Differential Preferences for Happiness: Extraversion and Trait-Consistent Emotion Regulation

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ABSTRACT The assumption that everyone wants to be happy is prevalent among psychologists and laypeople alike. The present investigation suggests that motives for happiness are not consistent across individuals or contexts. Three studies demonstrate that preferences for happiness vary as a function of trait extraversion and situational demands. When anticipating an effortful task that requires increased motivational engagement, individuals demonstrated trait-consistent emotional preferences. Extraverts were more likely to prefer happiness-inducing activities, whereas introverts were less likely to prefer such activities. These differential motives were specific to preferences for happiness compared to other emotions and independent of concurrent feelings. Overall, the present findings suggest that individuals low (vs. high) in extraversion may be less motivated to increase their happiness in effortful contexts.

A prevailing assumption among psychologists and laypeople alike is that individuals always seek to maximize their level of happiness. Recent research, however, suggests that the motivation to feel happy may not be consistent across individuals (e.g., Wood, Heimpel, & Michela, 2003) or situations (e.g., Erber, Wegner, & Therriault, 1996). The current investigation tests whether the motivation to feel happy varies as a function of trait extraversion and situational context. In particular, it tests whether preferences for happiness are less prevalent among introverts relative to extraverts, particularly in situations perceived to require anticipated effort.

Trait-Consistent Preferences

The Behavioral Concordance Model (Cote & Moskowitz, 1998) suggests that individuals often prefer experiences that are consistent,

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rather than inconsistent, with their personality traits. Such motives can sometimes lead to preferences that override the hedonic principle by which individuals seek to maximize pleasure and avoid displeasure. For example, Swann and his colleagues (e.g., Swann, 1987; Swann, Griffin, Predmore, & Gaines, 1987) have found that individuals with lower self-esteem find negative feedback more reliable and even choose such feedback before interacting with others.

What sorts of motives might underlie such trait-consistent preferences? According to one perspective, such preferences offer certain epistemic benefits. In other words, trait-consistent experiences can provide individuals with important information about themselves and their state in the world. According to Epstein (1973), for example, individuals seek to validate their self-theories because such theories allow them to understand and control the nature of their social reality (see also Sheldon & Elliot, 1999). In other words, individuals may seek experiences that are consistent with central characteristic aspects of the self. Assuming that the self and related epistemic motives are relatively stable, epistemic benefits of trait-consistent experiences should be largely stable and consistent across contexts.

A related but different perspective assumes that people prefer trait-consistent experiences because they are thought to facilitate performance-related goals. Research on regulatory fit (Higgins, 2000), for example, demonstrates that individuals are motivated to pursue goals in ways that are consistent with their chronic tendencies toward approach or avoidance. For instance, when pursuing performance-related goals, individuals who are high in promotion focus are likely to have strong preferences for approach-related strategies, whereas those low in promotion focus are likely to have weak preferences for approach-related strategies. These preferences are evident only in the context of effortful goal pursuits, because the benefits of trait-consistent strategies are specific to active goal pursuit (for a review, see Higgins, 2000).

Unlike epistemic benefits, therefore, the instrumental benefits of trait-consistent experiences are largely a function of the given context. High (vs. low) eagerness can serve an individual who is high (vs. low) in promotion focus during the effortful pursuit of a goal, but it would have limited instrumental benefit when the individual is not actively engaged in goal pursuit. Thus, whereas epistemic benefits of trait-consistent experiences should be evident

across contexts, the instrumental benefits of such experiences may be largely limited to effortful or motivationally demanding contexts. The present investigation examines trait-consistent preferences for emotional experiences in the context of trait extraversion and their epistemic versus instrumental underpinnings.

Trait-Consistent Emotional Preferences

The ideas mentioned above have been tested mainly with respect to individual differences in social-cognitive frameworks, rather than with respect to broad affective dispositions (e.g., extraversion and neuroticism), particularly given the temperamental basis of these dispositions (Clark & Watson, 1999). Yet recent data suggest that neuroticism, at least, may be associated with trait-consistent preferences for emotional experiences under certain task conditions (Tamir, 2005).

Individuals who are high in neuroticism tend to report greater worry and anxiety (e.g., Watson, 2000) and are particularly motivated to avoid threats (e.g., Carver, Sutton, & Scheier, 2000; Elliot & Thrash, 2002). To the extent that emotions such as worry promote the pursuit of avoidance goals (see Carver, 2001), individuals high in neuroticism may be more motivated than those low in neuroticism to experience these unpleasant states when they anticipate effortful tasks. Consistent with these assumptions, individuals high (vs. low) in neuroticism were more likely to prefer activities that would increase their level of worry before an effortful task (Tamir, 2005). Consistent with an instrumental approach, such preferences were obtained only when individuals anticipated effortful tasks, but not when they anticipated non-effortful tasks.

This evidence, however, is particular to the trait of neuroticism and preferences for worry prior to an anticipated effortful task. It is important to extend this model to other affective dispositions and particularly to extraversion. Neuroticism and extraversion are largely independent from a psychometric perspective (John & Srivastava, 1999), and the affective correlates of extraversion are different from those linked to neuroticism. Individuals who are high (vs. low) in extraversion tend to report greater positive emotions, such as happiness (e.g., Costa & McCrae, 1980), and are particularly motivated to approach rewards (e.g., Carver et al., 2000; Elliot & Thrash, 2002), whereas the opposite is true for those low in extraversion.

Hence, the current approach to extraversion and preferences for happiness builds on two documented theoretical assumptions. First, happiness promotes the pursuit of approach goals (see Carver, 2001). Because extraversion is linked to approach motivation, happiness should promote task engagement among individuals high in extraversion but may be distracting for those low in extraversion, who should be more engaged when in a neutral emotional state. Second, according to the regulatory fit approach (Higgins, 2000), individuals prefer to use goal means that are consistent with their motivational orientation. Because happiness is inconsistent with their motivational orientation, which involves low approach tendencies, I predict that individuals low (vs. high) in extraversion should be less (vs. more) motivated to experience happiness when they anticipate an effortful task.

Unlike worry or anxiety, happiness is pleasant to experience. Thus, individuals may prefer to experience it for its epistemic, in-strumental, or purely hedonic benefits. Given its pleasant nature, therefore, it may be that both extraverts and introverts are equally motivated to experience happiness across contexts. There is, how-ever, some evidence to the contrary. Rusting and Larsen (1995) found that extraversion was associated with stronger preferences for pleasant emotional states. Nonetheless, given that extraversion was also correlated with stronger experiences of pleasant emotional states, it is unclear whether such preferences simply reflect state-congruent preferences.

Evidence for differential preferences for happiness as a function of extraversion, even when controlling for concurrent emotional expe-rience, would provide strong support for the idea that, in certain contexts, individuals prefer emotions that are consistent with their affective dispositions, regardless of immediate hedonic implications. Because individuals typically prefer to increase happiness for hedonic reasons, especially if they are not engaged in goal pursuit, support for the present hypothesis would be evident if individuals low in extraversion show weaker preferences for happiness in motivationally demanding contexts.

Preferences in Emotion Regulation

The current investigation was primarily concerned with preferences for emotions rather than spontaneous changes in emotional states.

As highlighted in Gross (1999), emotion regulation research often confounds regulatory processes (e.g., preferences in a given context) with reactive processes (e.g., emotional experiences in a given context). To avoid this confound, the present studies focused on assessing either explicit preferences for emotional states (Study 1) or behavioral preferences for emotion-inducing activities (Studies 2 and 3).

In real life, when individuals wish to regulate their feelings, they select activities that are likely to elicit desirable emotions. Based on the assumption that individuals select certain activities for their emotion-inducing properties, Erber et al. (1996) developed a procedure for assessing motives for emotion regulation. Specifically, they offered participants a variety of activities that vary on both hedonic and nonhedonic dimensions and asked them to indicate which activity they would prefer to engage in before an anticipated task. This procedure is particularly powerful because, unlike explicit emotional preferences, it does not require preferences to be consciously mediated (see Tamir, 2005; Tamir, Chiu, & Gross, 2007).

To test whether extraversion is differentially related to preferences for happiness in different contexts, the present investigation assessed both explicit preferences for emotions in different contexts (Study 1) as well as preferences for emotion-inducing activities in anticipation of effortful or non-effortful tasks (Studies 2 and 3). I expected extraversion to be positively associated with preferences for happiness when anticipating effortful, but not non-effortful, tasks.

Overview of Present Studies

The main goal of the present studies was to extend the idea that affective traits may be associated with preferences for trait-consistent emotions in motivationally demanding contexts by focusing on extraversion and preferences for happiness. To do so, three studies tested whether extraversion predicts preferences for happiness in anticipation of different contexts. The present studies also begin to explore the mechanism involved by contrasting epistemic and instrumental motivations for trait-consistent emotional experiences. According to the epistemic perspective, findings would be largely independent of the particular context (i.e., effortful vs. non-effortful). On the other hand, to the extent that such trait-consistent preferences are designed to facilitate instrumental performance, one would expect such preferences to be most apparent in performance contexts

(Higgins, 1997). To test the context specificity of trait-consistent preferences, I varied the anticipated situational contexts in Studies 1 and 2.

Study 1 used a scenario-based procedure in which participants rated their preferences for emotional experiences when considering different situations (e.g., effortful vs. non-effortful). Studies 2 and 3 examined actual regulatory behaviors in anticipation of different contexts. In all the studies, I predicted that extraverts would show stronger preferences whereas introverts would show weaker preferences for happiness in motivationally effortful contexts. Preferences for happiness were expected to be high and largely unrelated to extraversion in non-effortful contexts.

STUDY 1

In Study 1, individuals were asked to indicate the extent to which they would prefer to experience specific emotional states in particular situations. To operationalize anticipated effort, I included some situations indicative of performance contexts requiring effort (e.g., taking a test) and other situations that few individuals would associate with effortful performance (e.g., watching television). To test whether extraverts prefer to experience happiness in performance contexts, I contrasted preferred states of happiness with preferred states of worry, both emotional states that are medium to high in arousal.

Extraverts are not only happier than introverts, but they are also more socially active (Argyle & Lu, 1990; Costa & McCrae, 1992; Lucas & Diener, 2001). Happiness and social activity tend to co-occur in nature, and there are disagreements concerning whether extraversion is more closely related to preferences for happiness on the one hand versus preferences for social activity on the other (Lucas & Diener, 2001). Thus, an additional purpose of Study 1 was to manipulate a social versus nonsocial dimension of the depicted situations. If extraversion-linked preferences to experience happiness in performance situations are general in nature, then they should be observed in both effortful social situations (e.g., leading a class discussion) and effortful nonsocial situations (e.g., writing an essay).

Finally, to test whether extraversion predicted emotional preferences regardless of concurrent emotions (see Erber & Erber, 1994;

Wegener & Petty, 1994), participants were asked to rate their feelings before indicating their motives for emotion regulation. In particular, to rule out state-congruent preferences, I included a measure of concurrent happiness and a measure of concurrent worry.

Method

Participants

Participants were 47 undergraduate students (70% women; average age = 18.70 years), who participated in return for course credit.[1]

Materials

Extraversion scale.   Extraversion was measured by Goldberg's (1999) Big-Five IPIP scale (short form). The scale involves agreeing or disagreeing with 10 statements indicative of high or low extraversion (e.g., "I am the life of the party"). For evidence for the reliability and validity of the scale, see Goldberg (1999). Cronbach's α for the current sample was .93.

Emotional Preferences Survey.   The survey was designed to include situations that vary in their social as well as effortful nature, with exemplars of each cell in a 2 (social vs. private) × 2 (effortful vs. not) dimensional space. Based on results from a pilot test, four situations were selected for each of the following categories: social–non-effortful, social–effortful, private–non-effortful, and private–effortful. The resulting emotional preferences survey included 16 situations presented in a random order.[2] Participants were asked to indicate on a 7-point preference scale (1 = *not at all*, 7 = *extremely*) the extent to which they prefer to feel happy and worried in each situation (e.g., "When taking a test, to what extent would you prefer to feel happy?").

1. The data for Studies 1 and 2 were taken from the same samples used in Tamir (2005) in Studies 1 and 2. The findings reported in Tamir (2005) and in the present paper remain unchanged when the analyses reported in the two papers were combined in a single analysis.
2. Private–non-effortful situations included watching TV at home, going to sleep, washing the dishes, and cleaning one's room; social–non-effortful situations included going out with friends, going shopping at the mall with a friend, going to a rock concert, and going to a sports game; private–effortful situations included taking a test, resolving a personal problem, thinking rationally, and being creative; social–effortful situations included giving a speech to an audience, participating in group discussion, cooperating with others on a task, and settling a conflict among others.

Concurrent emotions. Participants rated their current feelings (1 = *very slightly to not at all*, 5 = *extremely*). Adjectives were chosen based on Larsen and Diener's (1992) analysis of the circumplex model of emotion. Ratings of *happy*, *up*, and *enthusiastic* were averaged to estimate concurrent happiness, and ratings of *worried* and *anxious* were averaged to estimate concurrent worry.

Procedure

Participants completed a demographic questionnaire followed by an extraversion scale. After a 5-min break in which they completed an unrelated task, participants completed the emotional preferences survey.

Results

I predicted that extraverts (vs. introverts) would show greater preferences for happiness, but not worry, in effortful situations. To test this hypothesis, a repeated-measures ANOVA was conducted, with centered extraversion and concurrent feelings as covariates and gender as a between-subjects factor. Preference ratings were entered as three within-subject factors to test the full 2 (Emotional Preference: Happiness vs. Worry) $\times$ 2 (Sociability: Social vs. Private) $\times$ 2 (Effort: Effortful vs. Non-effortful) design. Not surprisingly, on average, participants preferred to experience happiness ($M = 5.41$, $SE = .14$) more than worry ($M = 2.26$, $SE = .14$), $F(1, 42) = 185.85$, partial $\eta^2 = .82$, $p < .05$. As predicted, such preferences varied as a function of both extraversion and the situational context under consideration, as indicated by a significant Emotion $\times$ Effort $\times$ Extraversion interaction, $F(1, 42) = 5.66$, partial $\eta^2 = .12$, $p < .05$. These effects did not differ as a function of gender or concurrent feelings, Fs < 1. Also, preferences for happiness in sociable versus private situations did not differ as a function of extraversion, Fs < 1.

To test whether extraversion was related to preferences for happiness, worry, or both, I ran two separate repeated-measures ANOVAs with two within-subject factors (i.e., Sociability and Effort) and centered extraversion as a covariate, separately with preferences for happiness and preferences for worry. As expected, when I examined preferences for happiness, there was a significant Extraversion $\times$ Effort interaction, $F(1, 45) = 8.31$, partial $\eta^2 = .16$, $p < .01$, so that extraversion was associated with stronger preferences for happiness in effortful situations ($r = .30$, $p < .05$), but unrelated to

preferences for happiness in non-effortful situations ($r = -.06$, $p > .60$). In contrast, extraversion was not significantly related to preferences for worry (rs $= -.05$ and .09 in effortful and non-effortful situations, respectively), Fs < 1.57.

To estimate mean levels of preference for happiness in effortful and non-effortful situations, I ran simple regressions, with extraversion as the predictor of happiness in either effortful or non-effortful situations. The resulting regression equations were used to estimate means for participants higher ($+1\ SD$) and lower ($-1\ SD$) in extraversion. The estimated mean preferences are presented in Figure 1. As shown in the figure and consistent with my predictions, extraverts expressed relatively stronger preferences for happiness compared to introverts, but only in the context of effortful situations.[3]

Discussion

Given that happiness is pleasant to experience, it is not surprising that there was a robust preference for happiness over worry across trait levels of extraversion and the particular situations involved. Consistent with current predictions, however, the strength of such preferences varied across individuals. Whereas individuals higher in extraversion expressed stronger preferences for happiness, those lower in extraversion expressed weaker preferences for happiness, despite the pleasure such emotion brings. Importantly, as predicted by an instrumental approach to emotion regulation (Tamir, in press; Tamir, Mitchell, & Gross, 2008), the link between extraversion and preferences for happiness was prevalent only when participants considered effortful, but not non-effortful, situations. In contrast, the link between extraversion and preferences for happiness did not vary

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3. The analysis yielded other significant findings that did not vary as a function of extraversion and therefore were not of primary interest in the present context. Specifically, participants preferred to experience more intense emotions in social ($M = 3.98$, $SE = 0.08$) compared to private ($M = 3.69$, $SE = 0.09$) situations, $F(1, 42) = 32.48$, $p < .05$, as well as more intense emotions in effortful ($M = 3.96$, $SE = 0.11$) compared to non-effortful ($M = 3.71$, $SE = 0.08$) situations, $F(1, 42) = 6.86$, $p < .05$. These effects were qualified by a significant Sociability $\times$ Effort interaction, $F(1, 42) = 15.73$, $p < .05$, such that individuals preferred to experience equally intense emotions in social–effortful ($M = 3.99$, $SE = 0.12$) and social–non-effortful ($M = 3.98$, $SE = 0.07$) situations, but more intense emotions in private–effortful ($M = 3.94$, $SE = 0.12$) compared to private–non-effortful ($M = 3.44$, $SE = 0.10$) situations.
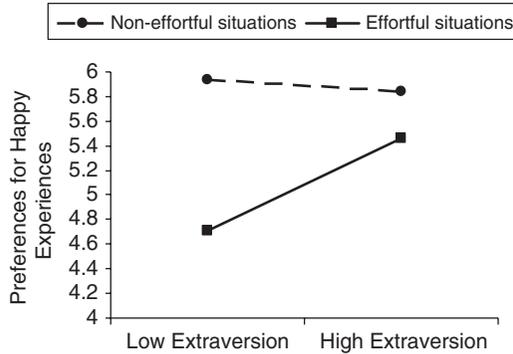
Figure 1
Self-reported preferences for experiencing happiness in effortful and
non-effortful situations as a function of extraversion (Study 1).

as a function of the social (vs. private) nature of the situation, suggesting that the social implications of happiness cannot account for the current trait-consistent preferences.

Study 1 allowed participants to indicate what emotions they think they would prefer in different scenarios. Whether or not participants actually regulate their emotions in ways that are consistent with such preferences remains to be seen. Studies 2 and 3, therefore, examined online motives for emotion regulation as participants anticipated different situations in the laboratory. Regulatory behavior was expected to mirror the preferences reported in Study 1.

STUDY 2

Study 2 was designed to test whether extraverts are more likely than introverts to try to actively increase their level of happiness when expecting an effortful (vs. non-effortful) task. To test this hypothesis, participants were randomly assigned to anticipate either an effortful task (i.e., give a speech) or a non-effortful task (i.e., listen to music).

To assess motives for emotion regulation, participants were asked to rate the extent to which they prefer to engage in different activities before an anticipated task. Participants rated their preferences for recalling events from their past that differed in their emotional tone (happy vs. worried). Autobiographical recall was selected because it is often used as an effective emotion regulation strategy in daily life as well as in research (Josephson, Singer, & Salovey, 1996; Parrott &

Sabini, 1990; Setliff & Marmurek, 2002). Furthermore, preferences for emotional memories have been found to be consistent with preferences for other types of emotion-inducing activities (Tamir et al., 2008).

Participants in Study 2, therefore, were told that they would need to either give a speech or listen to music later in the session. They were told that prior to this task they would spend 10 min recalling an event from their past. At this point, they were presented with a list of events they might be asked to recall (e.g., ''an event from the past in which you were happy, concerning friends'') and asked to rate the extent to which they prefer to recall each of these events before the upcoming task. I predicted that, when anticipating an effortful task, extraversion would be positively related to preferences for recalling happy memories.

Finally, as in Study 1, participants rated their concurrent emotions before indicating their motives for emotion regulation. Because introverts may prefer to remain calm in performance contexts, Study 2 also included a measure of online calmness to control for state-dependent preferences. I expected the link between extraversion and preferences for happiness to remain unchanged even when controlling for concurrent emotions.

Method

Participants

Participants were 227 undergraduate students (60% women; average age = 18.76 years), who participated in return for partial credit toward an introductory psychology course requirement.

Materials

Extraversion scale. Participants completed the same scale used in Study 1 ($\alpha = .90$).

Concurrent emotions. The same scale used in Study 1 was used in Study 2 ($\alpha = .86$ and .70 for concurrent happiness and worry, respectively). In addition, ratings of the adjectives *relaxed* and *calm* were averaged to estimate concurrent calmness ($\alpha = .78$).

Recall alternatives. Participants rated the degree to which they would like to recall events that differed in both valence (i.e., happy vs. worri-

some) and content (i.e., friends, family, and school), following the rec-ommendations of Wegener and Petty (1994). This design resulted in six different events (e.g., ''an event in which you were happy concerning friends'') that were presented in an intermixed order. Participants rated the degree to which they would like to recall each of these events on a scale of 1 (*not at all*) to 5 (*extremely*).

Procedure

Participants were told that the study examined the relations between memory and task performance. They were told that they would be asked to recall an event from their past, write about it for approximately 10 min, and then complete another task. Participants were then randomly assigned to expect either an effortful or a non-effortful task. Participants who were assigned to expect an effortful task were told that they would need to prepare and give a short speech to the other participants. They were told that the speech should last about 5 min and that the experimenter would tell them what the speech should be about later in the session. Participants who were assigned to expect a non-effortful task were told that they would need to listen to music for a while. They were told that they would listen to music for approximately 10 min and that the experimenter would tell them what music they would listen to later in the session.

Following the critical manipulation, all participants rated their con-current emotions and completed an extraversion scale. Participants were then asked to rate the degree to which they would prefer to recall each of the listed events from their past before completing the next task. Participants were then debriefed.

Results

To assess motives for emotion regulation, valence-specific aggregates were created by averaging across preference ratings for events of a similar valence. This resulted in separate preference scores for hap-piness and worry. To test whether extraversion was related to stronger preferences for happiness or worry, preferences for happi-ness and worry were entered as a within-subject dependent variable in a repeated-measures ANOVA. Condition (1 = *effortful*, 0 = *non-effortful*) and gender were entered as between-subjects factors. Extra-version and online feelings were centered and entered as covariates.

On average, preferences to recall happy memories ($M = 3.94$, $SE = 0.05$) were higher than those for worrisome memories ($M = 2.04$, $SE = 0.06$), as indicated in a significant main effect for

Emotion, $F(1, 220) = 646.67$, partial $\eta^2 = .75$, $p < .001$. However, similar to Study 1, and consistent with the current prediction, this main effect was qualified by a significant Emotion × Condition × Extraversion interaction, $F(1, 220) = 3.95$, partial $\eta^2 = .02$, $p < .05$. This pattern did not vary as a function of concurrent emotions, $Fs < 1$.

To test whether extraversion predicted preferences for happy memories, worrisome memories, or both, I ran two multiple linear regressions in which either preferences for happy memories or preferences for worrisome memories were entered as dependent variables, with Condition, Extraversion, and their interaction as simultaneous predictors. Extraversion was not significantly related to preferences for worrisome memories, $rs = -.16$ in both conditions, $t < 1$. However, as expected, there was a significant Condition × Extraversion interaction when predicting preferences for happy memories, $t(226) = 2.05$, $p < .05$. To examine the nature of this interaction, extraversion was correlated with preferences for happy memories, separately in each condition. As expected, extraversion was significantly correlated with preferences for happy memories in the effortful ($r = .37$, $p < .001$, $N = 114$), compared to the non-effortful ($r = .18$, $p < .10$, $N = 113$) condition.

To plot the relationship between extraversion and preferences for happy memories, I ran simple regressions predicting such preferences from extraversion separately in each condition. These equations were used to compute mean preferences for happy memories in the effortful and non-effortful condition for individuals high ($+1$ SD) and low (-1 SD) in extraversion. The estimated means are presented in Figure 2.

Finally, to test whether the link between extraversion and preferences for memories was determined by the content rather than the valence of the recalled events, I ran a repeated-measures ANOVA in which I tested the complete 2 (Valence: Happiness vs. Worry) × 3 (Content: Friends, Family, School) within-subject design. The findings did not vary as a function of content, $Fs < 2.12$.[4]

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4. The analysis yielded additional findings that did not vary as a function of extraversion. Specifically, there was a significant Emotion × Condition interaction, $F(1, 220) = 31.29$, $p < .001$. Participants who expected a non-effortful task had stronger preferences for happy memories ($Ms = 4.20$ and 3.69, in the non-effortful and effortful conditions, respectively) as well as weaker preferences for worrisome memories ($Ms = 1.89$ and 2.20, in the non-effortful and effortful conditions, respectively).
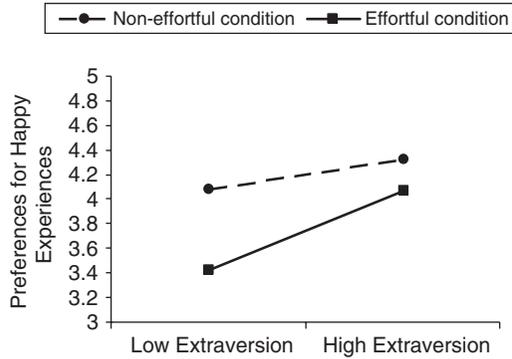
Figure 2
Preferences for recalling happy memories when anticipating an effortful or a non-effortful task as a function of extraversion (Study 2).

Discussion

The findings of Study 2 replicated those of Study 1 within a behavioral setting. Extraverts demonstrated stronger motives whereas introverts demonstrated weaker motives to increase their level of happiness. Such differential preferences for happiness, however, were found only when participants anticipated an effortful, but not a non-effortful, task. The context specificity demonstrated in Studies 1 and 2 suggests that trait-consistent emotional preferences may depend on the motivational relevance of trait-consistent emotions. Such preferences also remained constant when controlling for concurrent feelings, suggesting that they cannot be explained as state-congruent, or state-incongruent, preferences.

STUDY 3

Studies 1 and 2 did not factorially manipulate preferences within a Valence × Arousal framework. Therefore, in Study 3, participants rated their preferences for emotions that varied systematically in both valence and arousal. More specifically, participants were asked to rate their preferences for activities that were likely to induce happiness (positive, high arousal), worry (negative, high arousal), calmness (positive, low arousal), or boredom (negative, low arousal) in anticipation of completing an intelligence test. It was hypothesized

that extraversion would specifically predict preferences for happiness relative to calmness.

Another goal of Study 3 related to whether the findings could be attributed to levels of self-esteem rather than levels of extraversion. This is an important goal because it has been shown that higher levels of self-esteem are linked to preferences for positive emotional states (Wood et al., 2003). Given that self-esteem and extraversion are typically positively correlated, it is possible that the link between extraversion and preferences for happiness is driven by self-esteem differences. To test whether this is the case, Study 3 included a measure of self-esteem as a way of establishing the discriminant validity of the present predictions and findings.

Finally, the measure of emotional preferences in the present studies does not require conscious intervention. Thus, when indicating a preference for happy memories, participants might have been consciously trying to increase their level of happiness or they might have been largely unaware of their regulatory motives. Study 3 began to explore these possibilities by asking participants to justify their preferences.

Method

Participants

Participants were 40 undergraduate and graduate students (60% women; average age = 23.2 years), who were awarded $8 for their participation.

Materials

Concurrent emotions. Participants completed the same scales used in Study 2. Cronbach's αs for the current sample were .85 for concurrent happiness, .81 for concurrent worry, and .74 for concurrent calmness.

Extraversion scale. Participants completed the same extraversion scale used in Studies 1 and 2 (α = .87).

Self-esteem scale. Participants completed Rosenberg's self-esteem scale (α = .90). The scale involves agreeing or disagreeing with 10 statements indicative of high or low self-esteem (e.g., "On the whole, I am satisfied with myself").

Recall alternatives. Participants rated the degree to which they would like to recall several events that differed in valence (i.e., happy, calm,

worrisome, and bored) and content (i.e., friends, family, and school) presumably prior to performing an intelligence test. Due to the manipulation of both valence and content, there were 12 relevant events (e.g., ''an event in which you were calm, concerning family''). Participants rated the degree to which they would like to spend 10 min recalling each of these events on a scale of 1 (*not at all*) to 5 (*extremely*).

Procedure

The procedure was similar to the one used in Study 2 except for several changes. First, only an effortful condition was included. Second, to establish the generalizability of our findings, participants were led to expect a different effortful task. Specifically, participants were told that after they recalled and wrote about an event from their past, they were to complete an intelligence test. Third, participants rated their preferences for recalling certain types of memories before the intelligence test. Unlike Study 2, however, where participants rated preferences for happiness- and worry-inducing memories only, in Study 3 participants rated their preferences for recalling happiness-, calmness-, worry-, and boredom-inducing memories. Fourth, after they completed the extraversion scale, participants completed the self-esteem scale. Finally, participants were asked to explain what influenced their preferences for memories.

Results

To test whether extraversion was associated with stronger preferences for happiness-inducing activities, I first averaged across preference ratings for memories of the same emotional tone. This resulted in separate preference scores for happy, calm, worrisome, and boring memories. These preference scores were then entered as two within-subject factors in a repeated-measures ANOVA, to test a 2 (Arousal: High vs. Low) × 2 (Valence: Positive vs. Negative) within-subject design. Extraversion and concurrent emotions were centered and entered as covariates, with gender as a between-subjects factor.

On average, participants preferred to engage in activities that were likely to induce positive ($M = 3.49$, $SE = 0.12$) compared to negative ($M = 2.22$, $SE = 0.13$) states, as indicated in a main effect for Valence, $F(1, 35) = 50.40$, partial $\eta^2 = .60$, $p < .001$. Participants also preferred to engage in activities that were likely to induce higher arousal ($M = 3.23$, $SE = 0.10$) compared to lower arousal ($M = 2.48$, $SE = 0.12$) states, $F(1, 35) = 32.62$, partial $\eta^2 = .49$, $p < .001$.

I expected extraverts to show stronger preferences for happiness, compared to introverts. Supporting this prediction, there was a significant Valence × Arousal × Extraversion interaction, $F(1, 35) = 8.63$, partial $\eta^2 = .20$, $p < .01$. None of the effects with gender were significant, $Fs < 1.9$.[5] To examine the nature of this interaction, I ran a series of multiple linear regressions in which extraversion, gender, and online feelings were used to predict preferences for either happy, calm, worrisome, or boring memories. Extraversion predicted preferences for happy memories, $t(39) = 1.90$, $\beta = .31$, $p < .07$, but not calm, worried, or bored memories, $ts < 1$, suggesting that extraverts tended to have stronger preferences than introverts for happiness-inducing activities.

To test whether the link between extraversion and preferences for recalled events was determined by the content rather than the valence of the events, I ran a repeated-measures ANOVA to test the complete 2 (Emotion: Happiness, Calmness, Worry, Boredom) × 3 (Content: Friends, Family, School) within-subject design. The findings above were not qualified by content, $Fs < 2.20$.

To test whether the current patterns of emotional preferences were unique to extraversion or whether they might result from related individual differences in self-esteem, the repeated-measures ANOVA described above was repeated after entering centered self-esteem as a simultaneous predictor. The results remained largely unchanged, and none of the effects with self-esteem was significant, $Fs < 2.5$. This finding suggests that the links between extraversion and preferences for happiness cannot be explained by related differences in self-esteem.

Finally, when questioned about the motives for their preferences for recalling certain types of memories, only 9 out of 40 participants referred to the emotional tone of the activity, in all cases with a reference to increasing happiness for the sake of pleasure (e.g., "I chose a positive one because remembering negative memories isn't fun"). Of these 9 participants, only 3 were low in extraversion (i.e., below

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5. The analysis also yielded a significant Valence × Arousal × Concurrent Happiness interaction, $F(1, 34) = 13.85$, $p < .01$. Specifically, participants who reported feeling greater happiness tended to prefer recalling worrisome memories ($r = .28$, $p < .10$). Concurrent Happiness was largely unrelated to preferences to recall other types of memories ($rs = .03$, .08, and $-.17$ for happy, calm, and boring memories). This pattern further supports the argument that the present findings are driven by individual differences in extraversion rather than concurrent emotions.

the mean). The majority of participants referred either to the content of the memory (e.g., ''School is easier to write about'') or to other extraneous reasons (e.g., ''It was just the first to come to mind''). These preliminary findings suggest that, particularly when they contradict hedonic impulses, people may not always be aware of their emotional preferences.

Discussion

As demonstrated in Studies 1 and 2, extraverts exhibited stronger preferences, whereas introverts exhibited weaker preferences for happiness when anticipating an effortful task. Study 3 complements such findings in an important manner by showing that extraversion-linked preferences are not simply due to positive valence, but rather to the specific combination of higher arousal and positive emotions (i.e., happiness as opposed to calmness). As predicted, extraversion-linked preferences were also independent of levels of self-esteem, which has been linked to affect-related preferences in previous studies (e.g., Wood et al., 2003). In sum, Study 3 converges with the other studies in suggesting that extraversion is uniquely associated with a preference for experiencing happiness prior to motivationally demanding tasks.

GENERAL DISCUSSION

The present set of studies demonstrates a consistent and replicable association between extraversion and motives to increase happiness when anticipating effortful tasks. Individuals higher in extraversion showed stronger preferences to increase happiness relative to introverts. This association between the extraversion dimension and preferences for happiness was found in the context of effortful tasks, whereas no differential preferences were found in the context of non-effortful tasks (Studies 1 and 2). Moreover, the studies demonstrated that such extraversion-linked preferences were not due to concurrent emotions (Studies 2 and 3) and could not be accounted for by differences in self-esteem (Study 3). Together, the findings suggest that in contexts associated with anticipated effort, extraversion predicts preferences for emotion manipulations that are likely to increase happiness.

Implications Related to Extraversion

Individuals high in extraversion tend to experience more frequent pleasant emotions (e.g., Clark & Watson, 1999), are happier overall, and are more satisfied with their lives (Diener & Lucas, 2000). What underlies the link between extraversion and happiness? Extraversion may represent a largely heritable, biologically driven, disposition, characterized by sensitivity to rewards (Clark & Watson, 1999). Indeed, there is now direct evidence for the genetic basis of extraversion, linking it to variations in the dopamine D4 receptor gene, which is related to the anticipation of rewards and to the experience of aroused positive emotions (Canli, 2006; Knutson & Bhanji, 2006).

Genetic substrates of emotional traits, however, can contribute to both emotional reactivity as well as emotion regulation. Personality traits such as extraversion and neuroticism may be associated with distinct patterns of emotional reactivity and also with distinct patterns of emotion regulation (see Hariri & Forbes, 2006). Extraversion, for instance, is associated with different patterns of activation in prefrontal areas of the brain that appear to be involved in the inhibition of the amygdala—a brain area implicated in emotional responding (Rauch et al., 2005).

The current findings further support the assumption that the link between extraversion and emotional experiences may be mediated by different patterns of emotion regulation. The present findings, in this regard, were not due to currently experienced feelings but rather to preferences for emotion inductions prior to upcoming performance tasks. The fact that introverts, relative to extraverts, were consistently less inclined to choose inductions likely to increase happiness establishes a link between extraversion and *preferences* for happiness independent of concurrent emotions. These results highlight regulatory choices related to emotional self-regulation and find that extraversion is related to such choices, particularly in relation to inductions of positive high arousal emotions.

To the extent that people behave in ways that are consistent with their preferences, extraverts may be more likely than introverts to actively try to increase their happiness in effortful performance contexts. Such regulatory attempts, in turn, may contribute to the robust relation that characterizes the extraversion-positive affect relationship (for reviews, see Depue & Collins, 1999; Lucas & Fujita, 2000). Introverts, on the other hand, are less likely to try to actively increase

their happiness in performance contexts—a tendency that may lead them to experience less positive affect over time.

Implications Related to Emotion Regulation

The present findings suggest that the desire to feel happy is not consistent across individuals or across contexts. Rather, it critically depends on one's level of extraversion and on immediate motivational demands. In this respect, the present findings converge with several other findings in demonstrating that emotion regulation is not driven exclusively by short-term hedonic considerations and that individuals vary in their motives for emotion regulation (Erber et al., 1996; Tamir, 2005; Tamir et al., 2007, 2008; Tsai, Knutson, & Fung, 2006; Wood et al., 2003). The present investigation, however, extends such prior findings in important ways. First, it demonstrates that individual differences and contextual variations should be considered in concert to fully understand emotion regulation. Second, it focuses on the unique case of trait extraversion and preferences for happiness, in particular.

Why do some people seek greater happiness in certain contexts whereas others seek relatively lower levels of happiness? One possibility is that individuals seek experiences that are consistent with their typical experiences (Mayer & Stevens, 1994). In other words, individuals may differ in their emotional set point (Diener & Lucas, 1999). Although this certainly might be the case with respect to extraversion (Rusting & Larsen, 1995), such epistemic considerations cannot fully account for the present findings because they should be largely consistent across contexts. In this investigation, however, differential preferences were found only when participants expected an effortful task.

A second possibility is that happiness may serve different motivational functions for different individuals. According to Higgins (2000), high arousal positive states are seen to promote reward-seeking activity and may be particularly useful for individuals who are typically motivated to approach rewards. On the other hand, individuals who are low in reward-seeking activity may benefit more (i.e., be more engaged, value the pursuit more, and be more successful; Higgins, 2000) from neutral emotional states, which are more consistent with their motivational orientation. The fact that

preferences for happiness differed as a function of extraversion only in motivationally relevant contexts is consistent with this hypothesis.

Future Directions

The current findings demonstrate that individuals high (vs. low) in extraversion have stronger preferences for happiness-inducing activities when they anticipate a potentially effortful task. One pressing question for future research is whether happiness might, in fact, have different consequences for individuals high (vs. low) in extraversion. For example, might happiness facilitate the performance of individuals high, but not low, in extraversion? There are some data to suggest that happiness can have different implications for individuals high (vs. low) in extraversion. Tamir, Robinson, and Clore (2002) found that individuals higher in extraversion were faster to determine the motivational significance of objects when they were happy, compared to a neutral or negative mood state. Such findings suggest that there may be pragmatic benefits to trait-consistent affect. These differential benefits, in turn, may result in different emotional preferences. Exploring the potential implications of happiness for motivation and performance among extraverts and introverts is an important task for future research.

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