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The Creative State of Mind

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Chapter 5. Afterparty

Research on creativity erupted following the famous presidential address to the American Psychological Association conceived by Joy Paul Guilford (1950). Specifically, what lubricated this scientific fertility was Guilford's proposal to investigate creativity via its behavioral outcomes, namely, fluent, flexible, and original thinking. Since then, what we now call *creative performance* has been measured in countless studies across different subfields of psychology and organizational behavior (e.g., Anderson et al., 2014; Hardy et al., 2017; Jung & Vartanian, 2018; D. Liu et al., 2016; Oleynick et al., 2017). However, in the same presidential address, Guilford mentioned something that did not become nearly as popular as the creative performance approach: that creativity may fluctuate, and that even the legendary “creative people” experience more and less creative moments (p. 445).

This dissertation took this statement forward and explored how individuals experience being in the creative moment, and which activities and “states of mind” fit (or do not fit) with being creative. In particular, this dissertation further examined the creative state from two perspectives. First, Chapter 2 and 3 examined cognitive and emotional consequences of doing creativity. Second, Chapter 4 examined which psychological states may be conducive to creativity in the here and now. We will now present an overview of results.

OVERVIEW OF THE RESULTS

Chapter 2: Engaging in Creativity Broadens Attentional Scope

In Chapter 2, we explored how people experience the creative state in terms of how broadly they look at things, and if they notice seemingly irrelevant stimuli while generating ideas. While broad attention was found to enhance creativity in previous studies (e.g., Friedman et al., 2003; Lebuda et al., 2016; Liu, 2016; Memmert, 2007), the intriguing idea that *doing* creativity might broaden attention was (to the best of our knowledge) not tested before. In our research, participants were asked to generate as many varied creative ideas as

possible (divergent thinking task), to look for a single correct answer to a creative puzzle (Remote Associates Test; Study 2; Mednick, 1962), or to solve a logical puzzle (analytic thinking task). We measured their breadth of attention during a break from the task (Study 1) or through a recall test of shapes that appeared on the periphery of the screen while they were engaging in creative (or other) behavior. As expected, both studies showed that creative activity manifests in a broader state of attention than analytical activity, and that looking for a single correct answer to a creative puzzle falls somewhere in between. Importantly, in Study 2, people whose attention was broader also generated more creative ideas and found more solutions to creative puzzles.

What does this mean for our understanding of the creative state? For one, being in the creative state broadens the perspective quite literally: People notice more around them and sweep surroundings with their gaze just like (some) painters outline a picture with broad, sweeping strokes. Interestingly, those with a broader outlook were also more creative. This is in line with other research which found that considering a variety of options (i.e., deliberative mindset) triggered more (visual) openness than planning how to reach one's goals (i.e., implemental mindset; Büttner et al., 2014; Fujita et al., 2007). Similarly, creative thinking has been also found to enhance perspective taking (Yang & Hung, 2020) and improve romantic relationships over time through a buffering effect on romantic passion (Carswell et al., 2019). This suggests that our brains come with a stupendous feature: automatic enhancement of what may come in handy and help us get what we want.

Chapter 3: Person-task fit: Emotional consequences of performing divergent versus convergent thinking tasks depend on need for cognitive closure

Sometimes, however, the endless sea of possibilities inherent in creative activities might extinguish the fire. One example is “blank page anxiety” – an anecdotal writers’ phobia to spoil the emptiness with their brains’ dump. In Chapter 3, we examined whether a

personality trait – Need for Closure (Webster & Kruglanski, 1994) – may produce a similar kind of friction when engaging in creative activities. People high in Need for Closure prefer predictable, structured environments, and experience (physiological) discomfort when things are uncertain (Roets et al., 2015; Roets & Van Hiel, 2008). Because creative activities are inherently open-ended, unpredictable, and unstructured, we expected that those preferring closure might feel less competent and more miserable during these activities. To test this, we asked participants from five different countries (see Bujacz et al., 2014 for a full description of the project) to engage in an open-ended creative activity (divergent thinking task) or in finding a (set of) correct answer(s) (convergent thinking task). Participants high in need for closure reported feeling less competent during creative activities (divergent thinking) than during other activities (convergent thinking), which, in turn, induced more negative emotions. Participants with average or low levels of need for closure experienced all tasks similarly.

These results add some subtle detail to the general picture of the creative state. Specifically, people vary in how they experience creative activities: Those high in need for closure feel less confident when solving open-ended, creative tasks. This may further impact their emotions and worsen mood overall. Those with medium or low levels of need for closure do not seem to respond that way. Thus, the experience of the creative state depends on individual openness and tolerance of uncertainty, and the blank page – or perhaps the uncontrollable discharge of countless possibilities – for some people might indeed be overwhelming.

Chapter 4: The Creative State of Mind: A Proposed Theoretical Integration and Meta-Analysis

Although engaging in creativity can literally broaden our perspective (Chapter 2), the openness of creative activities can also feel unpleasant or intimidating (Chapter 3). Thus, is there something that could prepare the mind for doing creativity? This exact question has

been asked by multiple researchers, who themselves were remarkably creative in coming up with multiple, diverse, and original ways of lubricating the flow of creative ideas. For example, they asked participants to make sarcastic remarks (Huang et al., 2015), to imagine that they were recruited to an army (F. C. Chiu & Tu, 2014), or they flashed alcohol- or marijuana-related words below participants' threshold of conscious awareness (Hicks et al., 2011). Diverse and creative as these manipulations were, it remains a question whether together they form a coherent and useful body of research. We aimed to answer this question in Chapter 4. We focused on the methodology called priming. In these studies, participants first engage in a priming task that activates a certain psychological state, concept, or a mental procedure (or a control task). Next, they complete a task which measures their creativity, and the assumption is that whatever gets activated in the priming task will carry over and enhance – or inhibit – the generation of creative ideas. In the first part of the chapter, we provided an overarching theoretical framework for explaining the diverse effects of priming on creativity. In part two, we used the proposed framework as an organizing principle to test it in a quantitative way.

Based on the vast priming and creativity literature as well as basic psychological theories, we proposed four priming mechanisms: unconstrained thought (Chrysikou et al., 2014; Herz et al., 2020; S. A. Mednick, 1962; Zhang et al., 2020), abstraction (Förster & Dannenberg, 2010; Trope & Liberman, 2010), uniqueness (Dollinger, 2003; Leonardelli et al., 2010; Markus & Kitayama, 1991; Nemeth & Wachtler, 1983), and open-mindedness (E. T. Higgins, 1996a; McCrae, 1987). The first two mechanisms can be best understood as specific ways of perceiving the world: a broad awareness of raw colors, smells, and sounds in the state of unconstrained thought, and perceiving things from a distance and through their core features in the state of abstraction. Uniqueness and openness, on the other hand, are related to motivational tendencies: the desire to express unique qualities regardless of the

societal norms conventions (uniqueness), and a readiness to grasp opportunities and reach out for novelty (openness). The reviewed theoretical and empirical evidence suggests that these states can indeed be evoked by priming methods and that they can improve creative outcomes, and thus, might be helpful in explaining the diversity of priming effects.

Then, we confronted our framework with the research conducted so far. We searched for studies that used priming methodology and tested its effects on creativity, extracted data from those studies, computed the average priming effect, and tested whether effects depend on certain factors, such as type of priming task or creativity indicator. At first, it seemed that only uniqueness and open-mindedness aroused creativity. But when we took a closer look at unconstrained thought and abstraction, we realized that some of the studies did not fit the general picture. For one, it turned out that actively releasing thought improves creativity but that actively constraining thought helps creativity too. Second, we found that while most of the studies classified as abstraction sparked creativity, some of them stood out as defiling creativity. It turned out that all these cases were classified as social distance manipulations, which apparently do not enhance creativity as other abstraction manipulations do. Altogether, the qualitative review and meta-analysis provided important insights into the four priming mechanisms, as well as suggested future research topics and specific improvements in conducting priming research.

THE CREATIVE STATE AMONGST P's

In sum, our understanding of creativity in the here and now has expanded in several ways, which we will now illustrate in the context of the Four P's (Rhodes, 1961). Figure 1A and 1B both represent the Four P's framework (in the white boxes): creative press (e.g., surroundings, situation, other people) influences the process (the arrows from "press" to "process"), which finally, results in a creative product (the arrows from "process" to "product"). The course of the process depends on the creative Person (the arrow from

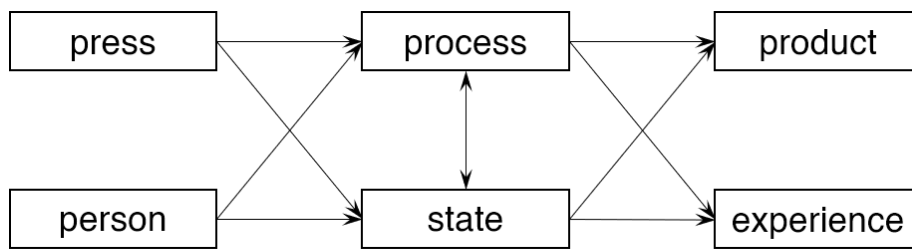
“person” to “process”): their preferences and personality traits. According to Figure 1A, the creative state of mind could be seen as a mediating or intervening variable, together with the creative process. Thus, press and person variables influence two mediators (state and process) and these, in turn influence outcomes. In addition, (engaging in) creative processes may influence the creative state, and vice versa. Furthermore, in this approach, the outcome is not only the product but also a subjective experience (i.e., attentional breadth, feelings of competence, and emotions).

However, such framing represents the creative state as (1) relatively static (while it is highly dynamic), (2) having a clear beginning and an end (while it exists continuously in the background), and (3) symbolizing the same type of variable as the press and the product (which both exist outside of a person, while state is internal and inseparable from a specific person). Therefore, Figure 1B provides an alternative (still simplified) picture of the creative state among the Four P's. The creative state, although not immediately visible, is there as blurry background which evolves from bright (on the left) to dark (on the right). Brightness symbolizes how the state changes from pale and neutral in the beginning, through more saturated and defined as a result of the “press”, to fully saturated for the “product” after the joint influence of “press”, “process”, and “person”. Blurry edges reflect the nature of the creative state: a constantly changing, fleeting phenomenon that cannot be directly observed. Still, certain concepts pop out from the background, and these can be researched and observed. Specifically, we can research the intermediate states through which press influences the process (upper left corner: open-mindedness, uniqueness, abstraction, and unconstrained thought), and we may observe its manifestations (lower right corner: attentional breadth, experienced competence, and emotions). Below, we outline specific interrelations between the Four Ps and the creative state.

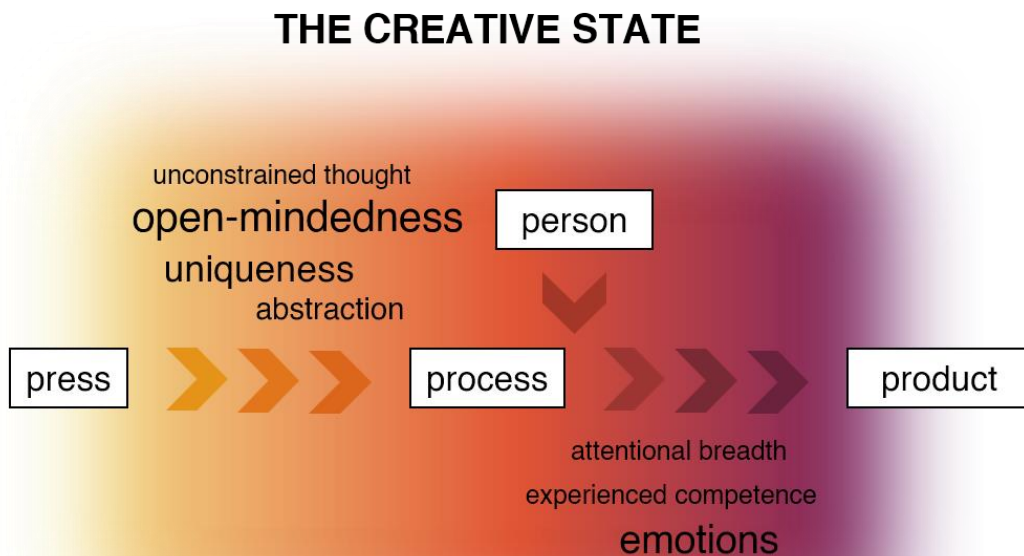
Figure 1

The creative state(s) in the context of Four P's framework: as a mediating variable with a clearly defined position (1A); as a dynamic background for the Four P's, evolving from yellow to deep magenta (or from bright to dark in grayscale; 1B)

1A



1B



First of all, we learned that doing creativity – engaging in the creative Process – triggers a certain state of mind (i.e., background becomes darker under the influence of the process). While states are psychological constructs that cannot be directly observed, we may be able to capture their cognitive and emotional manifestations (i.e., the bottom of Figure

1B). Indeed, we observed that doing creativity, in contrast to thinking in a more constrained way, broadens the state of visual attention. Not everyone, though, experienced doing creativity in the exact same way, so there was some variation even between people whose attention was relatively broad. Interestingly enough, broader attention related to more creative ideas, so improved the creative Product. This means that the cognitive manifestations of the creative state, such as broader or narrower attention, can explain why the Product is more or less creative.

Additionally, we found that engaging in the creative Process can mean something different depending on the Person (i.e., top of Figure 1B). Some people feel more uneasy with uncertainty and uncontrollability, which naturally clashes with the open-ended, undefined nature of creative activities. The experienced state is then characterized by a reduced confidence in one's capabilities, which, unsurprisingly, may lead to distress. This uncovers something that is not clearly visible in the original Four Ps framework: the creative state has different manifestations for different people, and it is not all roses. In fact, creativity in the moment can be also a pain in the moment, which could be illustrated as a duller, less lively background triggered by the combination of a person and product (Figure 1B).

Finally, we learned that states may be induced through creative Press (i.e., left part of Figure 1B): a wide range of activities or situations that people encounter before they think creatively. The psychological state perspective improves our understanding of why Press influences the Product: through the mediating mechanisms of open-mindedness and uniqueness, as well as (with some caveats) abstraction and unconstrained thought (i.e., top of the Figure 1B).

LIMITATIONS AND THE FUTURE OF CREATIVE STATE RESEARCH

Overall, this thesis proposed and found that creativity is not only a characteristic of a person, process, product, and the environment; it is also a fluctuating state of mind that varies

depending on personal preferences and preceding activities. Nevertheless, the present research has its limitations and caveats, which may turn into exciting opportunities for future research. One interesting question that we will expand on in the following pertains to the nature of the creative state. Specifically, is there a single state triggered by creative activity and facilitating creative outcomes, or are there multiple such states? We discuss this by pointing out the similarities and differences between chapters' results and methodologies.

Suggesting that there may be a single state triggered by creative activities and enhancing creative outcomes may be seen as an insult to the richness of the creativity literature (e.g., Ma, 2009). Yet, some researchers have already proposed to use a single overarching framework to explain the variety of fluctuating psychological states. For example, Herz et al. (2020) proposed that cognitive, behavioral, and emotional functioning is tied together and co-varies along the continuum of broad to narrow state of mind. A broad state of mind is proposed to be characterized by a higher proportion of bottom-up processing in the brain, and entails perception guided by raw sensory input, broad attention, associative thinking style, openness to experience, and positive mood. A narrow state of mind, in contrast, emerges when top-down influences, such as past experiences and expectations, guide functioning. It is visible, as the authors argue, in expectation-driven perception, narrow attention, ruminative and looped thinking, a tendency to stick to the familiar, and negative mood. Similar ideas have been proposed by neuroscientific research on default mode network and control network coupling (Beaty et al., 2015) and by studies on the function of cognitive control (Amer et al., 2016; Chrysikou, 2019; Chrysikou et al., 2014).

The present research is partially in line with the idea of an overarching state of mind. In fact, the work reported in Chapter 2 is cited by Herz et al. (2020) as evidence for the existence of an underlying overarching state of mind. However, while the creative state manifested as broad attention in Chapter 2, which is tied to positive emotions in Herz et al.'s

(2020) framework (cf. Fredrickson, 2013; Fredrickson & Branigan, 2005; Isen et al., 1987), in Chapter 3, the creative state revealed a contrasting pattern: uncertainty about one's competence and negative emotions among people high in need for closure. Furthermore, while broad attention stimulated creativity in Chapter 2, in Chapter 3, need for closure likely inhibited creativity, through negative emotions and related avoidance motivation (Baas et al., 2008; see also Sankaran et al., 2017). Does this imply that creative state manifests differently for different individuals and may sometimes even undermine the creative product, or that high preference for closure prevents one from experiencing the creative state, or is there yet another explanation?

One likely explanation for the difference in states that emerged in Chapter 2 (broader attention *overall*) and Chapter 3 (worsened mood *only* among people high in need for closure) might be methodological. In Chapter 2, attentional breadth was measured during the (creative or other) activity. In addition, all tasks in Chapter 2 had a fixed time limitation, after which the task was automatically ended. This kind of enforced closure was missing in Chapter 3, in which participants not only had three tasks to choose from, but they also needed to decide themselves when to end the (creative or other) activity. This in itself might have caused feelings of uncertainty and distress. Moreover, even though we asked participants' in Chapter 3 about their emotions *during* the activity, the question itself was asked *after* the activity, and thus, could have been influenced by the lack of clear closure criteria (i.e., "list as many ideas as you wish"). If that was the case, then the creative *moment* – so the state in which one generates creative ideas – might still be the same, but the cognitive-motivational pattern *after* the creative activity may vary, depending on personality and the way in which the task has been ended.

Further, Chapter 4 proposed four psychological states that mediate the influence of contextual factors on creativity. While we have acknowledged that the four mechanisms are

likely to be overlapping (see Discussion in Chapter 4), can we claim that they can be explained by a single continuum of a broad versus narrow state of mind? While open-mindedness seems highly related to openness to experience in Herz et al. (2020) model, and unconstrained thought captures bottom-up processing as well as broad attention, abstraction and uniqueness may be less related to the overarching states of mind. Although the authors argue that abstraction manipulation elicits a broad scope of thought (Herz et al., 2020), abstraction is also associated with schematic, higher-level representations (Trope & Liberman, 2010) which seems to conflict with the focus on raw, sensory input in bottom-up processing. Further, the state of uniqueness in Chapter 4 puts emphasis on expressing the exceptional qualities of an individual, which draws from individual's past memories and experience, suggesting the influence of top-down processing. However, because uniqueness describes a state-level desire to be unique (Lynn & Snyder, 2002), perhaps it entails an *idiosyncratic* sum of all experiences and past memories of an individual that shape their identity (which should be unique purely by chance, cf. Simonton, 2010). Where on the spectrum of top-down versus bottom-up such uniqueness is located remains to be discovered in future research.

CONCLUSION (AND SOME PRACTICAL RECOMMENDATIONS)

Whether you do it in the shower, indulge in it under the skies, or do it only when stroking a pussy, keep in mind that it varies from moment to moment and from context to context. When you do it, it may be that you see your environment more broadly or spot things you have not noticed before. But it might also depend on your individual preferences. If order and predictability are your best friends, it might feel like you are not good at it, which is not a pleasant experience overall. An important thing, though, is that it is highly dynamic, and that you cannot keep it at a constant level all the time. Embracing its fluctuations may release you from unrealistic expectations about the outcome. At the same time, however, certain activities

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can make it a smooth ride while others will make it feel like a particularly long slide on the sandpaper.

So what can make it an easy journey? Nothing will work for certain, but engaging in some activities can make it more likely. For example, you can take a few minutes to notice the sounds, images, and sensations surrounding you and appearing in your body. Or you could think of faraway lands or how the world could look like 50 years from now. Another option is to reach out for opportunities and expose yourself to things out of ordinary: make a plan for reaching your ideals or chat with a person from a different cultural background. Lastly, you may want to express your uniqueness and nonconformity: ask to be called out as Wetva Geina when your coffee is ready, enchant local cow farmers with a delicious vegan cake, or dress as a Gollum to a lawyer firm job interview.

But beware: it will fluctuate no matter what you do. So rather than trying to force it, perhaps simply have fun with it – and enjoy the pleasures, however deep or fluffy they may be.

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