 1.48$, $p = .144$, difficulties in emotion regulation, $t(53) = 1.59$, $p = .119$, or gender, $\chi^2(1) = 0.016$, $p = .898$.

Correlations

Prior to hypothesis testing, correlations between all variables were assessed and considered for the following analyses. A full correlation matrix can be found in Appendix B. The PSS was negatively correlated with baseline global affect ($r_s = -.576$, $p < .001$), and dependent variable challenge vs. threat appraisal ($r_s = -.582$, $p < .001$). There was further a positive correlation with dependent variable anticipatory stress ($r_s = .649$, $p < .001$) and a small positive correlation with positive affect ($r_s = .302$, $p = .025$), but no significant correlation with negative affect.

There was also a negative correlation between the DERS and baseline global affect ($r_s = -.502$, $p < .001$), as well as a positive correlation with anticipatory stress ($r_s = .463$, $p < .001$), but no significant correlations with the other dependent variables positive and negative affect or challenge vs. threat appraisal.

Gender (coded 1 = female, 2 = male) was significantly correlated to the two dependent variables, demonstrating a positive correlation with challenge vs. threat appraisal ($r_s = .381$, $p = .004$) and a negative relationship with anticipatory stress ($r_s = -.364$, $p = .006$). These results are taken into account when including covariates in the following hypothesis tests.

Hypothesis Testing

The hypotheses were tested with analyses of covariances (ANCOVA), more specifically one repeated measures ANCOVA (H1) and multiple univariate ANCOVAs (H2-H3). Prior to hypothesis testing all relevant assumptions for ANCOVAs were checked for all variables. Normality tests and Q-Q plots were reviewed to assess normality of residuals, and no significant deviations from normal distribution were observed unless stated otherwise in the following paragraphs. The Levene's test for homogeneity of variances was insignificant in all cases with $p > .05$. The assumption of homogeneity of regression slopes was also met in regard to all interactions between covariates and factors with $p > .05$. Linearity was assessed through visual inspection of scatterplots. Multicollinearity was ruled out by reviewing the correlations between the covariates (see Appendix B).

For the repeated measures ANCOVA, specifically, the assumption of sphericity was met automatically, as only two repeated measures factors were included (pre- vs. post-reflection). Relevant figures regarding assumption checks can be found in Appendix C.

Global Affect

Regarding hypothesis 1a and 1b, the effect of group membership on global affect was examined through a repeated measures ANCOVA. Time of emotional state assessment (pre-reflection vs. post-reflection) was the within-subject variable, group (self-distanced vs. self-immersed) was the between-subject variable and perceived work stress and difficulties with emotion regulation were included as covariates. In order to control for gender differences, gender was further included as a second between-subject factor. Descriptive statistics for the analysis can be found in table 1.

Table 1*Descriptive Statistics for Global Affect*

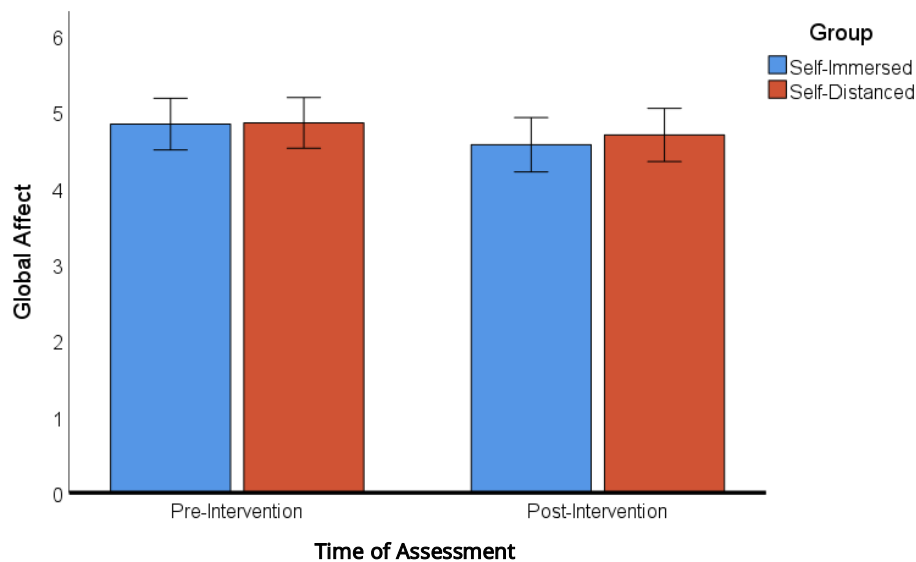
Time	Group	Gender	<i>M</i>	<i>SD</i>	<i>N</i>
Pre	Immersed	Female	4.77	1.092	13
		Male	4.57	1.158	14
		Total	4.67	1.109	27
	Distanced	Female	4.85	0.899	13
		Male	5.13	1.125	15
		Total	5.00	1.018	28
	Total	Female	4.81	0.981	26
		Male	4.86	1.156	29
		Total	4.84	1.067	55
Post	Immersed	Female	4.31	0.947	13
		Male	4.57	1.016	14
		Total	4.44	0.974	27
	Distanced	Female	4.46	1.198	13
		Male	5.13	0.915	15
		Total	4.82	1.090	28
	Total	Female	4.38	1.061	26
		Male	4.86	0.990	29
		Total	4.64	1.043	55

Note. Pre = Pre-Reflection Assessment; Post = Post-Reflection Assessment.

There was no significant main effect of group membership on change between pre- versus post-reflection global affect, $F(1,49) = .106$, $p = .746$, $\eta_p^2 = .002$, no significant main effect of gender, $F(1,49) = .003$, $p = .959$, $\eta_p^2 = .000$, and no significant main effect of time of assessment, $F(1,49) = 3.506$, $p = .067$, $\eta_p^2 = .067$. Parameter estimates for the group variable show no significant differences in global affect before with $B = -.148$, $t(49) = -.450$, $p = .655$ or after the reflection $B = -.249$, $t(49) = -.720$, $p = .475$. A graphical analysis further confirms that group differences post-reflection are only marginal (Figure 2).

Figure 2

Group Differences in Global Affect Between the Self-Distanced and the Self-Immersed Group Pre- versus Post-Reflection



Between-subject results revealed that a significant amount of variance for average change in global affect was explained by the two covariates PSS $F(1,49) = 9.716, p = .003, \eta_p^2 = .165$ and DERS $F(1,49) = 4.030, p = .050, \eta_p^2 = .076$. Interaction effects of time of assessment with covariates PSS, $F(1,49) = .742, p = .393, \eta_p^2 = .015$, and DERS $F(1,49) = .372, p = .545, \eta_p^2 = .008$, were not significant. The interaction between time of emotional state assessment and gender, however, was significant $F(1,49) = 5.092, p = .029, \eta_p^2 = .094$. Pairwise comparisons based on Bonferroni-corrected estimated marginal means indicated that affect scores were significantly lower (i.e. more negative) at the post-reflection measure than the pre-reflection measure for female participants ($M_{Difference} = -.459, SE = .154, p = .005$). Breaking these results down further at group level revealed a significant mean difference for female participants in the control group ($M_{Difference} = -.521, SE = .218, p = .021$), indicating that only female participants in the first-person condition displayed a significant change in global affect score from pre- to post-reflection. There was, however, no significant effect for male participants or female participants in the experimental third-person condition (Table 2).

Table 2

Pairwise Comparisons of Group and Gender Means for Change of Global Affect from Pre- to Post-Reflection

Group	Gender	Mean Difference (Post - Pre)	SE	p	95% CI	
					LL	UL
Self-Immersed	F	-.521*	.218	.021	-.958	-.084
Self-Immersed	M	-.020	.207	.923	-.436	.396
Self-Distanced	F	-.397	.215	.072	-.829	.036
Self-Distanced	M	.081	.207	.698	-.334	.496

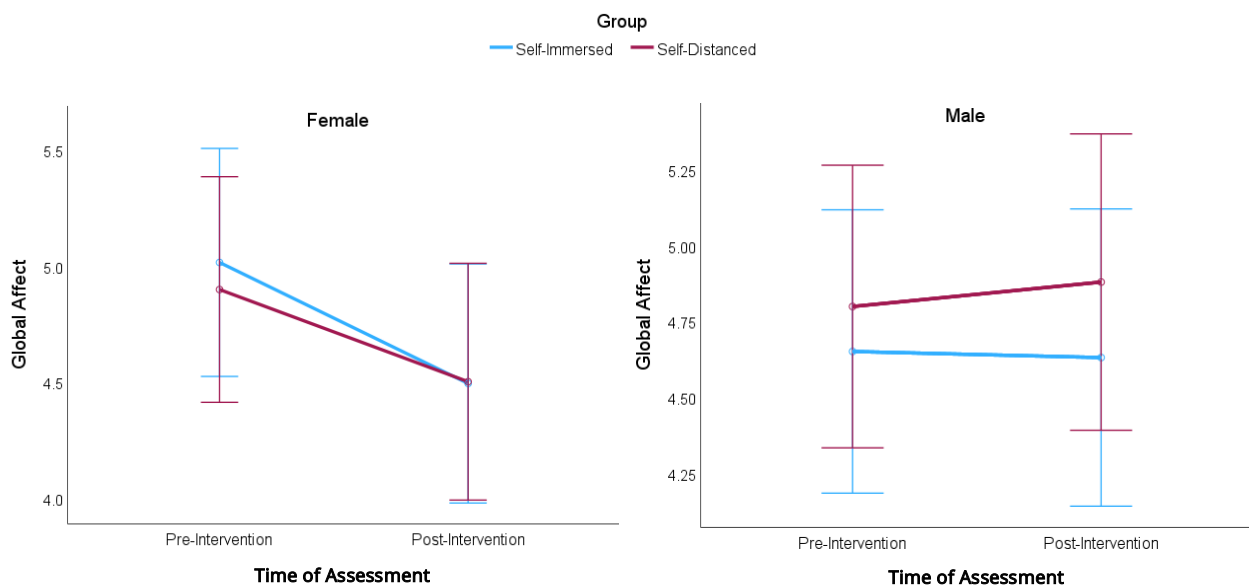
Note. Pairwise comparisons are based on estimated marginal means. F = female, M = male. Mean differences are computed by subtracting the mean score post-reflection from the mean score pre-reflection.

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

While there is only a significant effect for female participants in the self-immersed group, a similar downward trend can be seen for female participants in the self-distanced group. In contrary, male participants show barely any differences between the two points in time in the self-immersed group, while there is a slight, albeit non-significant, positive trend in the self-distanced condition (Figure 3).

Figure 3

The Effect of Group on Change of Global Affect from Pre- to Post-Reflection for Female (Left) and Male (Right) Participants



In summary, the absence of a significant difference between groups post-reflection indicates no support for hypothesis 1a. There is some partial support for hypothesis 1b in female participants, given the more negative change from pre- to post-reflection in the self-immersed versus the self-distanced group.

Positive and Negative Affect

For hypotheses 2a and 2b, two separate ANCOVAs were conducted for each dependent variable positive and negative affect.

For positive affect, group was included as factor and perceived work stress, difficulties in emotion regulation and baseline global affect were included as covariates. Gender was further included as a second factor. Descriptive Statistics can be found in table 3.

Table 3

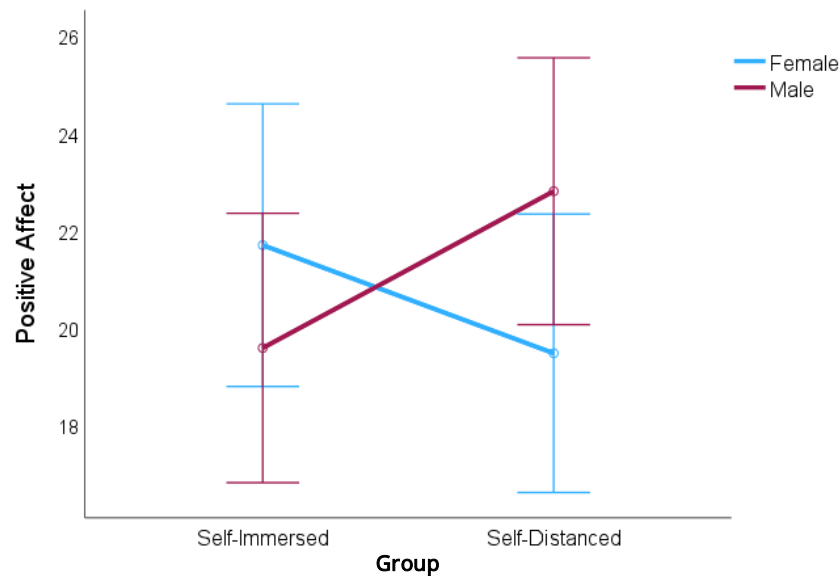
Descriptive Statistics for Positive Affect

Group	Gender	<i>M</i>	<i>SD</i>	<i>N</i>
Immersed	Female	22.23	6.366	13
	Male	19.93	4.811	14
	Total	21.04	5.626	27
Distanced	Female	19.62	3.477	13
	Male	21.87	6.093	15
	Total	20.82	5.092	28
Total	Female	20.92	5.199	26
	Male	20.93	5.503	29
	Total	20.93	5.312	55

There were no significant effects found for group, $F(1,48) = .126, p = .725, \eta_p^2 = .003$, gender, $F(1,48) = .177, p = .675, \eta_p^2 = .004$, perceived work stress $F(1,48) = 1.306, p = .259, \eta_p^2 = .026$, difficulties in emotion regulation $F(1,48) = .097, p = .757, \eta_p^2 = .002$ or baseline global affect $F(1,48) = 1.404, p = .242, \eta_p^2 = .028$. The interaction effect of gender and group was also not significant, $F(1,48) = 3.881, p = .055, \eta_p^2 = .075$. While non-significant, trends for opposite effects on positive affect for male and female participants can be observed between the control and the experimental group in figure 4.

Figure 4

Gender Differences for the Effect of Group on Positive Affect Post-Reflection



The second ANCOVA with negative affect as the dependent variable included group as the factor, the PSS, DERS, and baseline global affect as covariates. Again, gender did not show a significant correlation with negative affect in the previous analysis and did not alter the results substantially and was therefore not included in the final model. Descriptive statistics can be found in table 4.

Table 4

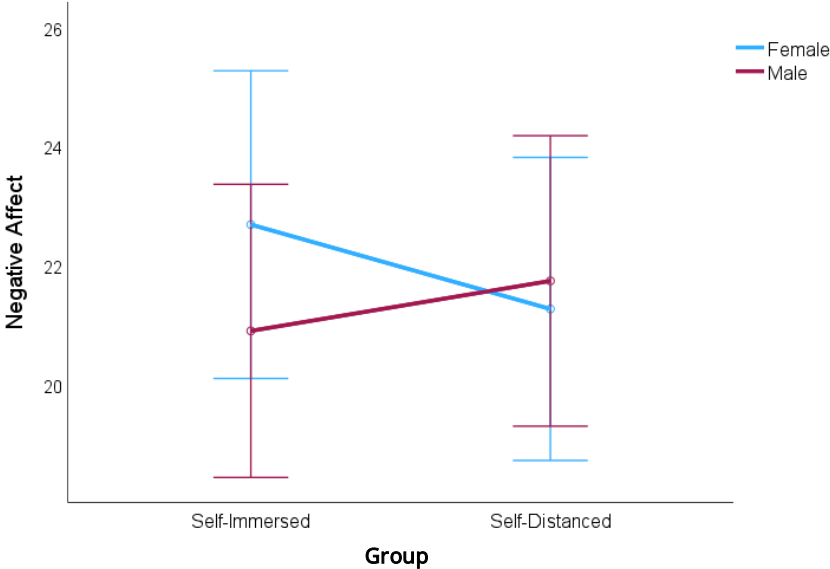
Descriptive Statistics for Negative Affect

Group	Gender	<i>M</i>	<i>SD</i>	<i>N</i>
Immersed	Female	23.00	4.933	13
	Male	20.86	5.419	14
	Total	21.89	5.206	27
Distanced	Female	21.46	3.755	13
	Male	21.33	3.478	15
	Total	21.39	3.542	28
Total	Female	22.23	4.366	26
	Male	21.10	4.443	29
	Total	21.64	4.403	55

There were no significant effects found for group $F(1,48) = .053, p = .819, \eta_p^2 = .001$, gender $F(1,48) = .262, p = .611, \eta_p^2 = .005$, perceived work stress $F(1,48) = 1.365, p = .248, \eta_p^2 = .028$, difficulties in emotion regulation $F(1,48) = .148, p = .702, \eta_p^2 = .003$ or baseline global affect $F(1,48) = .001, p = .980, \eta_p^2 = .000$. The interaction between group and gender was also not significant, $F(1,48) = .843, p = .363, \eta_p^2 = .017$.

To summarise, there is no support for neither hypothesis 2a), nor hypothesis 2b). Interestingly though, the profile plot for negative affect shows similar patterns as the positive affect plot, with female and male participants trending towards opposite directions when comparing the experimental and the control group (figure 5).

Figure 5
Gender Differences for the Effect of Group on Negative Affect Post-Reflection



Challenge vs. Threat Appraisal and Anticipatory Stress

For the dependent variable challenge vs. threat appraisal, group and gender were included as factors, while perceived work stress, difficulties with emotion regulation and baseline global affect were included as covariates. Descriptive statistics can be found in table 5.

Table 5
Descriptive Statistics for Challenge Vs. Threat Appraisal

Group	Gender	<i>M</i>	<i>SD</i>	<i>N</i>
Immersed	Female	1.08919	0.627	13
	Male	1.36276	0.801	14
	Total	1.23104	0.722	27
Distanced	Female	0.86978	0.295	13
	Male	1.38587	0.584	15
	Total	1.14626	0.533	28
Total	Female	0.97949	0.493	26
	Male	1.37471	0.684	29
	Total	1.18788	0.628352	55

Note. Higher values indicate higher challenge over threat appraisal.

Assumption testing prior to the testing of hypothesis 3a revealed a strong right-skew in the dependent variable challenge vs. threat appraisal (see Appendix C, Figure C5). Given these results, the bootstrapping method was applied, as it is relatively robust against the violation of assumptions. The analysis was run with 5000 replications. Bootstrapped parameter estimates did not reach significance for group, gender, the interaction of group and gender, or the covariates PSS, DERS, and baseline global affect (see Table 6).

Table 6
Bootstrapped Parameter Estimates for Challenge vs. Threat Appraisal

Parameter	<i>B</i>	<i>Bias</i>	<i>t</i>	<i>p</i>	95% CI	
					<i>LL</i>	<i>UL</i>
PSS	-.022	.000	.017	.213	-.050	.011
DERS	.004	7.898E-5	.004	.291	-.003	.013
Baseline Affect	.173	.002	.131	.202	-.068	.424
Group	.106	.002	.256	.698	-.373	.615
Gender	-.386	.005	.186	.056	-.814	-.005
Group*Gender	.131	.010	.318	.690	-.480	.772

Note. Bootstrap results are based on 5000 bootstrap samples. PSS = Perceived Stress Scale. DERS = Difficulties in Emotion Regulation.

Given that the p -value for gender approaches significance with $p = .056$, bootstrapped pairwise comparisons of the estimated marginal means were consulted, which revealed no significant mean differences between male and female participants $M_{Difference} = -.320$, $SE = .183$, $p = .107$, BCa 95% CI [-.689, .061].

For hypothesis 3b with the dependent variable anticipatory stress, an ANCOVA with group and gender as factors, as well as DERS, PSS and baseline global affect as covariates was run. Descriptive statistics can be found in table 7.

Table 7

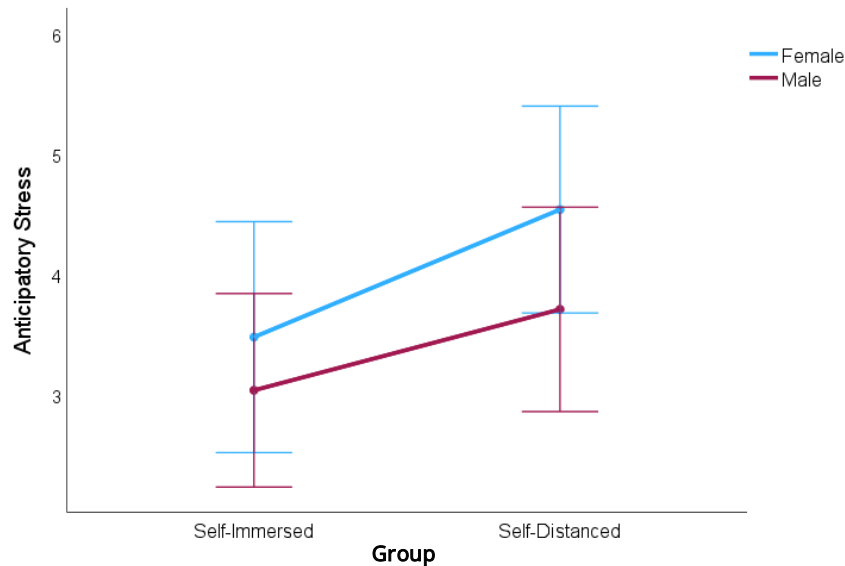
Descriptive Statistics for Anticipatory Stress

Group	Gender	<i>M</i>	<i>SD</i>	<i>N</i>
Immersed	Female	4.15	1.908	13
	Male	3.00	1.881	14
	Total	3.56	1.948	27
Distanced	Female	4.62	1.981	13
	Male	3.00	1.558	15
	Total	3.75	1.917	28
Total	Female	4.38	1.920	26
	Male	3.00	1.690	29
	Total	3.65	1.917	55

There was a significant effect of group on stress anticipation $F(1,48) = 4.405$, $p = .041$, $\eta_p^2 = .084$, and a significant effect of gender $F(1,48) = 4.833$, $p = .033$, $\eta_p^2 = .091$. Bonferroni-corrected pairwise comparisons revealed a significant difference in estimated marginal means of group on the dependent variable, indicating higher anticipatory stress in the self-distanced than the self-immersed condition ($M_{Difference} = -.801$, $SE = .381$, $p = .041$). Pairwise comparisons for gender indicated significantly higher estimated marginal means for female participants than for male participants ($M_{difference} = .859$, $SE = .391$, $p = .033$). Figure 6 illustrates the significant difference in anticipatory stress between the experimental groups and gender.

Figure 6

The Effect of Group on Anticipatory Stress Post-Reflection for Female and Male Participants



The interaction between group and gender was non-significant $F(1,48) = .003, p = .956, \eta_p^2 = .000$. Both covariates perceived work stress $F(1,48) = 12.498, p < .001, \eta_p^2 = .207$ and difficulties in emotion regulation $F(1,48) = 5.243, p = .026, \eta_p^2 = .098$ explained a significant amount of variance of anticipatory stress. There was, however, no significant effect of baseline global affect $F(1,48) = .006, p = .937, \eta_p^2 = .000$.

In summary, the results of the two ANCOVAs do not support hypotheses 3a) and 3b), with the latter even showing a significant effect in the opposite direction as expected.

Discussion

The study aimed at investigating the effects of self-distanced versus self-immersed reflections on emotional reactivity to stressful work experiences, positive and negative affect, appraisal of the stressor work in the future in terms of challenge or threat appraisal, and anticipatory stress. Overall, the results show unexpected results and little support for the hypotheses. In the following I will first discuss the specific results of each hypothesis test, which will then lead to a general discussion including methodological considerations and future recommendations.

Global Affect

Hypotheses 1a and 1b were concerned with the effect of type of self-talk used during reflections on change of global affect from before versus after the reflection. Contrary to expectations, no significant effect of type of self-talk was observed, while controlling for individual differences in perceived work stress and emotion regulation skills. Given that there was also no main effect of time of assessment, this suggests that the reflection did not significantly impact the participants' emotional state, and there was no difference in change between the two groups.

Controlling for gender, however, revealed a significant interaction of time of assessment with gender. As pairwise comparisons suggest, there were no significant changes of global affect for male participants or for female participants in the self-distanced group, but female participants in the self-immersed group displayed significantly more negative global affect scores after the reflection task than before. This indicates that self-immersed reflections had a significant negative effect on female participants, while the effect for the self-distanced group was insignificant, potentially speaking for a protective effect of self-distancing in this case. Interestingly, the profile plots show that female participants were generally influenced negatively by the reflection task while male participants displayed very little change, independent of group membership. This finding could potentially speak for the existence of gender differences when it comes to the functionality and effectiveness of self-distanced reflections in real-life contexts. In previous literature, gender does not play a significant role, either by not being included in the analyses or by displaying no effects. The current results suggest that potential gender differences may be of interest and should be further investigated in future studies.

Hypothesis 1a has to be rejected, given the insignificance of group differences between the experimental groups post-reflection. For hypothesis 1b, a partial support can be confirmed for female participants, showing a more positive change (i.e. no significant change) in the experimental group compared to the control group (i.e. a significant negative change) from pre- to post-reflection. Importantly, though, these results do not show the expected positive effect, but rather the lack of a negative effect for female participants in the experimental group. These results contradict current research findings and need to be considered with regard to methodological limitations of this study, however, they highlight the significance of gender differences when investigating emotion regulation strategies.

Further results showed that perceived work stress and emotion regulation skills explained a significant amount of variance in average change of emotional state across the

groups, but there were no significant interaction effects with group membership. This means that the participants' work stress and ability to regulate their emotions influenced their emotional reactivity to the reflection, however, this was independent of the type of self-talk condition.

Positive and Negative Affect

Hypotheses 2a and 2b were concerned with differences in reported positive and negative emotions after the reflection. Contrary to expectations, no significant effects of type of self-talk were observed regarding positive or negative affect. There were also no significant effects concerning the covariates perceived work stress and difficulties in emotion regulation, suggesting that neither individual differences in work stress nor emotion regulation skills were related to the amount of positive or negative feelings reported. Surprisingly, baseline global affect also did not explain a significant amount of variance of positive nor negative affect. These results suggest that reports of positive and negative emotions after the reflection were independent of group membership, perceived work stress, emotion regulation skills, and emotional state at baseline. Given these results, both hypotheses have to be rejected. Previous research literature was able to identify an enhancing effect of distanced self-talk on positive and an inhibiting effect on negative affect.

Testing for hypothesis 1 showed that both the PSS and the DERS explained significant variance of the change of global affect from pre- to post-reflection. Given that the results for the PANAS in this study were not explained by neither perceived work stress, nor emotion regulation abilities, it is possible that the list of emotions provided did not resonate with the participants in this specific context. Rather, there seems to be a general tendency of reporting more or less emotions depending on gender and type of self-talk. While non-significant, the profile plots for both positive and negative affect show a distinct pattern displaying differences between male and female participants. In both cases, for positive and negative affect, female participants reported higher affect scores in the self-immersed than in the self-distanced group. In contrast, male participants reported higher affect scores across both variables in the self-distanced group than in the self-immersed group. Again, these patterns demonstrate the need to further investigate gender differences within future research of distanced self-talk and -reflections. Further considerations for these results can be found in methodological limitations as will be discussed in a later section.

Challenge vs. Threat Appraisal and Anticipatory Stress

No group differences in challenge versus threat appraisal were observed in disagreement with hypothesis 3a. Again, there were also no effects of perceived work stress, emotion regulation skills, or baseline global affect. This indicates that the experimental manipulation had no effect of challenge versus threat appraisal, and none of the covariates were able to explain differences in challenge versus threat appraisal either.

In light of these results, it is important to note that challenge and threat appraisal are traditionally assessed by obtaining and analysing physiological data (e.g. heart rate variability or electrodermal activity) where changes are objectively apparent and can reliably be tied to threat or challenge states. Self-report measures are relatively rare, also given that challenge and threat appraisal are often measured in the laboratory in response to a stress inducing task. The scale by Kross et al. (2014) used in this study was specifically designed for their set of studies investigating the effects of distanced self-talk on challenge and threat appraisal as well as stress anticipation, and provided evidence for an increase in challenge appraisal when using distanced over immersed self-talk. However, these results might not be transferable to all contexts and samples. The suitability of the scale should therefore be further tested for different contexts, such as challenge and threat appraisal in the work environment, and possibly complemented by physiological measures.

For hypothesis 3b with dependent variable anticipatory stress, a significant effect of type of self-talk was observed, however in the opposite direction as expected. The self-distanced group therefore displayed higher anticipatory stress score post-reflection than the control group when controlling for perceived work stress, emotion regulation skills and baseline global affect. This is a surprising finding, especially given the previously reported lack of group differences in global affect, positive and negative affect, as well as challenge versus threat appraisal.

There was a significant difference in mean anticipatory stress scores between male and female participants indicating higher stress anticipation in females. The interaction between gender and group was non-significant, however, therefore the significant effect of group is independent of gender differences.

Significant effects were also observed for perceived work stress and difficulties in emotion regulation, suggesting that these variables explain a substantial amount of variance, however, global affect at baseline did not. This indicates that using distanced self-talk led to significantly higher anticipatory stress than immersed self-talk, even more so in female than in male participants, independently of their emotional state at baseline. As mentioned in the theoretical background, negative effects of reflections are generally attributed to a

maladaptive increase in self-awareness. The use of psychological distancing techniques is supposed to counteract these negative effects and promote adaptive self-awareness from a distanced perspective instead. As reported, previous research shows strong support for this idea, however, in the current study there seems to be a contrary effect, leading to the rejection of hypothesis 3b. Possible implications from methodological standpoints and regarding the specific context and sample of this study will be discussed in the next section.

General Discussion

The unexpected results of this study require a closer look at two aspects, first, methodological limitations of this study, and second limitations concerning the applicability of the discussed emotion regulation strategy itself, specifically towards real life contexts.

Methodological Limitations

In contrast to previous studies highlighted in the theoretical background, this study was conducted remotely, without any direct contact between researcher and participants. This was supposed to mimic reflections in form of a diary field study more closely than a laboratory study. An open text field was included in order to still have some form of a control medium and manipulation check for the pronoun-use instructions. However, there was no control over the circumstances, surroundings, or nature of the participants' engagement. Instructions were solely given in written form, not allowing for any further inquiries by the participants. To account for this, a small pilot study with four participants was conducted prior to the experiment in order to ensure clarity and comprehensibility of the instructions, and small changes were made accordingly. Nevertheless, the absence of in-person contact might play an important role in the differences of the outcome of previous versus this study.

The lower participation/higher dropout-rate in the experimental condition that was observed lead to a redistribution of the presentation ratio of the experimental over control condition. Therefore, a complete randomisation of the groups was not given. Further, in line with the previously stated matter concerning the absence of contact with the researcher, this also might suggest acceptance issues of third-person distanced self-talk without the presence of a perceived authority figure. Participants might be more inclined to accept an unusual and potentially uncomfortable strategy if there is face-to-face contact with a researcher.

Due to the nature of the study, self-report questionnaires were used in order to intervene with participants usual everyday life as little as possible. More objective physical measures of stress and emotional reactivity such as heartrate variability, the dermal things etc.

might have given further and more objective insights into participants reaction to the reflection task.

Another limitation was the time frame of this study. While cross-sectional laboratory studies might have worked and showed results with very short and singular time frames for the reflection (two minutes once), this might not be applicable to field situations. Participants might not be able to block out distractions from surroundings, stress, or other demands/influencing circumstances as well in their everyday surroundings as in a laboratory. Future studies should research whether there would be differences if participants had longer or repeated reflections in the field. One interesting approach would be to implement a one-time training session to allow for the mentioned researcher-contact, which is then followed by repeated, self-employed reflections over the course of multiple days or even weeks.

Limitations Regarding Applicability and Acceptability

The current study contributes to the research landscape by taking the concept of distanced self-talk as an emotion regulation strategy out of the laboratory and into real-life contexts. Apart from the methodological limitations mentioned, the mostly insignificant results raise some questions about the suitability of the strategy in the field. As touched on in the previous section, acceptability of distanced self-talk may be a concern. As discussed in the method section of this thesis, the completion rate of the questionnaire was initially much lower for the self-distanced condition than the self-immersed condition, despite both conditions being presented an equal number of times by the randomiser tool. This may be another indication for an issue of acceptability for this particular language use. In many European languages, using third-person pronouns to refer to oneself is widely associated with negative attributes such as arrogance (Barford, 2015) or language used with children (e.g. “Daddy wants coffee”, Fleming & Sidnell, 2020, p.8), which might result in inhibitions for adults to adopt such language. In the context of this study, focus must also be laid on the specific target group. While distanced self-talk as a suggested low-effort emotion regulation strategy might be highly suitable for this target group, the study itself required participants to take time out of their busy and highly stressful days. Although participation was completely voluntary and participants were informed about the nature and length of the study and their right to abort at any point, the length and requirements of the questionnaire, some participants expressed anger about the nature and length of the study in the open text field. Combined with a possible bias towards using third-person pronouns, this might have resulted in an acceptance issue which may have negatively influenced the impact of the language manipulation. As

mentioned, the presence of a researcher as an expert or authority figure might void these inhibitions, as previous studies conducted in the laboratory do not report such issues. Future research should seek to further test the suitability of distanced self-talk as an emotion regulation strategy in the field and clarify the existence of potential bias and acceptance issues.

This study aimed at transferring the investigation of distanced self-reflections as an emotion regulation strategy onto the context of high work stress. It is possible that self-distanced reflections are unsuitable for regulating emotions in that context. There might be other variables that moderate the effectiveness of this strategy, therefore making its success dependent on context. Several authors note the importance of perceived control when it comes to the applicability and success of emotion regulation strategies. Ford and Gross (2018) discuss how the beliefs held about and more general perceived controllability of one's emotions can influence the success – or lack thereof – of emotion regulation. More specifically, Troy et al. (2013) identified perceived controllability of a specific stressor at hand as an influencing factor on the functioning of cognitive reappraisal. In this specific study, utilising cognitive reappraisal led to higher symptoms of depression when the stressor was perceived to be controllable than when it was perceived to be uncontrollable. While a generalisation of results across different emotion regulation strategies is not feasible, this highlights the importance of perceived control and context within emotion regulation. Utilising an emotion regulation strategy in an unsuitable context may therefore not only be ineffective but lead to unfavourable results. The current study did not assess perceived control of emotions in general or stressor controllability in specific, however, the unexpected results and specifically the observed increase in anticipatory stress may warrant a look into this variable in the future.

Future recommendations

Overall, this study was the first one to investigate distanced self-talk as an emotion regulation strategy for high-work stress individuals remotely, and further research is needed to in order to draw conclusions about the suitability of distanced self-talk as an everyday strategy to regulate emotions related to work stress. Specifically, a longitudinal study with recurring reflection tasks over a longer period of time would be a valuable approach to clarify possible effects of distanced self-talk. Additionally, an initial personal contact with the researcher, for example in form of a training session at the beginning of the experiment may be beneficial in order to increase the acceptance of the distanced self-talk. Further,

physiological measures could add nuance and complement the self-report measures used in this study. Generally, further research should seek to clarify a possible influence of perceived controllability. Previous studies did not report any gender differences in the effectivity of distanced self-talk for emotion regulation, in fact, Kross et al. (2014) suggest across a set of three studies “that the benefits associated with language use as a tool for promoting self-regulation may extend to both genders” (p.313). Other studies did not report any analyses on potential gender differences (e.g. Moser et al., 2017; Webster et al., 2022). The results of the current study, however, suggest that including gender in the analysis and further investigating gender differences and the processes behind those differences is of high relevance.

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Appendix A

Participant Instructions for the Reflection Task

The following instructions were adapted from Kross et al. (2014), Riddell et al. (2023), and Streamer et al. (2017).

Original German Version

Unabhängig davon, wie zufrieden die Menschen mit ihrer Arbeit sind, gibt es manchmal Situationen, die stressig oder herausfordernd sein können. Im Folgenden möchte Sie bitten, sich einen Moment Zeit zu nehmen und an das stressigste Ereignis zu denken, das Sie in der letzten Woche im Zusammenhang mit Ihrem Beruf erlebt haben. Denken Sie an eine Situation, die Sie psychisch, emotional und/oder bezogen auf ihr Verhalten sehr herausgefordert hat.

Self-Immersed (Control) Group:

In dieser Studie möchte ich untersuchen, wie Menschen Sprache verwenden, um über ihre Gefühle nachzudenken und sie zu verstehen. Manche Menschen tun dies, indem sie über sich selbst nachdenken und dabei Pronomen der ersten Person verwenden. Bitte denken Sie über das von Ihnen gewählte Ereignis nach und verwenden Sie dabei so oft wie möglich die Pronomen "ich" und "mein/e". Beschreiben Sie kurz das Ereignis und wie Sie sich gefühlt haben, und versuchen Sie zu verstehen, warum Sie sich so gefühlt haben. Fragen Sie sich: "Welches Ereignis hat mich diese Woche wirklich herausgefordert? Wie habe ich mich dabei gefühlt? Warum habe ich mich so gefühlt? Was waren die Ursachen und Gründe für meine Gefühle". Sie könnten zum Beispiel denken: "Ich fühlte mich Ich dachte" etc. Bitte nehmen Sie sich einige Minuten Zeit, um Ihre Gedanken aufzuschreiben.

Self-Distanced (Experimental) Group:

In dieser Studie möchte ich untersuchen, wie Menschen Sprache verwenden, um über ihre Gefühle nachzudenken und sie zu verstehen. Manche Menschen tun dies, indem sie über sich selbst nachdenken und dabei ihren eigenen Namen und Pronomen verwenden, die der 3. Person Singular entsprechen. Bitte denken Sie über das von Ihnen gewählte Ereignis nach und verwenden Sie dabei möglichst häufig Ihren eigenen Namen und Ihr bevorzugtes Pronomen in der dritten Person (z.B. sie, er, xier oder ähnliches.). Bitte benutzen Sie das Pronomen, welches sie in ihrem alltäglichen Leben verwenden.

Beschreiben Sie kurz das Ereignis und wie Sie sich gefühlt haben, und versuchen Sie zu verstehen, warum Sie sich so gefühlt haben. Fragen Sie sich: "Welches Ereignis hat [Ihr

eigener Name] diese Woche wirklich herausgefordert? Wie hat sich [Ihr eigener Name] dabei gefühlt? Warum hat sich [Ihr eigener Name] so gefühlt? Was waren die zugrunde liegenden Ursachen und Gründe für die Gefühle von [Ihr Name]? Wenn Ihr Name zum Beispiel Alex wäre, könnten Sie denken: "Alex fühlte sich..., Alex dachte" etc. Bitte nehmen Sie sich einige Minuten Zeit, um Ihre Gedanken aufzuschreiben.

English Translation

Regardless of how satisfied people are with their work, there are sometimes situations that can be stressful or challenging. Below, I would like to ask you to take a moment and think of the most stressful event you have experienced in the last week related to your job. Think of a situation that challenged you mentally, emotionally and/or in terms of your behaviour.

Self-Immersed (Control) Group:

In this study, I want to explore how people use language to think about and understand their feelings. Some people do this by thinking about themselves using first person pronouns.

Please think about the event you have chosen and use the pronouns "I" and "my" as often as possible. Briefly describe the event and how you felt and try to understand why you felt that way. Ask yourself: "What event really challenged me this week? How did it make me feel? Why did I feel that way? What were the causes and reasons for my feelings? For example, you could think: "I felt ..., I thought" etc. Please take a few minutes to write down your thoughts.

Self-Distanced (Experimental) Group:

In this study I want to investigate how people use language to think about and understand their feelings. Some people do this by thinking about themselves using their own name and pronouns that correspond to the 3rd person singular. Please think about the event you have chosen, using your own name and your preferred third person pronoun (e.g. she, he, they) as often as possible. Please use the pronoun that you use in your everyday life.

Briefly describe the event and how you felt and try to understand why you felt that way. Ask yourself: "What event really challenged [your own name] this week? How did it make [your own name] feel? Why did [your own name] feel that way? What were the underlying causes and reasons for [your own name]'s feelings? For example, if your name was Alex, you might think, "Alex felt..., Alex thought" etc. Please take a few minutes to write down your thoughts.

Appendix B

Table B1*Correlation Matrix for Preliminary Analyses*

Variable	PSS		DERS	PA	NA	TC	AS	BGA	PGA	Gender
PSS	—									
DERS	0.562 ***	—								
PA	0.302 *	0.16	—							
PN	0.202	0	0.655 ***	—						
TC	-0.58 ***	-	0.16	-0.12	—					
AS	0.649 ***	0.46 ***	0.188	0.1	-0.56 ***	—				
BGA	-0.58 ***	-0.5 ***	-0.34 *	-	0.11	0.429 **	—			
PGA	-0.51 ***	-	0.43 **	-0.32 *	-	0.506 ***	0.48 ***	—		
Gender	-0.27	0.02	0.001	-	0.13	0.381 **	0.49 ***	0.78 ***	—	
							0.36	0.06	0.22	—

Note. $N = 55$; PSS = Perceived Stress Scale; DERS = Difficulties in Emotion Regulation Scale; PA = Positive Affect; NA = Negative Affect; TC = Threat vs. Challenge Appraisal (Higher Scores indicate Higher Challenge Appraisal); AS = Anticipatory Stress; BGA = Baseline Global Affect; PGA = Post-Reflection Global Affect; Gender (1 = Female, 2 = Male).

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

Appendix C

Figure C1

Q-Q Plot for Baseline Global Affect

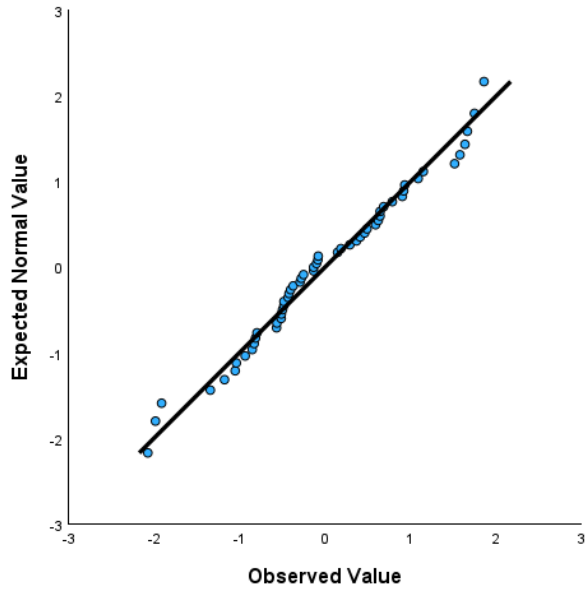


Figure C2

Q-Q Plot for Post-Reflection Global Affect

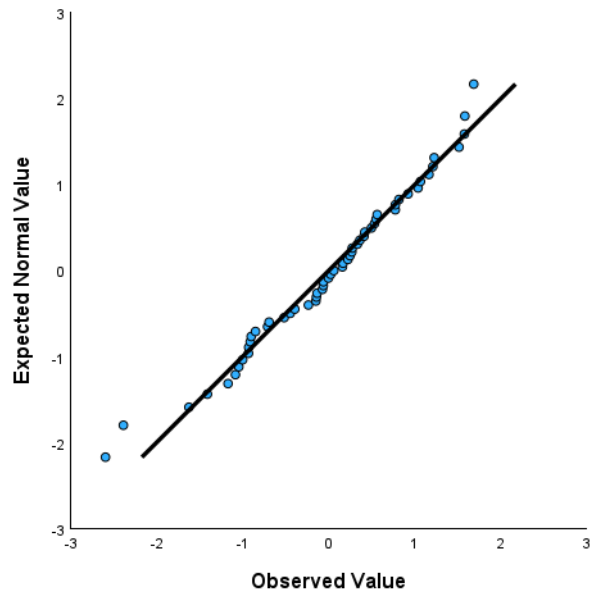


Figure C3

Q-Q Plot for Positive Affect

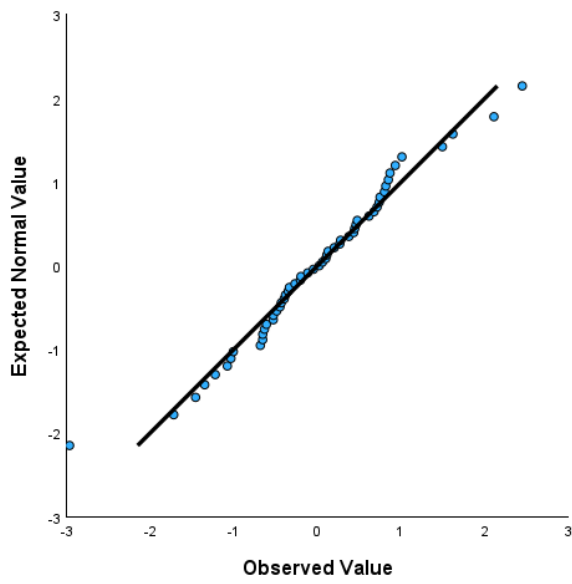


Figure C4

Q-Q Plot for Negative Affect

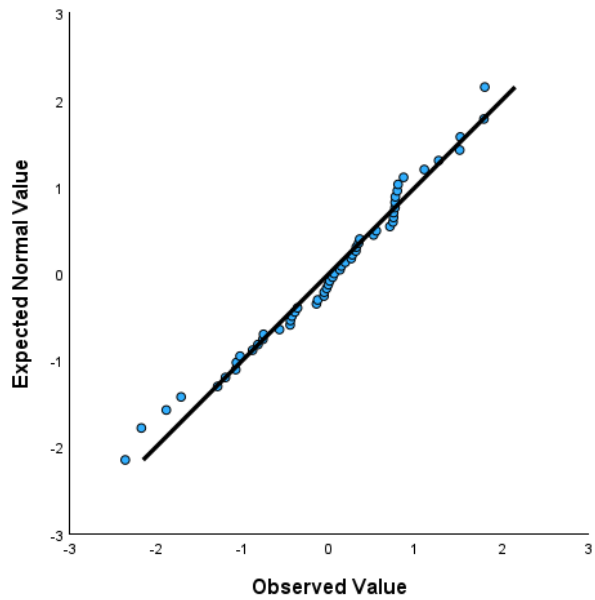


Figure C5

Histogram Displaying Right-Skewed Distribution of Challenge versus Threat Appraisal

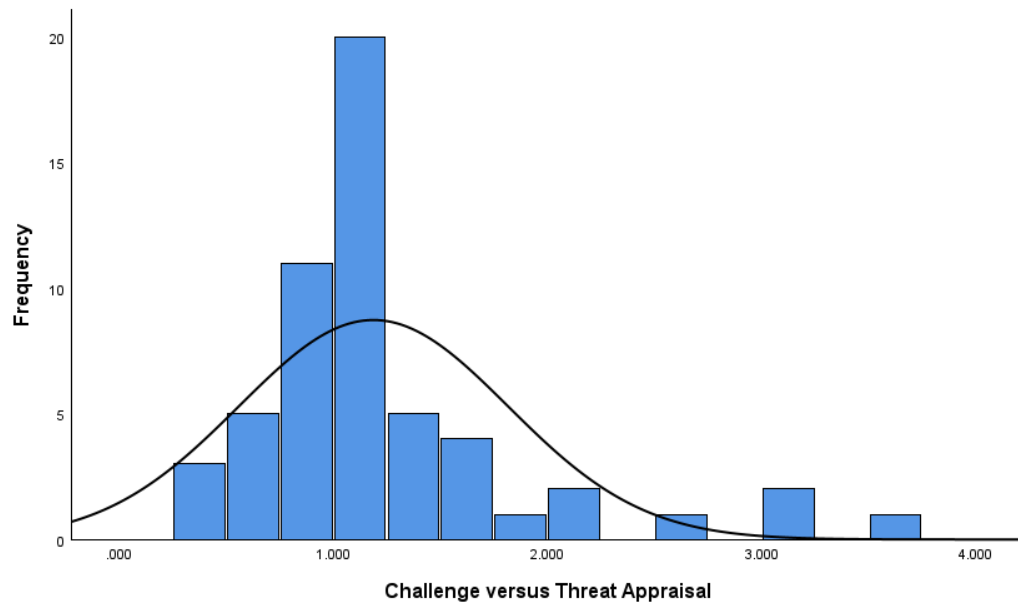


Figure C6

Q-Q Plot for Anticipatory Stress

