Something old, something new: when people favor novelty over familiarity and how novelty affects creative processes
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Novelty and familiarity have been much-studied topics in several fields of psychology. For instance, personality researchers have theorized that novelty can trigger and satisfy people’s curiosity (Loewenstein, 1994), and that novelty can cause interest (Silvia, 2008). Furthermore, novelty is an essential factor in ideas about ‘sensation seeking’ (Zuckerman, 1994), and openness to novel experiences is considered to be a basic personality trait (Eysenck & Eysenck, 1985). On the other hand, from cognitive psychology, we have learned that people generally prefer familiarity to novelty, and several scholars have reasoned on the strength and cause of this preference (Kunst-Wilson & Zajonc, 1980; Seamon, Marsh, & Brody, 1984; Zajonc, 1968; 1980; 2001). These research traditions seem somewhat at odds with each other: while humans are considered a curious kind that is interested in novelty (Berlyne, 1954; Kagan, 1972; Loewenstein, 1994; Silvia, 2006; 2008), a lot of theoretical as well as empirical emphasis has been on people’s preference for the ‘warm glow’ of familiarity (Garcia-Marques & Mackie, 2000; Harmon-Jones & Allen, 2000; Phaf & Rotteveel, 2005; Titchener, 1910; Zajonc, 1968).

Inspired by Novelty Categorization Theory (Förster, Marguc, & Gillebaart, 2010), I have in this dissertation tried to reconcile these phenomena and fill this apparent gap a bit. In Chapters 2 and 3, I have empirically studied affective evaluations of novelty. In Chapter 2, I have investigated how regulatory focus affects these affective evaluations of novelty and familiarity, using a mere exposure paradigm and inductions as well as a measure of regulatory focus. In Chapter 3, I have expanded to the effects of power and color on affective evaluations of novelty. Based on former research (Förster, 2009b; Higgins, 1997; Elliot, Maier, Moller, Friedman, & Meinhardt, 2007; Kaya & Epps, 2009; Keltner, Gruenfeld, & Anderson, 2003; Maier, Elliot, & Lichtenfeld, 2008; Kaya & Epps, 2004; Mehta & Zhu, 2009), I propose that regulatory focus, power, and color all map onto similar concerns with growth and exploration versus concerns with security, leading to similar effects on evaluations of novelty and familiarity. Thus, in chapters 2 and 3 I have tried to map when people tend to find novelty appealing, and when people rather stick to what they know. Furthermore, inspired by earlier work on the effects of
novelty on basic cognitive processes such as information processing mode (Förster, Liberman, & Shapira, 2009), I have looked at other, more complex cognitive consequences of novelty, by studying how novelty affects creative processes in Chapter 4. I will first recapitulate the empirical findings, before turning to implications, merits and limitations, and suggestions for future research.

Summary of Main Findings

First, in Chapter 2, I have explored the effects of regulatory focus (Higgins, 1997) on evaluations of novel and familiar stimuli. Regulatory focus theory distinguishes between two motivational orientations; a promotion focus and a prevention focus. In a promotion focus, one focuses on ambitions and ideals, tends to frame situations in terms of wins versus non-wins, and starts explorative processing. In contrast, a prevention focus entails a focus on oughts and obligations. In such a prevention focus, one is inclined to frame situations in terms of loss versus non-loss, and is careful and vigilant. I hypothesized that in a promotion focus, novelty would be more supportive of goal pursuit, while in a prevention focus, novelty's potential risk would stay salient and familiarity would glow warmly. As such, I predicted that novel stimuli would be more positively evaluated in a promotion focus compared to a prevention focus, and that the opposite would occur for familiar stimuli. In three studies, I used a subliminal mere exposure paradigm. After an initial mere exposure phase, participants indicated how much they liked each of the stimuli in the test phase. Results of these experiments showed that a task-related induced regulatory focus preceding the exposure phase (Experiment 2.1), a task-unrelated induced regulatory focus preceding the exposure phase (Experiment 2.2) and a chronic regulatory focus (Experiment 2.3) all influenced evaluations of the stimuli during the test phase in a similar manner. Consistently, novel stimuli (0 presentations) were evaluated more positively in a promotion than a prevention focus. In contrast, familiar stimuli (40 presentations) were evaluated more negatively in a promotion than a prevention focus. Over these three experi-
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ments, self-reported mood did not mediate any of the obtained effects, nor were participants aware of the relationship between the regulatory foci and the evaluations of novel and familiar stimuli. These results demonstrate that a promotion focus causes more positive attitudes towards novelty than a prevention focus, while the opposite occurs for familiarity, which is liked better in a prevention than in a promotion focus.

In Chapter 3, I proceeded to expand my reasoning to power and color, variables that based on the literature could be assumed to be associated with the same self-regulatory concerns as regulatory focus, and would as such elicit similar effects on evaluations of novel and familiar stimuli. I proposed that high power was related to growth concerns, similar to a promotion focus, and that low power was related to security concerns, similar to a prevention focus (Förster, 2009b; Keltner, Gruenfeld, & Anderson, 2003). Using a similar mere exposure paradigm as in Chapter 2, I continued to show in Experiment 3.1 that novel stimuli were more positively evaluated after high power priming than after low power priming. I also proposed that the simple contextual perception of the color blue would serve as a growth cue, while the contextual perception of the color red would trigger concerns with security (Elliot, Maier, Moller, Friedman, & Meinhardt, 2007; Kaya & Epps, 2004; Maier, Elliot, & Lichtenfeld, 2008; Mehta & Zhu, 2009). Indeed, in Experiment 3.2, results demonstrated that novel stimuli were more positively evaluated following a blue background compared to a red background, and that the opposite occurred for familiar stimuli. Again, effects from both studies seemed not to be driven or mediated by self-reported changes in mood or emotions.

Novelty Categorization Theory (NCT; Förster, Marguc, & Gillebaart, 2010) proposes that the broadening of mental categories after encountering something novel can foster more inclusion, similarity search and can subsequently increase liking, while the narrowing of mental categories can lead to the opposite pattern: A decrease in liking of novel events through an exclusion process. Dynamical changes in category breadth following growth versus security cues may underlie effects in Experiments 2.1-3.2, since regulatory focus, power, and color can all be related to changes in mental category breadth. More specifically, a
promotion focus (Friedman & Förster, 2001), high power (Smith & Trope, 2006), and the color blue (Elliot et al., 2007, Mehta & Zhu, 2009) have all shown to broaden mental categories, while a prevention focus, low power, and the color red have been associated with narrowing of mental categories. In Experiment 3.3, I directly manipulated categorization breadth and looked at affective evaluations of novel and familiar stimuli. Using again the mere exposure paradigm, I found that novel stimuli were more positively evaluated following broad category priming than following narrow category priming. The opposite pattern emerged for familiar stimuli. These results therefore confirmed that changes in breadth of categorization can indeed cause changes in affective evaluations of novel and familiar stimuli. Seeing as regulatory focus, power, and color have shown to cause changes in categorization breadth, this might be an underlying mechanism in the effects of Experiments 2.1-3.2.

In sum, I have demonstrated in Chapters 2 and 3 that novel stimuli are evaluated more positively following cues related to growth (a promotion focus, high power, and the color blue) than following cues related to security (a prevention focus, low power, and the color red). In contrast, familiar stimuli are more negatively evaluated following growth cues than following security cues. Furthermore, I have that broadening of mental categories foster more positive evaluations of novel stimuli and more negative evaluations of familiar stimuli than narrowing mental categories does. Since growth and security cues have been associated with changes in category breadth, this seems to suggest that category breadth may underlie the effects of growth and security cues on evaluations of novel and familiar stimuli. However, there may be other underlying mechanisms as well, such as motivational processes. It may for instance be that novel stimuli are more supportive of current goals after growth priming than they are after security goals, while familiar stimuli are more supportive of goal pursuit after security priming than after growth priming.

In Chapter 4, I moved from evaluations of novelty and familiarity to cognitive consequences of novelty. More specifically, I explored the effects of novelty on creative processes. Like the studies from chapters 2 and
3, the studies in this chapter were inspired by NCT (Förster et al., 2010). NCT proposes that the meaning of novel stimuli is easier to grasp when information is processed globally, and mental categories are broadened. As a result, a when-novel-then-process-globally routine may have developed, so that global processing and broadening of mental categories is automatically initiated when coming across a novel stimulus. Förster, Liberman and Shapira (2009) conducted a series of studies that indeed demonstrated that novelty priming and framing increased global processing, broadening of mental categories, and more abstract thinking, while familiarity led to more local processing, narrowing of mental categories, and more concrete thinking. Since creative performance has been shown to benefit from global, holistic information processing and broadening of mental categories (Ashby, Isen, & Turken, 1999; Förster, Friedman, & Liberman, 2004; Murray, Sujan, Hirt, & Sujan, 1990), one might hypothesize that novelty should lead to increased creativity. I indeed predicted this effect, but only if the creative task at hand would benefit from a ‘divergent thinking style’, which is defined as the ability to produce multiple original responses to one stimulus. In this type of creativity, global processing and broadening of mental categories may be beneficial. However, I also proposed that there are creative tasks that benefit more from a convergent thinking style, which is defined as deducing or choosing one correct response from a set of alternatives. I hypothesized that performance on these tasks would actually be impaired following a novelty prime, since global processing would not benefit performance in this case.

In Experiment 4.1, I tested our first hypothesis. After priming participants with either novelty or familiarity during an essay-writing task, they performed a divergent creativity task. During this task, participants had to describe as many things that moved on wheels that they could think of. Novelty priming led to more original answers on this task than familiarity priming, in line with our predictions. In Experiment 4.2, I framed a convergent creativity task as either novel or familiar. The convergent creativity task consisted of sets of three concepts (e.g., wine-dark-cold) and participants had to come up with the one common association (e.g., cellar). I found the predicted inhibitory effect of novelty on creative
task performance. Summarizing, I demonstrated a differential effect of novelty on creative processes. A novelty prime can benefit creativity when divergent thinking is required, but in fact inhibits creativity when the task requires a convergent thinking pattern. In the following, I will embed these empirical findings in the existing literature, and will discuss theoretical and applied implications, limitations of the current experiments, and suggestions for future research.

Theoretical Implications

Novelty Categorization Theory. All experiments in this dissertation were inspired by Novelty Categorization Theory (NCT; Förster, Marguc, & Gillebaart, 2010). NCT proposes an independence of novelty and valence: a novel event can trigger curiosity (Loewenstein, 1994) and interest (Silvia, 2006; 2008), but can also be appraised negatively because of its potential risk (Bornstein, 1989). In Chapters 2 and 3, I have demonstrated that indeed, affective evaluations of novel and familiar stimuli can change across contexts and individual differences. While growth cues (a promotion focus, high power, and the color blue) lead to more positive evaluations of novel stimuli and more negative evaluations of familiar stimuli, the opposite occurs with security cues (a prevention focus, low power, and the color red). As such, studies in this dissertation provide empirical support for predictions derived from NCT and adds to a growing body of work on novelty and familiarity evaluation.

Furthermore, another one of NCT’s main objectives is to predict how novelty affects information processing. NCT assumes that in order to be understood, novel information needs to be integrated into existing knowledge structures, and that for this to occur, people need to broaden their categories and adopt a more global processing style. This global processing style encompasses a focus on the forest rather than on the trees, and use of broad, inclusive mental categories. Because global processing enhances understanding, a when-novel-then-process-globally routine may have developed. Through use of broader mental categories, it would be easier to include novel information into
existing knowledge structures, rendering the new information more similar to existing, familiar information (see also Förster, Liberman, & Kuschel, 2008 and Förster, 2009b, on the relationships between global and local processing, changes in category breadth, and similarity and dissimilarity accessibility).

In Chapter 2, I have introduced motivational underpinnings for the obtained effects of regulatory focus on affective evaluations of novel and familiar stimuli. A promotion focus entails goals of growth and exploration, while a prevention focus mainly entails goals of security (Higgins, 1997). While in a promotion focus, novel stimuli may be more supportive of a ‘growth goal’, offering more opportunities for exploration and learning, familiar stimuli do not offer these possibilities, which may render them less likeable for lack of goal-relevance. However, when in a prevention focus, one may pursue a security goal. This security goal may be more supported by familiar stimuli, and not by novel stimuli. In fact, because novel stimuli always carry a potential for risk (Bornstein, 1989), they may counteract pursuit of a security goal, rendering them less likeable, leading to more negative evaluations.

Adding to these proposed motivational processes, I uncovered a possible underlying cognitive mechanism for the preference shifts in the mere exposure paradigm following growth and security cues in Chapter 3. Regulatory focus, power, and color have similar effects on breadth of categorization. A promotion focus, high power, and the color blue all lead to broadening of mental categories, while a prevention focus, low power, and the color red lead to narrowing of mental categories (Friedman & Förster, 2001; Elliot et al., 2007, Mehta & Zhu, 2009; Smith & Trope, 2006). As such, changes in breadth of categorization may have played a part in the effects of regulatory focus, power, and color on evaluations of novel and familiar stimuli. Experiment 3.3 indeed demonstrated that manipulating mental category breadth directly changed evaluations of novel and familiar stimuli. Novel stimuli were evaluated more positively after broadening of mental categories and more negatively following narrowing of mental categories. The opposite pattern emerged for familiar stimuli: they were evaluated more negatively following broaden-
ing of mental categories, and more positively following narrowing of mental categories. This would be predicted from NCT. The more novel (less familiar) the stimulus is, the more likely it is that it will be excluded from a narrow category, rendering it less likeable. In contrast, familiar stimuli that fit the category are more positively evaluated. With broader categories, however, increasing familiarity has no additional value, since nearly everything already fits with the categories, rendering even novel stimuli more familiar and thus likeable. In sum, studies from Chapters 2 and 3 have supported NCTs notions on information processing, novelty perception, and novelty evaluation. Furthermore, in Chapter 4, I have expanded NCTs ideas on novelty’s effects on basic cognition to more complex cognitive processes, namely creativity.

Familiarity’s ‘warm glow’. Novelty, especially in terms of the mere exposure effect, has had a rather negative connotation in cognitive psychology for quite some time. It has been suggested that familiarity carries an intrinsic ‘warm glow’, being favored over novelty because it is more comfortable and safe (Titchener, 1910). Several studies on the mere exposure effect have replicated the finding that people do not like novelty, and that the more familiar something (a face, an object, a stimulus) becomes, the more people start to like it (Kunst-Wilson & Zajonc; Seamon, Marsh, & Brody, 1984; Zajonc, 1968; 1980; 2001). One line of research suggests that this warm glow that familiarity emits is caused by a fluency effect, because familiar stimuli are processed faster (Jacoby & Dallas, 1981), elicit less attention (Desimone, Miller, Chelazzi, & Lueschow, 1995) and mismatch less with our existing knowledge (Metcalfe, 1993). This fluency is presumably hedonically marked, while lower fluency (e.g., when encountering a novel event) serves as a signal for something being ‘wrong’ (Clore et al., 2001; Clore & Huntsinger, 2007, 2009; Clore & Palmer, 2009; Phaf & Rotteveel, 2005; Rotteveel & Phaf, 2007; Wyer, Clore, & Isbell, 1999).

However, although all of this may be true, our results from chapters 2 and 3 show that this ‘inherent’ preference for familiarity flips around to a preference for novelty quite easily. Subtle cues for a motivational orientation or a simple change in background color for the novel and
familiar stimuli causes strong and consistent changes in affective evaluations of novel versus familiar stimuli. Not only do novel stimuli become more positively evaluated, but familiar stimuli obviously lose their appeal, since they are evaluated more negatively following growth cues (promotion focus, high power, blue) compared to security cues (prevention focus, low power, red). When cued with growth concerns, the more positive evaluations of novel stimuli may reflect explorative behavior supportive of a growth goal, whereas the more negative evaluations of familiar stimuli may reflect that these familiar stimuli are less instrumental in the pursuit of a goal of exploration, learning, or development.

**Known moderators of the mere exposure effect.** As I am not the first to uncover boundaries to the classic mere exposure effect, one may wonder what the existing literature can tell us about moderators for the mere exposure effect. A well-known meta-analysis by Bornstein (1989) identified several moderating factors in the effect. For instance, mere exposure effects are stronger with subliminal compared to supraliminal exposures, and the effect generally levels off (boredom effect) after 20 exposures. Furthermore, characteristics of the stimuli themselves are identified as important parameters. Stimulus type seems to matter, since meaningful words and polygons produce stronger effects than non-words and ideographs. Procedural factors also play a part in the mere exposure effect. For instance, the effect is amplified with heterogeneous compared to homogeneous stimulus presentation sequences.

Although the meta-analysis by Bornstein (1989) only included one individual difference, it is nevertheless a very interesting one: age. Although the mere exposure effect is a rather robust effect, it is generally not found in children (in this meta-analysis: children under the age of 12). In fact, while in adults, a default positive relationship between exposure frequency and affective evaluation is found, in children there is actually a negative relationship: a relative preference for novelty. Applying our own reasoning here, one may wonder whether children are maybe generally more focused on growth and exploration and less on security than adults are. Research indeed confirms that children often choose novel toys over familiar ones (Cahill-Solis & Witryol, 1994; Men-
del, 1965) and that they prefer novel pictures to familiar ones (Cantor & Cantor, 1964). Moreover, Ebner, Freund, and Baltes (2006) have shown that while young adults pursue goals of growth and gains, in late adulthood people tend to focus more on goals of maintenance and avoiding losses.

Piaget (1969) proposed that in order to learn and develop, children need the driving motivational force of curiosity. When people encounter something novel, they try and incorporate it into existing knowledge structures (see also Förster et al., 2010). In children, the body of existing knowledge is still rather small and underdeveloped. As such, children often experience novelty that they need to approach and understand in order to cognitively develop. Piaget (1969) proposed that this frequent experience of incongruity between what children know and what they encounter sparks the necessary curiosity, which drives children to prefer and approach novelty. Combined with other bodies of work on the large amounts of time and effort children invest in exploratory play and behavior and how vital this exploration is to their cognitive and social development (e.g., Rusher, Cross & Ware, 1995; Weisler & McCall, 1976), I think I can conclude that yes, children are more focused on growth and exploration, and less on security than adults, and this may underlie the absence of the classic mere exposure effect in this age group. Moreover, changes in breadth of categorization may again play a part in these effects, since research has shown that with growing age, people become more locally focused and thus narrow their mental categories (Oken, Kishiyama, Kaye, & Jones, 1999).

Furthermore, Bornstein, Kale, and Cornell (1990) identified boredom as a potential boundary in the mere exposure effect. In their studies, boredom-prone participants were less likely to display the mere exposure effect than non-boredom-prone participants, and the mere exposure effect was amplified for complex stimuli (line-drawn optical illusions) compared to relatively simple ones (Welsh figures). Our studies from chapters 2 and 3 clearly add to these studies, in showing other moderators (or boundaries) to the mere exposure effect. In fact, boredom-prone people might be more focused on growth and exploration than
non-boredom-prone people. After all, pursuing growth and displaying exploratory behavior are efficient ways to counteract boredom. In contrast, people who are generally not prone to boredom may shy away from growth and exploration and may in fact be more concerned with and focused on their current state of being, similar to being focused on security.

Creativity. With our studies on novelty and creativity from Chapter 4, I have expanded recent work on the effects of novelty and information processing. Although there have been studies on the effects of novelty on basic cognitive processes such as global versus local information processing, breadth of categorization and abstract thinking (Förster, 2009a; Förster, Liberman, & Shapira, 2009; Förster et al., 2010), effects of novelty on other, more complex cognitive processes remained to be explored. By showing differential effects of novelty on different creative processes, I believe to have added valuable information to the growing body of work on novelty and its consequences, and hope to encourage further research in this direction. Furthermore, the results from Chapter 4 can be embedded in a series of current studies on creativity as a multi-component construct (Baas et al., 2008; De Dreu et al., 2008; Nijstad et al., 2010). These former studies mainly look at what factors enhance creativity, albeit through different pathways. However, the studies from Chapter 4 show that one and the same variable, namely novelty, can be beneficial to divergent creativity, while it can actually inhibit convergent creativity. These processes perhaps occur through similar pathways as described by the aforementioned authors.

In sum, the experiments conducted and discussed in this dissertation have pointed to important boundary conditions on lines of research on familiarity preference, and have provided a theoretical and empirical framework in which other research on changes in novelty/familiarity preference can fit quite nicely. They have further added to literature on the cognitive consequences of novelty, and on creativity and the conditions under which it flourishes or withers. I will now continue to discuss merits and limitations of the current experiments, before turning to
Merits and Limitations

In the empirical chapters, several merits and limitations of the current studies have been mentioned already. I will first shortly recapitulate some of these before continuing to further general merits and limitations. Concerning the mere exposure studies of chapters 2 and 3, I have transcended several other studies that have been done on preferences for novelty, familiarity, and prototypes. Using an unrelated task paradigm (Forster & Liberman, 2007), obscuring the relation between efferent and afferent phase of the priming experiment, I have for instance shown that shifts in novelty/familiarity preference need not be contingent on any current goal people are pursuing, as was the case in studies conducted by Liberman, Idson, Camacho, and Higgins (1999). Liberman et al. (1999) showed that participants in a promotion focus were more willing to exchange gifts they received or switch to a different task than participants in a prevention focus. These changes in preference for stability and change however, were related to the participant’s current goals (performance and enjoyment of the task) and were relevant to them (as gifts always are). I have shown evaluative changes following regulatory focus inductions that were not relevant to participants themselves or to any current goals they were pursuing, since I used an unrelated task paradigm. In this paradigm, the evaluations of novel and familiar stimuli were in participants’ perceptions not related to the regulatory focus, power, and color inductions, nor to the attention task they performed during the exposure of the novel and familiar stimuli. Thus, it seems that the effects of growth versus security cues are more general and occur quite automatically.

Furthermore, I believe that I have convincingly shown that full-blown mood or emotions are not necessary for the effects of growth versus security cues on evaluative judgment to occur. DeVries, Holland, Chenier, Starr, and Winkielman (2009) have demonstrated that preference for prototypical patterns (related to familiarity) diminishes when people are...
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in a good mood. I have gone beyond these studies by showing that full-blown, self-reported mood is not necessary for causing these kinds of effects. In fact, I suggest that mood fits into our framework on growth versus security cues. Mood, like valence, does not completely overlap with growth versus security, but nevertheless it would be reasonable to assume that a state of happiness would sooner lead to a focus on growth than a focus on security, and that the opposite is true for ‘sadness’ (in fact, negative mood states are thought to be signals for something ‘being wrong’, leading to a focus on maintaining or attaining security/safety, Bless & Schwarz, 2010; Clore, Schwarz, & Conway, 1994; Easterbrook, 1959; Schwarz & Clore, 2007). As such, the induced moods in the studies by De Vries et al. (2009) may have actually served as cues of growth and security, causing the preference shifts.

Besides De Vries et al., Hansen and Topolinski (2010) have also conducted related research. Hansen and Topolinski (2010) induced an ‘exploratory’ or ‘non-exploratory’ mindset in their participants by framing a random dot-pattern as either ‘stars’ in the exploratory, or ‘peas’ in the non-exploratory condition. In the exploratory condition, preference for prototypical stimuli was reduced, while preference for novel stimuli increased. As opposed to both De Vries et al. (2009) and Hansen and Topolinski, I have used the classic mere exposure design, which allows for objective manipulation of novelty and familiarity, while the prototype paradigm used by De Vries et al. (2009) only allows for a more subjective sense of novelty and familiarity through random dot-patterns. Furthermore, the use of the subliminal mere exposure paradigm has ruled out use of strategic processes. The prototypicality paradigms used by De Vries et al. and Hansen and Topolinski further differ from the mere exposure paradigm I used in both definition (something can be prototypical but still novel, or atypical but familiar) as well as dynamics. For instance, Rhodes, Halberstadt, Jeffery, and Palermo have shown that preference for prototypical faces could not be fully explained by a generalized mere exposure effect. Moreover, the increased liking of faces that were repeatedly exposed did not carry over to averaged composite faces, something that would be expected if the underlying mechanisms
would have been the same as those of the mere exposure effect (Gordon & Holyoak, 1983).

Furthermore, I believe that exploratory versus non-exploratory mindset, like mood, fits into our framework on growth versus security. One may for instance argue that Hansen and Topolinski’s (2010) findings were mediated by changes in category breadth. Framing a pattern as stars (a concept that might be experienced as rather abstract and distant from oneself) would be more likely to prime broad rather than narrow categorization. On the other hand, framing a pattern as peas (a concept that is quite concrete and close to one’s experience) would be more likely to prime narrow rather than broad categorization. Consistently, research on construal level theory (Trope & Liberman, 2010) has demonstrated that abstract or distant events broaden mental categories, while concrete or proximal events narrow these categories (Förster, Liberman, & Friedman, 2004; Liberman & Förster, 2009). Admittedly, more research needs to be done to show that the related effects in other laboratories were partly caused by categorization. However, in sum, I believe these related studies fit quite nicely under the theoretical and empirical umbrella I have provided.

In Chapter 4, I demonstrated a differential effect of novelty on creative task performance. As in chapters 2 and 3, I believe mood as a mediator in these effects is unlikely, since I have measured mood in both studies and found no effects of our manipulations, nor any mediating effects. I did not find any effects of regulatory focus, power, color, or breadth of categorization on mood and emotions, and moreover, previous research using similar paradigms did not find these effects either (see Förster & Dannenberg, 2010, for a summary and discussion). The novelty priming and framing paradigms used in Chapter 4 have also been used before without causing changes in mood or emotions (Förster, Liberman, & Shapira, 2009). However, over all studies, I have used self-report to assess mood and emotional states. These measures may not have been sensitive enough to detect more subtle changes in mood or emotions. Therefore, to strengthen these results, future research may include other mood and emotion measures as well (such as facial EMG for specific
emotional expressions, GSR for more general arousal, or the IPANAT measure for implicit emotion assessment (Quirin, Kazén, & Kuhl, 2009). This may then provide more clarity as to whether and to what extent our manipulations might trigger changes in mood or emotions. However, again, I feel it is highly unlikely that our manipulations, especially the rather subtle ones as the mouse mazes or changes in background color would elicit any meaningful changes in mood or emotions.

Another limitation is that I only used Hebrew letters as stimuli in the mere exposure studies of chapters 2 and 3. Although I think our results can be generalized to more meaningful novel and familiar stimuli, I have not explicitly shown this. Furthermore, although the subliminal presentation within the mere exposure paradigm allows for ruling out strategic processes, a study including supraliminal presentation would have been informative as well, if anything to see if I could replicate our subliminal results. One other important point is that although I have provided theoretical evidence on the relationships between our variables (regulatory focus, power, and color) and concerns with growth and security throughout this dissertation, I did not directly test these relationships in our studies. Incorporating a lexical decision task or a related paradigm into one of the studies could have provided more conclusive evidence that the cues I used in chapters 2 and 3 were related to growth and security.

**Recommendations for Future Research**

Of course, several questions concerning the subject of novelty preference and cognitive consequences of novelty still remain unanswered. For instance, I assumed that through broader categorization, novel events would be easier included into existing categories, rendering the events less novel and more similar to existing, familiar events. This might take away the potential threat that accompanies novelty and consequently might make novelty more appealing. However, whether similarity perception, ease of categorization, and reduced threat play a crucial role, and whether they interact or produce independent effects remains
Another question that should be answered in future research is whether the cognitive process underlying preference shifts is confined to breadth of categorization alone, or if it expands to for instance global processing and abstract thinking. Since these constructs are closely related, one may propose these are interchangeable. Abstract thinking refers to a high level of construal (Trope & Liberman, 2010). Actions, but also objects, can be categorized according to their level of construal. A high level of construal constitutes abstractness and usually use of more inclusive categories (e.g., mammal would be a high level of construal, while sphinx cat would be a low level). In general, high levels of construal are used to answer ‘why’-questions, while low levels are used to answer ‘how’-questions. For example, if the action is ‘to work hard’, an abstract, high-level representation would be ‘to succeed or do well’, while a concrete, low-level representation would be ‘to be on time for work’. As to abstract thinking, more abstract as opposed to concrete thinking may increase similarity perception similar to broader mental categories. If one thinks abstractly about 'transportation', 'camel' is more likely to be seen as a mode of transportation, leading to increased similarity perception between camels and other modes of transports such as cars or trains.

Global and local processing are processing styles. When people use a global processing style, they attend to the holistic Gestalt of a stimulus set (i.e., the forest). When people use a local processing style, they attend to details of the stimulus set (i.e., the trees) (Förster & Dannenberg, 2010; Navon, 1977; Schooler, 2002). As such, global processing may lead to a similar heightened inclusion of novel stimuli as abstract thinking and broader mental categories, while local processing may lead to more exclusion, similar to a more concrete level of thinking, and narrower mental categories (it is easier to fit something into a forest than it is to fit in a tree). Moreover, although I have started to uncover an underlying process, future studies need to be done to show mediational pathways from growth versus security cues through changes in category breadth to changes in affective evaluations of novel and familiar stimuli.
Throughout chapters 2 and 3, I have assumed that through broader categories and subsequent similarity and inclusion processes, novel stimuli would become more familiar and would thus lose its potential for threat. However, I have not tested this assumption, and future research may therefore dig into this idea. One could for instance use arousal measures such as galvanic skin response (GSR) to measure whether novel stimuli cause more arousal than familiar ones, and subsequently, to measure whether this arousal is attenuated following growth cues. Moreover, neuropsychological research has found that there is a specific event-related potential (ERP) pattern that is thought to signal detection of deviant or unexpected events: the Novelty P3. Following our reasoning on broadening of categories and inclusion, this ERP pattern should to a lesser extent take place in the growth cue conditions compared to the security cue conditions, since the novel stimuli are rendered less novel (and thus less deviant or unexpected) following growth cues and subsequent broadening of mental categories. However, the P3 is considered to be a bottom-up reaction, and the effects of novelty I have described may be more top-down. As such, future research may explore on whether the effects obtained in this dissertation expand to these kinds of bottom-up processes as well.

Furthermore, Freitas, Azizian, Travers, and Barry (2005) demonstrated that a promotion focus reduces the preference for easy-to-process stimuli, showing a decreased preference for fluency. The mere exposure effect has frequently been interpreted through a fluency account (Bornstein, 1989; Kunst-Wilson & Zajonc, 1980; Seamon, Marsh, & Brody, 1984; Zajonc, 1968). This account entails that generally, novel stimuli are liked less than familiar ones because they are harder to process, and thus less fluent. Indeed, familiarity has been shown to be an important moderator of fluency (Desimone, Miller, Chelazzi, & Lueschow, 1995; Jacoby & Dallas, 1981; Metcalfe, 1993). Our experimental designs do not allow us to rule out the possibility that in fact, growth and security cues change our preference for fluency, which in turn changes preferences for novel and familiar stimuli (see also Briñol, Petty, & Tormala, 2006 for changes in the fluency=good heuristic). Future studies
may test this explicitly, seeing if growth and security cues affect fluency preference, and whether this is another mediator (besides breadth of categorization) in the effects of mere exposure on evaluative judgment. Furthermore, not only our preference for fluency may be influenced by growth versus security cues, fluency itself may also be affected. One may for example predict that inclusion into broader categories is easier, making the process of encoding more fluent, whereas narrower categories may reduce overall fluency. I cannot confirm nor deny this possibility, but future studies may shed light on these possible processes.

A future line of research that would also allow broader conclusions is to see whether the effects of growth versus security cues on evaluative judgment on novel and familiar stimuli extends to ‘real’ behavior such as approaching or avoiding in response to these novel and familiar stimuli. Although I have gained knowledge on when people find novelty appealing and when they would rather stick to familiarity, I do not yet know whether these preference shifts leads to changes in actual behavior. An experimental paradigm that could be used to further investigate this would be the approach-avoidance-task (Chen & Bargh, 1999; Fishbach & Shah, 2006; Förster, 2003; Rotteveel & Phaf, 2004; Solarz, 1960). In this task, participants are provided with two types of pictures, for instance novel and familiar ones. Participants are asked to respond to each picture by either pushing, for instance, a joystick, and subsequently the picture away from then (avoidance movement), or by pulling the joystick and the picture towards them (approach movement). The criterion by which they are asked to perform this task may be unrelated to the picture content. Each picture can for instance be tilted a few degrees to the left or right, and this may determine whether the participant has to push or pull the joystick. As such, results allow for an analysis of whether participants are faster to pull novel or familiar pictures towards them, and if they are faster to push novel or familiar pictures away. Adding our moderators to this paradigm would shed light on whether growth versus security cues do not only change affective preferences for novelty, but if they change our tendency to approach or avoid them as well.
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Another interesting direction would be to translate our results on novelty versus familiarity preference to more applied studies and settings. As mentioned in the merits and limitations paragraph, the fact that throughout chapters 2 and 3 I have only used Hebrew letters as stimuli prevents us from drawing justified conclusions on generalization. Future research may consist of similar studies, but using more mundane objects such as kitchen appliances, or even human faces. As the mere exposure effect even seems to be stronger with complex as opposed to simple stimuli (Bornstein, 1989), I would expect these future studies to replicate our findings, allowing for better generalizable conclusions.

Summarizing, I think our studies provide a basis for building a broad theoretical framework on perception, processing, and evaluation of novelty and familiarity. The studies provide multiple avenues for future research and hold ample possibility for expansion and deepening of our understanding of novelty’s effects on basic as well as more complex consequences.

Practical Implications

Results from all empirical chapters carry implications for applied domains, such as consumer psychology, and communications research. Framing of novel as well as familiar products is known to change perception and evaluation of these products (Bianchi, 1998; Hekkert, Snelders, & van Wieringen, 2003; Moreau, Lehmann, & Markman, 2001; Urban & Hauser, 1993). Our conclusions from chapter 2 and 3 can be applied to the framing of novel and familiar products and advertisements in order to predict which strategies and products would work for what kind of costumers (see Förster, 2009c). For instance, if you are introducing a new product, think about your strategy in terms of priming your customers. You may for instance emphasize the similarities your new product carries has to other, more familiar products, thereby increasing the chance that the new product will be included into an existing category, rendering it more familiar and therefore more likeable. Moreover, when introducing new products, you might want to activate a promotion fo-
cus in your audience by for instance emphasizing the ambition they can realize by buying your product (e.g., the supermodel-body they can achieve if they only buy your new, innovative kind of fitness shoes). Furthermore, our studies have shown that these kinds of priming procedures need not be related to the product that will be evaluated later, but can in fact be goal- and content-unrelated. If you are not willing to manipulate your consumers into buying products, you may instead create a ‘fit’ between the kind of costumer you wish to attract and the advertising strategy you use or the way you frame your product. For instance, luxury goods may be more attractive to promotion-focused people as they are to prevention-focused people (see also Werth & Förster, 2007). Since our studies have shown that people in a promotion focus are also more attracted to novelty than familiarity, you may want to frame your luxury product as new, creating an optimal fit between framing, product, and consumer.

The most important implication for the consumer domain that comes from chapters 2 and 3 may be that the frequency with which a product is advertised is something that deserves consideration. Our studies show that exposing your potential customers to your product too much may in fact backfire. Although a ‘boredom effect’ has shown to occur with large exposure frequencies (Bornstein, 1989), we have shown that context plays an important part in the effects of mere exposure. Moreover, individual differences such as one’s chronic regulatory focus can be essential in how people respond to repeated exposure. If your customers are focused on growth, in one way or another, they may respond negatively to over-exposure, and this may actually inhibit them from attending to or even liking or buying your product. Companies do, perhaps because they indeed noticed their campaigns backfiring, perhaps for other reasons, in fact sometimes make their old product ‘new’ again, by emphasizing a ‘new formula’ for a familiar cosmetics product, or by changing the packaging while leaving the product unaffected. These are indeed strategies that may be used in order to prevent extreme exposure frequencies leading to negative evaluations.

The same reasoning applies to the communications domain. If you want to start a public campaign advertising a completely new message
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(e.g., ‘having all your stuff stolen is good for your mental health’), you might want to consider the way you are framing this. Since it is new, you might want to empower your audience by priming them with high power (by for instance presenting them with power-related words, as I did in Experiment 3.2) or by giving them control over the situation (e.g., by asking them to participate or ask questions or make suggestions whenever they want) before delivering your message. However, if you are repeating a measure you have repeated many times before (e.g. ‘vegetables are healthy and should be in your diet’), you might actually induce a temporary feeling of low power in your audience in order to make them more susceptible to your message, or you may remind them in some other way of their concerns with security. And, if the audience you are trying to reach is generally promotion focused, holds a lot of power, or is in some other way focused on growth, confronting them with your campaign or message too much may yield negative effects.

Furthermore, our results from Chapter 4 hold implications for creative behavior not only in individuals, but also in organizations. In the organizational domain, if you want to inspire your co-workers or employees to produce more creative ideas, products, or solutions, it may be wise to first consider what kind of creativity you want them to display. If you are looking for a lot of unique, original ideas or solutions to one specific problem (constituting divergent creativity), you may want to prime your employees with novelty. Again, this novelty may, but need not be related to the problem at hand. So, you may frame the problem as extremely new, and never-seen-before, or you may in a more subtle way prime your employees. You could for instance surround them with novel objects, like design chairs, or strangely formed coffee mugs. Consistently, Förster, Friedman, Butterbach, and Sassenberg (2005) found that participants exposed to unusual people (e.g. a punk versus an engineer) or art objects containing one unusual feature (e.g., a lighter cross among many darker crosses) enhanced divergent creative performance in an unrelated task. Another option would be to hire a consultant or even an actor (a new person!) to introduce the problem, thereby inspiring divergent thinking and divergent creativity in your employees. However,
if you are looking for more of a convergent form of creativity, like a specific a-ha moment, or if you want your employees to for instance identify common associations between products, you may in fact want to steer clear of novelty altogether. Instead, you could maybe surround your employees with familiarity, like pictures of their loved ones, and keep the weird coffee mugs in your cupboard at home.

Since creativity is such a key component in problem solving (Mumford, Mobley, Uhlman, Reiter-Palmon, & Doares, 1991; Runco, 1994; 2004; Torrance, 1971; Wallas, 1926), the implications of our studies on creativity also lie in the field of education. After all, during several stages of their education, children are taught how to solve an array of different problems (e.g., math problems, economics problems, societal problems). One could for instance imagine that a familiar, somewhat boring model (e.g., a teacher) would inspire more convergent creativity in students, while a new, original model may inspire divergent creativity (see also Lockwood, Christian, & Kunda, 2002). Moreover, by optimizing students’ learning environment to fit the problem at hand, their learning process can be supported. Different problems require different approaches. While math problems often require a convergent thinking process (converging to one correct answer), societal problems often ask for a more divergent creative process (producing many answers to one problem). As such, the introduction of these problems may be catered to fit the kind of creativity that the students benefit from most.

Concluding Remarks

In this dissertation, it has become clear that although we like the warm, comfortable glow that familiarity gives us, and find novelty a bit scary, the warm glow can sometimes come across as stale and a bit stuffy. On the other hand, the opportunities for exploration and growth that novelty offers us may seem refreshing and appealing. Our motivational orientation, but also our way of information processing, and growth and security cues that surround us influence these appraisals, and guide us into one or the other direction. Subsequently, novelty may or may not
help us in creative processes, depending on the kind of creativity we pursue. While novelty supports divergent creativity, it may stifle convergent creativity. Summarizing, our studies have elaborately shown the value, characteristics, and effects of novelty and have thereby added significant knowledge to the existing theory and body of empirical research on the matter.

Remember that story in the beginning about the familiar, small, and expensive apartment and the new, big, and cheap apartment with the balcony? And about how I was hesitant, probably due to the risk I did not want to take with the new apartment? As I went through the process of developing and writing this dissertation, I went through several motivational states. When brainstorming about studies with my supervisors and creating designs for conducting them, I always felt promotion focused and in control (‘this is the ideal study, my ambition is to make it as ideal as possible’). When collecting data and waiting for the complete data set, this turned to a prevention focus (‘this ought to be good for me to not fail’), and during data analysis I was back to feeling powerful, yet rather locally focused (‘should I include more control variables in the future?’). Now, after writing it all up, I feel utterly promotion-focused as I see the completion of my dissertation as a ‘win’, and certainly not as a ‘non-loss’, and now I desperately hope for a new and better apartment with a yard to come along so I can immediately take it. Moreover, I am always open to the possibility of a new pair of shoes.