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Creative responses to imminent threats: The role of threat direction and perceived effectiveness☆

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ABSTRACT

Previous work on the threat-creativity link has mainly used paradigms in which participants had ample time to generate ideas. However, people under imminent threats have limited time to think of, and select, the single best response for actual implementation. In three studies, we examined the effect of imminent threats on the generation and selection of threat responses. Participants facing self-directed or other-directed threats were asked to select one out of two alternative responses that differed on either originality or usefulness to deal with the displayed situation (Studies 1 and 2) or think of and decide on, a fitting response themselves (Study 3). They did so under high or low time pressure (Studies 1–3) and reported their perceived effectiveness of each alternative response in managing the threats (Study 2). Participants selected and generated useful rather than original responses. Whereas time pressure did not moderate this effect, threat direction impacted the selection and generation of imminent threat responses: Self-directed rather than other-directed threats increased the selection and generation of original and creative responses because original responses were seen as more effective.

Everyday life requires people to effectively deal with various situations, sometimes even life-threatening situations, such as a crime, an accident, or a fire. While these threatening situations can have serious personal consequences, they are of low probability and thus confront the individual with a novel problem (Gohm, Baumann, & Sniezek, 2001; Marks & Nesse, 1994). To successfully diminish or avert the negative consequences of such novel problems, people often respond with useful yet uncommon solutions (Runco & Jaeger, 2012). For example, in warfare strategists use deceptive strategies that mislead their opponents, to combat life-threatening infections medical scientists invent new treatments, and to protect against terrorist attacks security agents think of innovative screening methods.

These examples notwithstanding, the effects of threat on creativity remain poorly understood. Whereas threats, and concomitant fear and anxiety, are typically associated with reduced creativity and conforming behaviors (Byron & Khazanchi, 2011; Griskevicius, Goldstein, Mortensen, Cialdini, & Kenrick, 2006; Mehta & Zhu, 2009), other work suggests that people are highly motivated to avoid, and cope with, threats and selectively focus their attention on relevant information that is available in the environment and stored in memory (Elliot, 2008). These motivational and cognitive processes, in turn, lead to a greater number of (creative) ideas that, crucially, pertain especially to threat-relevant domains (De Dreu & Nijstad, 2008). For instance, when individuals anticipated a competitive interaction with a hostile opponent, they generated more original conflict tactics than when they anticipated a cooperative interaction (De Dreu & Nijstad, 2008; also see Van Leeuwen & Baas, in press), and people came up with quite innovative ideas to avert the potential loss of monetary resources (Roskes, De Dreu, & Nijstad, 2012).

Without exception, the aforementioned studies assessed creativity using open-ended assessments: Research participants were given ample time to come up with as many ideas as possible, for example, to settle negotiations (De Dreu & Nijstad, 2008). Although valid and useful, ecological validity is putatively low. People under imminent threats have limited time to *think of* and *select* a single fitting response for actual implementation. In three studies, we therefore examined the effect of imminent threats on the generation and selection of threat responses. Our first goal here was to uncover when and why threatened people *select* creative responses for actual implementation. This is a non-trivial issue for three reasons. First, whereas creativity is usually

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operationalized as ideas that are both original and useful (Runco & Jaeger, 2012), past work identified an inverse relation between originality and usefulness (Runco & Charles, 1993). Thus, although people benefit most from useful *and* original responses, they may have difficulty identifying and selecting truly creative responses. Therefore, when it comes to responding to threat, people may prefer useful but unoriginal ideas (cf. Mueller, Melwani, & Goncalo, 2012). Second, whereas idea generation involves the production of alternative responses, idea selection is a convergent phase that involves a quality assessment and actual decision-making (Cropley, 2006; Kohn, Paulus, & Choi, 2011; Runco, 2008). Indeed, generating creative ideas not necessarily associates with selecting good ideas; selection performance rarely exceeds chance level (Faure, 2004; Rietzschel, Nijstad, & Stroebe, 2014). Finally, situational factors that influence idea generation may have a different impact on idea selection (Rietzschel et al., 2014; Ritter, van Baaren, & Dijksterhuis, 2012). With these points in mind, the first goal of the present study is to examine when and why imminent threats influence the selection of creative threat responding. In real life, however, people under imminent threat have to think of, and decide on, a single fitting response *themselves*. Therefore, our second goal here was to uncover when imminent threats associate with self-generated creative threat-responding.

1. Motivated creativity under imminent threats

When coping with problematic situations, *useful* responses are obviously required (Amabile, 1996; Humphries & Driver, 1967, 1970; Runco & Jaeger, 2012). However, individuals may benefit most from useful responses that are also *original* (i.e. creative responses). These responses may provide new ways to solve problems and avoid and confront threatening circumstances (Sternberg & Lubart, 1991), for instance, to settle conflicts (De Dreu & Nijstad, 2008), avert the potential loss of monetary resources (Roskes et al., 2012), and escape hostile interpersonal encounters (Cheng, Baas, & De Dreu, 2016; Coccia, 2015).

In response to threatening circumstances, people may favor usefulness over originality because they hold a bias against originality under such uncertain circumstances (Mueller et al., 2012). Likewise, earlier work indicates that compared to common and practical ideas, novel ideas are usually not preferred and selected for future implementation, because people actively avoid potential risk (Mumford, Blair, Dailey, Leritz, & Osburn, 2006). Accordingly, we predict that threatened people tend to select useful rather than original responses (Hypothesis 1).

However, as argued before, people benefit most from the selection of responses that are both useful *and* original when dealing with threatening circumstances. According to the motivated focus account of creativity (De Dreu & Nijstad, 2008), threats increase people's motivation to cope with the threatening situation. This heightened motivation drives people to mobilize cognitive resources to attend to and process threat-relevant information (Elliot, 2008; Reinecke, Becker, & Rinck, 2009) and search for the most effective way to solve the problem at hand. Accordingly, threats may improve people's creativity when their creativity helps them to deal with the threat at hand (De Dreu & Nijstad, 2008). For example, people may come up with creative ways to deceive opponents during conflictive negotiations (De Dreu & Nijstad, 2008). Because novel responses provide additional adaptive value in effective threat-regulation (cf. Humphries & Driver, 1967, 1970), people may appraise responses that are both original and useful as being particularly effective to deal with threatening circumstances and will thus be more likely to select creative responses for ultimate implementation.

If, as we propose, the degree of motivation steers the selection of creative threat responses, we would expect that creative threat-responding will be influenced by two threat features: whether the threat is directed towards the observer and the available time to think and process the available options. The direction of threat signals whether the observer is the target of the threat and modulates their evaluation of the situation. Previous work shows that compared to threats (e.g., snakes, guns, angry faces) directed away from the observer, those directed towards people themselves are perceived as more imminent and self-relevant (Flykt, Esteves, & Öhman, 2007; Kveraga et al., 2015), and thus elicit a stronger motivation to deal with the threat at hand. Accordingly, we predict that compared to people facing other-directed threats, those facing self-directed threats may appraise responses that are both original and useful as being particularly effective to deal with threatening circumstances (Hypothesis 2) and will thus be more likely to select and think of creative responses for ultimate implementation (Hypothesis 3).

Another key feature of the threatening situation is the available time to select a response. With valuable outcomes at stake (e.g., one's life, possessions), the need to respond immediately may result in considerably experienced time pressure. Time pressure taxes cognitive resources and interferes with extensive processing that would otherwise facilitate the execution of the task (Andrews & Smith, 1996; Baumeister & Heatherton, 1996; De Dreu, 2003; Roskes, Elliot, Nijstad, & De Dreu, 2013). Thus, when it comes to the identification of useful yet original threat-responses, time pressure may interfere with the assessment of the quality of threat-responses and actual decision-making. Meanwhile, immediate responses are often habitual and highly accessible; people need some time to arrive at more original responses (Beaty & Silvia, 2012; Finke, Ward, & Smith, 1992; Lucas & Nordgren, 2015). Given that time pressure interferes with effortful thinking and achieving creativity often takes time, we expect a detrimental effect of time pressure on creative response selection and generation (Hypothesis 4).

Finally, dealing with time pressure consumes cognitive resources that would otherwise be available for the execution of the task (Karau & Kelly, 1992) and performance under the avoidance motivation that is typically triggered in threatening circumstances relies heavily on the recruitment and availability of cognitive resources and control (Koch, Holland, & van Knippenberg, 2008; Roskes et al., 2012; Ståhl, Van Laar, & Ellemers, 2012). Indeed, when people experience relatively stronger avoidance motivation, people's creative performance is enhanced only when time pressure is low rather than high (Nijstad, De Dreu, Rietzschel, & Baas, 2010; Roskes et al., 2013). Accordingly, we predicted an interaction effect between time pressure and threat direction on creative response selection and generation, such that when threats are self-directed (i.e. avoidance motivation is particularly strong), participants with more response time (i.e. low time pressure) will generate and, perhaps, select, more creative responses than those with little response time (i.e. high time pressure), but with weaker effects of time pressure when threats are other-directed (Hypothesis 5).

2. Present study

Three studies were conducted to test whether and why threat direction and time pressure influence the selection and generation of creative responses under imminent threat. To test our predictions regarding response selection, we developed a binary choice task in which participants faced self-directed or other-directed threats and were asked to choose one out of two alternative threat responses that differed on either originality (low vs. high) or usefulness (low vs. high) to deal with the presented threat; participants made their choices under either high or low time pressure (Studies 1 and 2). To test our predictions, we measured the preference for creative responses (responses high on both originality and usefulness). To tease apart the trade-off between usefulness and originality during selection, we additionally measured the preference for high-original and high-useful responses separately. In Study 2, participants additionally indicated their perceived originality, feasibility, and effectiveness of the alternative threat responses after the binary choice task. In real life, however, people under imminent threat have to think of, and decide on, a single fitting response *themselves*. Therefore, our second goal here was to uncover when imminent threats associate with self-generated creative threat-responding. Therefore, in