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Regulating emotion during imaginal exposure to social anxiety: Impact of the specificity of information processing[☆]

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ABSTRACT

The present study investigates the emotional impact of a specific vs. generic mode of information processing during imaginal exposure. Forty-nine socially anxious students mentally relived a personally experienced stressful social situation. Half of the participants were instructed to activate generic elements of the target event (i.e., elements repetitively experienced in similar social situations); the other half had to recall the specific features of the target event. Results showed that participants who focused on specific elements reported less distress than those who focused on generic features. Clinical implications are discussed.

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1. Introduction

Individuals with emotional disorders frequently think about emotional events they experience in a repetitive manner. For example, those with a history of trauma experience intrusive thoughts related to the upsetting events accompanied with intense fear (e.g., Brewin, Dalgleish, & Joseph, 1996), depressive individuals ruminate frequently about the causes and consequences of their mood or life events (e.g., Watkins & Teasdale, 2004), and socially anxious individuals engage in retrospective rumination following a social interaction and focus particularly on the negative aspects of how they appeared to other people in the situation (e.g., Clark & Wells, 1995).

According to Watkins (2008), repetitive thinking can have constructive or unconstructive consequences on emotional outcome depending on several factors including the valence of thought content

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(positive vs. negative), the situational context in which thinking occurs, and the construal level of thinking (for a discussion of this point, see Watkins, 2008). This paper focuses on one of these three factors: the construal level of thinking.

Two levels of construal have been distinguished in the literature: *higher* construals vs. *lower* construals (e.g., Freitas, Gollwitzer, & Trope, 2004; Markman & McMullen, 2003; Trope & Liberman, 2003; Watkins, 2008): high-level construals are abstract, general, and decontextualized mental representations that are relatively invariant across different situations, while low-level construals are more concrete, specific, and contain contextualized details of specific events or situations. It has been proposed that higher construals are adaptive for unproblematic, familiar, or positive situations, but that lower construals are used for difficult or novel situations (Watkins, 2008) and would lead to more specific preparation for close future situations (Trope & Liberman, 2003). Consequently, facilitating a low level of processing emotional information in individuals with emotional disorders, who frequently encounter difficult situations in their life, should be therapeutically useful.

Up to date, researchers who experimentally manipulated the construal level of thinking in people with emotional disorders specifically focused on the *concrete* vs. *abstract* level of thinking. Several authors (e.g., Teasdale, 1999; Watkins, 2004) demonstrated that an abstract and analytical self-focus, which consists in thinking about the causes, meanings, and consequences of an emotional situation (i.e., the “why rumination”), is maladaptive and impairs social problem solving (e.g., Watkins & Moulds, 2005). In contrast, a concrete and experiential self-focus (i.e., the “how rumination”), which consists in focusing on one’s experience, reduces negative global self-judgements (Rimes & Watkins, 2005), improves social problem solving (Watkins & Moulds, 2005), increases specificity of autobiographical memory recall in depressive population (Watkins & Teasdale, 2004), and reduces emotional vulnerability to subsequent failure (Moberly & Watkins, 2006). Similarly, Borkovec et al. (e.g., Borkovec, Ray, & Stöber, 1998; Stöber & Borkovec, 2002) propose that promoting a more concrete and visual form of imagery of worry in individuals with general anxiety disorder should facilitate problem solving and affect regulation.

Recently, another facet of the construal level of processing emotional information has been considered in the literature and is the focus of the present study: the *specificity* vs. *generality* of emotional information processing (for a review, see Philippot, Neumann, & Vrielynck, 2007). A specific mode of processing information consists in describing with as much specific details as possible a situation in its particularity, and thus corresponds to the definition of a low construal level of thinking. In contrast, a general/generic mode of processing information consists in focusing on features that one repetitively experiences in similar situations, and thus corresponds to a high construal level of thinking. Research has documented that elaborating specific and detailed aspects of episodic emotional information actually reduces distress (e.g., Philippot, Baeyens, & Douilliez, 2006; Philippot, Schaefer, & Herbette, 2003; Raes, Hermans, Williams, & Eelen, 2006). More specifically, several studies (Neumann & Philippot, 2007) have shown that focusing on the unique aspects of a past emotional experience (i.e., those that only occurred during that specific episode), such as its specific contextual elements, reduces emotional intensity. In contrast, recalling generic information of an emotional event (i.e., features that the person has repetitively experienced in other situations of the same kind) increases emotional intensity.

However, no study has investigated whether the regulatory effect of focusing on the specific features of an emotional event generalizes to populations with emotional disorders, such as anxious individuals. A characteristic of socially anxious people is that they repetitively think about how they appear to others during social interactions in a ruminative way (Clark & Wells, 1995). Rapee and Heimberg (1997) suggest that this *post-event rumination* is characterized by information elicited from external and internal cues during the social event itself, together with the recall of other past negative events. That definition of post-event rumination corresponds to a high construal level of thinking. According to Clark and Wells (1995), post-event rumination leads to high levels of anxiety and further maintains the disorder. Consequently, it is clinically relevant to assess whether instructing socially anxious individuals to think about a past negative event at a lower level of construal, that is, in a more concrete and specific mode, helps them to regulate emotional distress.

The main objective of the present study is to investigate this hypothesis in a quasi-clinical context of imaginal exposure with socially anxious individuals. Two procedures of imaginal exposure to

a stressful social past event are compared. They vary as a function of the level of information processing: (1) focusing on all the specific elements of the target event in detail; this exposure procedure will be called the “unique episodic procedure” throughout this paper; (2) focusing on generic information of the target event (i.e., features that the person has already experienced in other situations of the same kind) that will be called the “generic procedure”. The main hypothesis is that the unique episodic procedure will result in less distress than the generic procedure during imaginal exposure. In addition, it is postulated that the unique episodic procedure will reduce the need to search for meaning about the event, through a more specific and concrete mode of processing. Vividness during exposure and appraisal of the social event as a personal failure is also evaluated as variables that will be impacted by the effects of different levels of information processing.

2. Method

2.1. Participants and design

Forty-nine university students (36 women and 13 men), aged from 17 to 46 years ($M = 19.8$, $SD = 4.2$), were recruited. All were native French speakers. Participants were selected on the basis of their score to the Social Avoidance and Distress Scale (SADS; Watson & Friend, 1969) that was distributed in large classrooms. Individuals with a score above 12 were invited to take part in the experiment for 10 euros. This cut-off point is based on the results of a large validation study (Douilliez, Baeyens, & Philippot, 2008), comprising 337 participants including 90 individuals formally diagnosed with social phobia according to DSM-IV. The cut-off point of 12 corresponds to Mean plus one Standard Deviation of the control sample.

Participants were randomly assigned to one of the two experimental conditions (unique/episodic or generic). The mean age, social anxiety, trait anxiety, and depressive levels of the participants as a function of condition (unique/episodic vs. generic) are reported in Table 1. There were no significant differences among the two groups in terms of gender, $\chi^2(49) = .06$, *ns*, age, $t(47) = .48$, *ns*, depressive level, $t(47) = .53$, *ns*, trait anxiety, $t(47) = -.57$, *ns*, and social anxiety, $t(47) = -.33$, *ns*.

2.2. Material

The State Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983) and the Beck Depression Inventory (BDI; Beck & Steer, 1987). The STAI and the BDI were used to assess the level of anxious and depressive symptoms, respectively.

The SUDS (Subjective Units of Distress Scales). The SUDS were used to assess the intensity of distress during imaginal exposure, on a 0–100 scale: 0 indicating calm and free from distress and 100 indicating the most distressed participants can ever recall being.

Vividness rating. Participants were instructed to assess the extent to which their experience was vivid during imaginal exposure, on a 0–100 scale: 0 indicating not vivid at all and 100 indicating extremely vivid, almost like it was happening again.

Table 1
Descriptive statistics as a function of condition.

	Unique/episodic ^a			Generic ^b		
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Male	7			6		
Female	18			18		
Age		20.12	5.61		19.54	1.93
Social anxiety		16.60	4.20		17.00	4.26
Trait anxiety		52.92	8.98		54.54	10.68
Depressive level		16.04	10.41		14.58	8.51

^a $n = 25$.

^b $n = 24$.

Meaning search. Five items, rated in terms of intensity on a 7-point scale anchored from 0 (not at all) to 6 (completely) addressed the extent to which participants searched for meaning about the target event (to understand why, to clarify what happened, to find words to express, to understand, and to find meaning of the event). This questionnaire was successfully used in several studies on the effect of social sharing (Finkenauer & Rimé, 1998; Zech & Rimé, 2005). The internal consistency in these studies was acceptable (Cronbach's α was .69 and .79, respectively).

Feeling of failure. One item assessed the extent to which participants considered the target event as a failure in their life, on a 7-point scale from 0 (not at all) to 6 (completely).

2.3. Procedure

The experiment was conducted in two sessions. Before the first session, participants were asked to fill in the BDI and the STAI-trait at home. They were also instructed to choose one autobiographical memory of a social situation corresponding to several criteria: (a) they experience the event relatively recently; (b) they considered this event as a failure in their life; (c) they felt intense distress during this event; (d) they didn't feel to have recovered from it. Participants were asked to qualify this target event in several questions (described in the *Material* section) pertaining to the search for meaning and the feeling of failure.

Both sessions were similar. The first session was used as a rehearsal session in order to accustom participants with the procedure and setting, and to train them in performing the imaginal exposure task; the second was the actual experimental session. The event chosen was identical for both sessions. Upon their arrival to the laboratory, participants were seated in a comfortable armchair. Before exposure to the target event, a five-minute relaxation baseline was conducted: participants were asked to close their eyes, to breath slowly and to relax their body muscles. The exposure started immediately afterwards and lasted 15 min. Participants were asked to imagine and re-experience as vividly as possible the target event while being guided by questions asked by the experimenter. Just before the beginning of exposure and subsequently every five minutes, the experimenter asked for the participants to report their level of distress and imagery vividness. The exposure procedures were manipulated via the type of questions asked by the experimenter during imaginal revocation.

For the unique episodic condition, participants were asked questions that focused on information that was specific to the particular event. In other words, they were instructed to recall all the specific features of the target event, in details. Example questions include, "Where precisely did the event take place?", "How were objects exactly arranged around you in this place?", "Could you describe the persons present during the situation?", "What did you specifically think in that situation?", and "Which bodily sensations did you feel, which confer to that situation its particularity?"

For the generic condition, participants were asked questions to re-evoked elements of the target event that they had repetitively experienced on other similar occasions. Example questions included, "Which bodily sensations did you feel in that situation that you have already experienced in other situations of the same kind?", "Which emotions did you feel during this event that you usually feel in other situations of the same kind?", "Which context typically evokes that type of emotion?", "Which characteristics of people present in this situation usually elicit your social anxiety?"

Within a condition, the same questions were asked in an identical order for each participant. However, some additional questions were asked by the experimenter if the participant answered too rapidly or didn't understand the question.

At the end, participants were thanked and invited to fill in several questionnaires at home one week later (i.e., the search for meaning and the feeling of failure). When all questionnaires were filled in, participants were fully debriefed.

3. Results

3.1. Manipulation check

In order to assess the validity of the manipulation, all imaginal exposures were audiotaped and coded by two independent judges, one of which was blind to condition and hypotheses. They rated the

extent to which participants' responses during exposure were unique or generic, on a scale anchored from -3 (*very generic*) to $+3$ (*very unique*). Correlation between the two judges' rating was high ($r = .98$), allowing to use their mean as aggregated score in further analyses. A between-subjects ANOVA was performed on the level of unique/generic recall, and showed a significant main effect of condition, $F(1, 47) = 1303.29$, $p < .001$, $\eta^2 = .96$. Participants' responses were in average very unique ($M = 2.17$, $SD = .45$) in unique episodic condition, and very generic in generic condition ($M = -2.37$, $SD = .44$).

3.2. Impact of condition on within-exposure measures

Emotional distress

Results revealed no significant difference between baseline SUDS in unique episodic ($M = 24.56$, $SD = 20.96$) and in generic conditions ($M = 17.38$, $SD = 11.04$), $t(47) = 1.40$, *ns*. Baseline SUDS were subtracted from those reported at 5, 10, and 15 min of exposure as the effects of interest concern differences in SUDS scores due to the manipulation (for a justification of this statistical approach, see Everitt, 1996).

First, an ANOVA with condition (unique/episodic vs. generic) as between-subject factors, and time (5, 10, and 15 min of exposure) as within-subject factor was computed.¹ This analysis revealed main effects of condition, $F(1, 47) = 4.31$, $p < .05$, $\eta^2 = .08$, and of time, $F(1, 47) = 59.06$, $p < .001$, $\eta^2 = .56$. Post hoc analyses demonstrated that participants reported less distress in unique episodic condition than in generic one. In addition, they reported increasing distress over time (see Fig. 1).

Vividness of imagery

A 2×3 ANOVA with Condition (unique episodic vs. generic) as between-subject factors, and Time as within-subject factor (5, 10, and 15 min of exposure) was performed.² This analysis showed main effects of time, $F(1, 47) = 28.98$, $p < .001$, $\eta^2 = .38$, and of condition, $F(1, 47) = 6.04$, $p < .05$, $\eta^2 = .11$. Post hoc analyses demonstrated that participants reported increasing vividness over time. In addition, they reported more vivid experience in the unique episodic than in the generic condition (see Fig. 2).

3.3. Impact of condition on post-exposure measures

Search for meaning

A 2×2 ANOVA with Condition (unique episodic vs. generic) as between-subject factors, and Time as within-subject factor (at pre- and post-exposure) was performed. This analysis revealed an interaction between condition and time, $F(1, 44) = 5.08$, $p < .05$, $\eta^2 = .10$. As reported in Table 2, participants reported a significant decrease in the search for meaning between pre- and post-experiment in unique episodic condition, but no significant difference was observed in the generic condition.

Feeling of failure

The same general ANOVA as described above was performed on the feeling of failure and revealed a main effect of time, $F(1, 45) = 6.38$, $p < .05$, $\eta^2 = .12$, qualified by an interaction between time and condition, $F(1, 45) = 7.53$, $p < .01$, $\eta^2 = .14$. As reported in Table 2, participants reported a decrease in the feeling of failure after the experiment in generic condition. In contrast, there was no significant difference in unique episodic condition.

¹ The same analysis was performed on SUDS levels during the first practise run, but showed no significant effect.

² The same analysis was performed on vividness levels during the first practise run, and also revealed a main effect of condition, $F(1, 47) = 6.06$, $p < .05$, participants of the unique episodic procedure reporting higher vividness than those of the generic procedure.

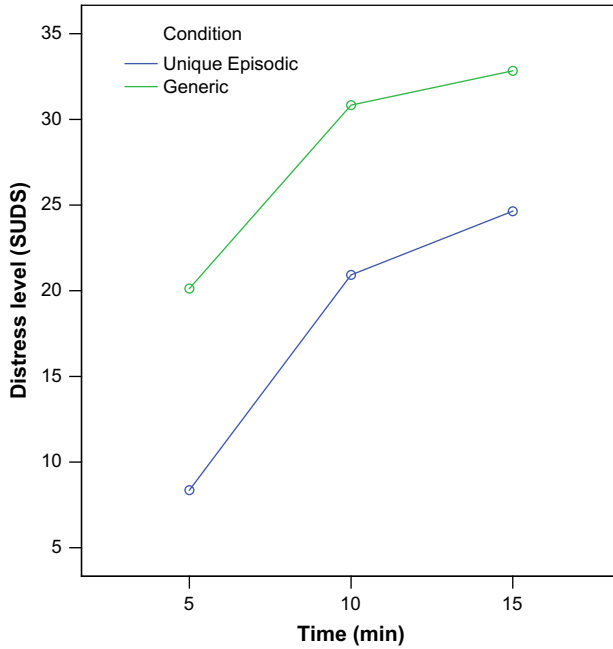


Fig. 1. Evolution of distress level (SUDS) in the course of time (min) as a function of condition.

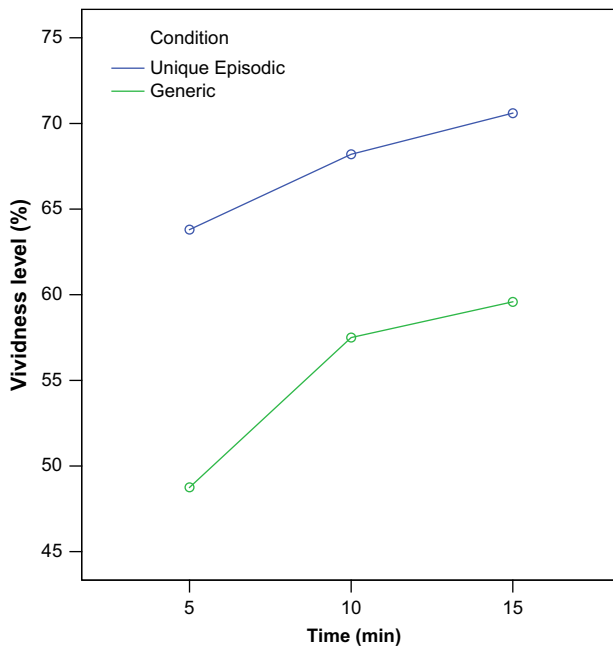


Fig. 2. Evolution of vividness level (%) in the course of time (min) as a function of condition.

Table 2

Mean (SD) measures as a function of condition and time (at pre- and post-experiment).

	Unique/episodic ^a		Generic ^b	
	Pre	Post	Pre	Post
Meaning search	14.20 (8.28)	11.92 (7.55)*	11.45 (9.38)	12.66 (7.80)
Feeling of failure	6.56 (2.68)	6.60 (2.41)	6.87 (2.64)	5.16 (2.69)*

Note: the symbol “*” indicates a significant difference between pre- and post-experiment in that group according to Tukey comparison tests.

* $p < .05$.

^a $n = 25$.

^b $n = 24$.

4. Discussion

The present study investigated whether during imaginal exposure focusing on features that define the specificity of a stressful personal memory (i.e., the unique episodic procedure) leads to less distress than focusing on generic elements of such a memory (i.e., the generic procedure). While the unique episodic procedure corresponds to a low construal level of thinking, the generic procedure fits with the conceptualization of a high construal level of thinking, according to the definition of Watkins (2008).

Results show that participants who focused on unique elements reported less distress than those who focused on generic features during exposure to the emotional memory. This result replicates recent studies in non-anxious populations (Neumann & Philippot, 2007) and is consistent with other empirical studies that demonstrated a modulation of emotion during the specification of emotional experiences (e.g., Philippot et al., 2003, 2006; Raes et al., 2006). However, there was no significant difference in distress between conditions during the first (rehearsal) exposure session. This result is consistent with clinical studies with traumatized individuals. For example, Ehlers, Hackmann, and Michael (2004) showed that emotional benefits occurred only after repeated sessions of exposure to traumatic memories. According to Craske et al. (2008), learning an emotion regulation strategy during a successful exposure session manifests in actual performance only during a subsequent exposure.

The results also demonstrate that focusing on the unique features of a stressful memory reduced the need to search for meaning about the event. In contrast, the generic condition yielded no change regarding this variable. Research on rumination described in the introduction (e.g., Teasdale, 1999; Watkins, 2004) offers a plausible interpretation for this reduction of the search for meaning in the unique episodic condition. The items indexing search for meaning in this study clearly correspond to the “why rumination” (e.g., *to understand why, to find the meaning of the event*) that was shown to be maladaptive (Watkins, 2004). The finding that focusing on the uniqueness of an emotional past situation reduces the need to search for its meaning is thus consistent with recent studies that demonstrated a reduction in maladaptive “why rumination” through a more specific and concrete style of self-focus (e.g., Moberly & Watkins, 2006; Watkins, Moulds, & Moberly, 2008). Importantly, both modes of thinking (unique episodic and concrete) represent a low level of construal thinking. Those results are thus in line with the suggestion of Watkins (2008) that a low level of processing difficult emotional situations leads to a down-regulation of emotion.

Another plausible interpretation of the reduced need to search for meaning about the event after its specification is that participants might view the target event in the past, with no particular implications for the present. Indeed, the unique episodic procedure facilitated the temporal contextualisation of the event. In contrast, the generic procedure prompted the activation of features repetitively experienced in life. This procedure implies the possible re-occurrence of such elements (e.g., intrusive thoughts) in the future, which could lead to more rumination about the event.

One might speculate that the lower level of distress in the unique episodic condition is due to a weaker involvement during exposure, or to cognitive avoidance. Results showed that more vivid experience was reported after evoking the unique elements than after focusing on generic ones, thereby suggesting that the effect of the unique/episodic procedure on distress intensity is not likely due to a lack of cognitive involvement during exposure. By design, the unique episodic procedure

activates all the elements that were effectively present in the situation: the core emotional elements (e.g., bodily sensations, affects) as well as less emotional elements (e.g., spatio-contextual features). It thus offers a more complete and precise view of the situation than the generic condition. This might account for the greater sense of vividness experienced in the unique episodic condition.

One might also speculate that, after considering a painful memory in its specificity, people could reappraise it as less a failure. However, no changes regarding the feeling of failure associated with the original experience were observed after the unique episodic procedure, which suggests that its effect on distress intensity is not mediated by this form of cognitive reappraisal. Nevertheless, the hypothesis that other types of reappraisal could have taken place in the unique episodic procedure is not excluded and should be addressed in future studies.

In contrast, the generic procedure diminished the evaluation of the event as a failure. It should be noted that the feeling of failure is the only variable of this study requiring the comparison of the revoked experience with other personal events. Participants of the generic condition were instructed to focus on the central tendencies of their difficult social experiences. This mode of processing might have fostered a regression towards the mean when having to evaluate their feeling of failure, resulting in a “central tendency” answer for this variable. In addition, on the long term, it is possibly useful for individuals in the generic condition to reduce their feeling of failure related to the target event. Indeed, it is more threatening to see oneself as having repetitively failed in social situations than as having failed on a specific occasion.

The present findings suggest interesting, albeit speculative, clinical perspectives. Training clients to specify personal past experiences in their distinctiveness should favour a down-regulation of their distress during exposure. This approach is consistent with mindfulness-based treatments that invite clients to fully explore their on-going experience, keeping an opened-mind to all its facets (Hayes, 2002; Segal, Williams, & Teasdale, 2002). In addition, the literature evidences that socially anxious individuals show a cognitive bias towards internal information, such as bodily sensation and affects (e.g., Clark & Wells, 2005; Rapee & Heimberg, 1997). This cognitive bias is called “self-focused attention.” Specifying all facets of emotional situations, not only internal elements, but also external should decrease self-focused attention in socially anxious individuals.

In sum, this study is the first to demonstrate the beneficial immediate effect of focusing on the unique features of a painful memory during imaginal exposure in an anxious population. However, future studies should measure the frequency of intrusions related to the emotional event and the level of distress associated, in order to test whether the procedure proposed in this paper results in more permanent beneficial change. In addition, future research should test whether this procedure shows positive outcome on long-run treatment with anxious clients.

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