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The Influence of Positive Affect on Intrinsic and Extrinsic Motivation: Facilitating Enjoyment of Play, Responsible Work Behavior, and Self-Control

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Two experiments demonstrated that positive affect fosters intrinsic motivation, as reflected by choice of activity in a free-choice situation and by rated amount of enjoyment of a novel and challenging task, but also promotes responsible work behavior in a situation where the work needs to be done. Where there was work that needed to be done, people in the positive-affect condition reduced their time on the enjoyable task, successfully completed the work task, but also spent time on the more enjoyable task. These results indicate that positive affect does foster intrinsic motivation, and enjoyment and performance of enjoyable tasks, but not at the cost of responsible work behavior on an uninteresting task that needs to be done. Implications for the relationship between positive affect and such aspects of self-regulation as forward-looking thinking and self-control are discussed.

KEY WORDS: self control; positive affect; intrinsic motivation.

Recent research has reflected increasing interest in the influence of positive affect on cognitive processes and behavior. Over the past two decades researchers have investigated the impact that affect has on a wide variety of behavior and thought processes, including memory, decision making, risk preference, problem solving and creativity, to name just a few. Much of this work indicates that positive affect facilitates flexible thinking and problem solving, and enhances performance, even where the tasks to be done are complex, difficult, and important (see, for example, Isen, 2000, for an overview of some of this work, and Aspinwall, 1998, for discussion of applications of the findings).

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Complex, difficult, or important tasks are noteworthy because they require motivation and sustained effort over time. Yet, until recently there has been little attention paid to the influence of positive affect on motivation per se, other than the cueing of specific, affect-focused goals such as positive affect maintenance or negative affect repair (e.g., Cialdini, Darby, & Vincent, 1973; Isen & Simmonds, 1978; Wegener & Petty, 1994; see Isen, 1993, 2003, for discussions). Recently, however, attention has begun to turn to potential influences that affect may have on motivation through expectations and planning, and the implications of these motivational effects for behavior and performance (see, for example, Erez & Isen, 2002).

In the present paper, we investigate how positive affect influences two types of motivation, intrinsic and extrinsic, and how people may integrate, or accommodate, the need to respond to both of these. In Experiment 1, we focused on the influence of positive affect on intrinsic motivation, as measured by choice of activity, enjoyment of the activity, and amount of time spent engaging the chosen activity. We predicted that a positive affect induction would enhance the intrinsic motivation to perform an enjoyable activity and the intrinsic motivation people experience while engaged in that activity. In Experiment 2, we focused on the influence of positive affect on both intrinsic and extrinsic motivation. Specifically, we examined how feeling happy may influence behavior in situations in which the extrinsically motivated activity is work that needs to be done. We predicted that positive affect would facilitate responsible self-regulation in free-choice situations that offer people opportunities for both intrinsically-motivated play and extrinsically-motivated work. That is, we predicted that people who feel good would balance the needs of the work situation with their own inclination toward a more enjoyable activity. Such situations, in which people must choose between work and play, or must stay on task even when they know that there are more enjoyable activities that they could be doing, are relevant to the broader topics of self-control and performance, and have implications for settings such as the workplace and the classroom.

POSITIVE AFFECT AND INTRINSIC MOTIVATION

Intrinsic motivation is the motivation to engage in a task for its own sake – out of interest and/or enjoyment – and not as a means to another reward. In the empirical literature on the topic, intrinsic motivation has been defined and measured in two ways: (1) through a person's self-report of how interesting and enjoyable the task is, and (2) through the behavioral measures of choice of, and amount of time engaged with, the task during a free-choice period in which there are no extrinsic rewards or incentives associated with choosing or engaging in the task (Harackiewicz, 1979).

There are a number of reasons to expect that positive affect might increase intrinsic motivation. First, it has been shown that positive affect increases people's interest and enjoyment of moderately interesting activities. For example, in one paper involving a simulated managerial situation, it was demonstrated that positive affect led to increased satisfaction and evaluation of enriched (but not dull, routine) tasks—an effect that could signify greater intrinsic motivation (e.g., Kraiger, Billings, & Isen, 1989). For another example, positive affect increased the valence of moderately desirable rewards, in a series of studies investigating the influence of positive affect on the components of expectancy motivation (Erez & Isen, 2002). And in another series of studies, mild positive affect increased variety seeking among safe, enjoyable products (but not if the products were of questionable quality; Kahn & Isen, 1993). Thus, since positive affect increases the valence and evaluation of moderately attractive activities, but not of clearly unattractive activities, it appears capable of increasing intrinsic motivation associated with moderately attractive activities (through increased potential for selection of the more interesting task).

In addition to affecting how interesting a task is *expected* to be, in the way described above, positive affect also enhances people's experiences of interest, enjoyment, and sense of satisfaction derived from the activity, *during* their actual engagement with the task. For instance, while people are engaged in their work, induced positive affect increases the inherent satisfaction they feel from the work, and it has also been shown to increase the creativity with which they go about the task, to improve their performance on creative-problem-solving tasks as well as other tasks (e.g., Erez & Isen, 2002; Isen, Daubman, & Nowicki, 1987; Staw & Barsade, 1993). Consequently, positive affect should not only influence people's expectations of how interesting a task will be, thereby playing a role in regulating task selection, it should also influence how enjoyable the task is during its actual engagement. In that way as long as the task is at least moderately enjoyable positive affect would be expected to influence evaluation of the experience of the task and increase persistence at the task.

For these reasons, we expected positive affect to increase people's interest in a potentially interesting task, and thus people's intrinsic motivation. As we have noted thus far, the research also shows, however, that positive affect does not influence these appraisals and cognitive processes in the same way across all types of activities. Instead of exerting a general, global "mood-congruent" effect on all cognitive judgments that it does affect (as suggested by Forgas's "Affect Infusion Model," 1995, 2002, and other models of mood-congruent judgment, such as those proposed by Bower, 1981, or Salovey & Birnbaum, 1989), positive affect has been shown to interact with characteristics of the task to influence evaluation of some tasks, in some situations, but not of all tasks, in all situations. For example, positive affect results in more favorable judgments on mildly positive and neutral tasks, but it does not enhance these same judgments on negative tasks (e.g., Erez & Isen, 2002; Isen & Shalker, 1982; Kraiger et al., 1989). On material or tasks

that are unpleasant, unappealing, boring, aversive, or risky, positive affect does not change people's perceptions of task characteristics, valence, or satisfaction, nor does it influence their behaviors with regard to the task or task materials, such as their variety seeking, categorization, innovation, or creative problem solution (e.g., Isen, Johnson, Mertz, & Robinson, 1985; Isen, Niedenthal, & Cantor, 1992; Kahn & Isen, 1993; Kraiger et al., 1989). Because positive affect enhances cognition on appealing and enriched – but not on unappealing – activities, this suggests that positive affect will increase intrinsic motivation only for an enriched or interesting activity. It also suggests that there is no reason to expect that positive affect will increase intrinsic motivation for a routine or uninteresting activity, unless there is some other reason to perform the task.

Thus, we predict that positive affect will increase intrinsic motivation for a task with potential for interest and enjoyment, but not for a dull, routine task. This means that if a situation offers both interesting and uninteresting things to do, and offers a choice between them, if all else is equal, people in positive affect will be more likely to choose and engage the more enjoyable task, report greater enjoyment of it, and spend more time engaging it during a free-choice opportunity, compared with controls. We have not yet considered, however, the situation in which extrinsic motivation and intrinsic motivation may suggest different courses of action because the person has a choice between an interesting activity and an uninteresting activity, but the uninteresting task is associated with either an attractive extrinsic incentive or a required work assignment. We address that issue next.

POSITIVE AFFECT AND RESPONSIBLE WORK

Although there is ample evidence that positive affect promotes such activities as enjoyment, there is also reason to believe that positive affect will foster responsible behavior and will not simply promote engagement in fun activities, if there is important work that needs to be done. We see this as arising from the fact that positive affect leads people to see and consider multiple aspects of situations and act in accord with a complex, forward-looking approach to their situation. This suggestion contradicts the prevalent stereotype of positive affect as promoting simplified cognitive processing and a superficial, short-sighted approach to situations (e.g., Forgas, 1995, 2002; Schwarz & Bless, 1991; see also Aspinwall, 1998 and Isen, 1993, 2000, for discussions of this issue).

Our view is based on a large amount of data showing that people in positive affect are more likely than controls to consider the details of the situation and respond accordingly. These findings, obtained in studies involving both induced affect and related individual differences such as optimism, show that, among the positive-affect participants, relative to controls, there is a striking degree of moderation of judgment and behavior that depends on the details of the situation

(see Aspinwall, Richter, & Hoffman, 2001, for review). For example, as has already been mentioned, many experiments have shown that people in positive affect differentiate between situations, and differentiate between stimuli, in responding, in many contexts, from evaluating positive, negative, and neutral slides (e.g., only the neutral slides are evaluated more positively by people in positive affect than by controls), to word associations, to categorization of person types, to evaluation of jobs and work satisfaction, naming just a few (e.g., Isen et al., 1985; Isen, Niedenthal, & Cantor, 1992; Kraiger et al., 1989).

Further, the studies that showed that positive affect improved evaluation of moderately positive material or situations (but not other material or situations) did not show any tendency for positive affect to promote defensiveness or distortion or over-reaction to negative material, such as denial of the material or decreased evaluation of it compared with controls (e.g., Estrada, Isen, & Young, 1997; Isen & Shalker, 1982; Kraiger et al., 1989). In addition, there is evidence that positive affect does not lead to distortion or ignoring of negative material, such as health risks or information that would convey that a person is vulnerable to those kinds of risks (e.g. Aspinwall, 1998; Aspinwall & Brunhart, 1996, 2000; Aspinwall & MacNamara, 2005; Reed & Aspinwall, 1998). Relatedly, positive affect also promotes interest in self-relevant liability information, especially when that information is believed to be of high quality (e.g., Trope & Neter, 1994; Trope & Pomerantz, 1998). In another experiment showing that people in positive affect are more open to potentially threatening information if it holds promise of helping them solve the problem they are attempting to solve, doctors engaging in a diagnostic process who were in the positive-affect condition were less likely than controls to distort or ignore information that did not fit with an initial hypothesis they were considering (Estrada et al., 1997).

Third, importantly, several studies investigating the risk attitudes and choices of people in positive affect showed that, in situations of meaningful potential loss, positive affect led people to be risk-averse compared with controls – indicating that they are not impulsive and do not throw caution to the wind, but consider the details of the situation and evaluate the likely longer-term impact of their decisions (e.g., Isen & Geva, 1987; Isen, Nygren, & Ashby, 1988; Nygren, Isen, Taylor, & Dulin, 1996). In one of those studies, notably, a thought-listing task following the risk-assessment indicated that people in the positive-affect condition had more thoughts about losing and the potential loss than did controls (Isen & Geva, 1987). In another of those experiments, people in the positive-affect condition showed that the possible loss held a greater disutility for them, indicating that they, compared to people in the control condition, would feel worse if they lost (Isen, Nygren, & Ashby, 1988). Still another set of experiments, this time on variety-seeking, showed that positive affect led to sampling of more different items and a larger consideration set for a person's choices among products, but only if the products were likely to be safe and enjoyable (Kahn & Isen, 1993). All of this suggests that positive affect leads people to consider the details of the situation, and especially

the possible likely outcomes of their choices, before they choose. This prompts us to expect that positive affect will not lead people to ignore work that needs to be done, in favor of playing, in situations where there is a good reason to complete a work-task.

Given that there is, thus, reason to expect positive affect to foster enjoyment, but also to give rise to responsible work behavior, one question that remains, then, is how extrinsic motivation of the kind that is characteristic of work situations, would interact with the heightened intrinsic motivation that is fostered by positive affect. The purpose of the present research is to investigate the influence of positive affect in situations where the person must choose between these two kinds of motives, fun and work, or intrinsic and extrinsic motivation. On balance, we predict that, even though positive affect will promote intrinsic motivation and enjoyment of enjoyable activities, people in positive affect, in a situation where work needs to be done, will not neglect that work, compared with controls, but will complete work tasks carefully and thoroughly even though they will also engage the more attractive task.

EXPERIMENT 1

Overview

People do not engage in routine, boring, or aversive activities out of intrinsic motivation. Instead, they engage in these sorts of activities out of extrinsic motivation, such as doing a boring task in order to gain a monetary incentive for doing so. Thus, in our study of how positive affect affects people's motivation and behavior, we introduced participants to two activities: One task was an inherently interesting one that had no extrinsic incentive associated with its performance, while the second task was an inherently uninteresting activity that did have an incentive associated with it. Following the lead of those who study intrinsic motivation (e.g., Deci & Ryan, 1985), we included the interesting activity to facilitate an intrinsic motivational orientation; for the other task, we offered participants a small monetary incentive for engaging in the otherwise uninteresting activity, to facilitate an extrinsic motivational orientation.

We predicted that the positive affect participants would find the interesting task, but not the uninteresting task, to be significantly more interesting and enjoyable than would the neutral affect participants. Further, because the incentive associated with the uninteresting task was small ($2.00) and would require a lot of tedious work on the uninteresting task in order to be obtained, we further predicted that positive affect participants would spend significantly more of their free-choice time engaged with the interesting activity than with the extrinsically motivated task, and more than would neutral affect participants. For the neutral affect participants, we predicted that they would spend most of their free-choice time engaged

with the uninteresting but extrinsically motivating (opportunity to earn a small amount of money) activity. This prediction was based on the expectation that the neutral affect participants would not find the interesting activity as interesting as would the positive affect participants, and this relative lack of interest would leave them more likely to pursue the task associated with the financial incentive, small and difficult-to-obtain though it was.

The design of the study was a one-way ANOVA with three levels, one positive-affect condition, and two control conditions.

Method

Participants

Sixty introductory psychology students, 36 women and 24 men, at a private university in the northeast participated in exchange for partial fulfillment of a course requirement.

Affect Manipulation

To each participant the experimenter administered one of three randomly scheduled affect or control manipulations: positive affect; neutral affect, rate-candy (henceforth, "neutral-rate"); or neutral affect, rate-candy-after (henceforth, "neutral-rate after"). In the positive-affect condition, the experimenter told the participant that he was collecting pilot data for a professor and asked if he could take a moment of the participant's time to rate two stimuli as possible gifts. The experimenter took the two bags of candy from a shelf, and each bag contained 10 pieces of wrapped candy and was attractively presented in a clear bag with a piece of bright red yarn tied in a bow. The only difference between the two bags was that one contained colorful hard candies while the other held chocolate candies. The experimenter asked the participant to provide a verbal rating of 1–7 as to how attractive each would be as a gift, either to a friend or to self. After the participant rated each bag, the experimenter asked the participant to think about the candies once again but this time exclusively as a gift to self, saying that he would give the participant the one he or she preferred, as a gift. After the participant indicated his or her choice, the experimenter gave the subject the gift and returned the other bag to the shelf.[4] This allowed participants about 30 s to assimilate the experience of having received this small gift. No one ate any of the candy during the experimental session.

[4]Overall, participants rated the colorful hard candies ($M = 4.5$) and assorted chocolates ($M = 4.5$) as equally attractive. As to the choice between the two bags, participants split almost evenly (21 of 40, 52% preferred the hard candies). Participants' attractiveness ratings and choice between bags of candies did not differ as a function of the affect manipulation.

In the neutral-rate condition, the experimenter followed the same procedure as in the positive-affect condition, except that he did not ask the participant to choose one of the bags as a gift. Rather, the experimenter asked the participant only to rate each bag as to how attractive a gift it would make and then returned both bags to the shelf. This condition was included in order to control for the possibility that having the additional brief interaction with the experimenter, or seeing the bags of candy, would influence the results. In the second neutral-affect condition (neutral-rate after), the experimenter did not have any extra interaction with the participant or show him/her any colorful candy before the main part of the study, but showed the participant the two bags of candies only at the end of the experimental session. This condition was included in order to rule out the possibility that any results might be attributable to the participants in the neutral-rate condition having experienced negative (rather than neutral) affect because the candy was shown, but not given, to them.

Experimental Tasks

There were two experimental tasks, one that was relatively interesting and one that was relatively uninteresting. The interesting task was a three-dimensional puzzle that consisted of eight metallic blocks attached with hinges. We knew from previous studies with the cube puzzle (e.g., Reeve, 1989) that (1) college students rate the puzzle as interesting and enjoyable, and that therefore the puzzle would be appropriate for studying intrinsically motivated behavior in a laboratory setting, and (2) no participant had ever reported having encountered it before. During the session, the experimenter asked the participant to solve the "cube" solution of the puzzle, and also provided a scaled, wooden block replica of the cube solution as a visual aid. Three other solution replicas were also resting on the tabletop, as these were additional solutions the participant might wish to attempt during the free-choice interval.

The uninteresting task was an activity that involved identifying strings of letters that were in correct alphabetical order from a large set of letter strings typed in columns and rows on 8 1/2 × 11 in. sheets of white paper. Each individual letter string had 6 letters typed side-by-side, and there were 32 such letter strings listed on a first page (8 columns, 4 rows). The experimenter explained that the participant's task was to inspect the sheet of 32 letter strings and circle any string that had its letters ordered alphabetically from left-to-right. For example, participants were to circle "bclpux" but not "cplsyv" or "drpeql." Just as the cube-shaped model served as a demonstration solution for the puzzle, this first page of 32 letter strings served as a demonstration page for the letter-string task. A second page – that constituted the actual letter-string task for the study – listed 234 letter strings in 9 columns and 26 rows; of these 234, 15 alphabetized letter strings were dispersed randomly throughout the page. This second page served as the letter-string task

that the participant could choose to perform during the 8-min free-choice interval. Our pilot work showed that the 32-string page required about 2 min to complete whereas the 234-string page required about 15 min to complete.

Materials

Measures of Intrinsic Motivation. To measure intrinsic motivation, we used both a behavioral and a self-report measure. For the behavioral measure, the experimenter observed the participant through a one-way mirror during an 8-min, free-choice interval to record whether the participant engaged the puzzle, the letter-string task, or an off-task (e.g., a magazine) activity, as well as how many times and for what duration, the participant took up each activity. During his observation, the observer held a continuously running stopwatch (LCD Quartz by Micronta) to record the minutes and seconds of each change in the participant's free-choice behavior (e.g., 0:00, starts puzzle 1; 3:12, ends puzzle 1, starts puzzle 2; 3:58, ends puzzle 2, starts People magazine; 6:20, starts letter-string task; 6:25 ends letter-string task, just sitting still). The total number of seconds for which the participant engaged the puzzle during the free-choice interval served as the behavioral measure of intrinsic motivation (i.e., 238 s. in the example above). Our previous work used two independent raters who watched a videotape of such free-choice activity as each recorded this behavioral measure of intrinsic motivation. Each rater viewed the videotape separately (i.e., independently) and was unaware of the experimental condition of each participant in the videotape. Using this procedure, raters reported extremely high reliabilities in regard to the number of seconds participants engaged a target activity ($r > .99$; see Reeve, Olson, & Cole, 1985). Thus, because independent raters had provided near perfectly reliable ratings of free-choice persistence, we chose to use only the single observer, a decision that gained us the ethical advantage of not videotaping participants during the free-choice interval without their awareness.

For the self-report measure of intrinsic motivation, an 8-item questionnaire administered after the free-choice period assessed participants' ratings of how interesting and enjoyable they had found each task to be (1 = "strongly disagree," 7 = "strongly agree"). The eight individual items were as follows: "It stimulates my curiosity"; "It is interesting"; "It is fun"; "I want to continue investigating it"; "It makes feel curious about it"; "It is enjoyable"; "It makes me want to explore it further"; and "I would be willing to come back and participate in a future experiment that used this activity." The internal consistency of each scale was high: *alpha* = .92 for the interesting puzzle and .93 for the uninteresting letter-string task.

Measure of Performance Speed. In addition to assessing the behavioral measure of intrinsic motivation during the free-choice interval, we estimated each participant's performance speed at finding the letter strings. We calculated each

participant's performance speed by dividing the total number of seconds spent on the letter-string task by the number of letter strings correctly circled during the free-choice interval. Lower numbers, therefore, represent faster performance speed.

Procedure

Participants were tested one at a time, by a male experimenter. At the start of the session, the experimenter asked the participant to sit across from him at a rectangular table. On the table, to one side of the participant, lay the cubes puzzle and its cube-solution model, and to his or her other side lay the two-page letter-string task. Whether the puzzle (or the letter-string task) was to the participant's right or left was counterbalanced so that the puzzle was on the right for half of the participants. On the far right-hand side of the table was a stack of current, popular magazines (e.g, People) that functioned as an off-task alternate activity that could be engaged in during the free-choice interval.

The experimenter announced that the purpose of the experiment was to pilot test two activities to assess people's initial impressions of each. He said that he was thinking about using the activities in later research; so, today, he was asking the participant to become familiar with each task and then report whatever his or her impressions came to be. After the participant signed the consent form, the experimenter administered the affect manipulation. Following the affect manipulation, the experimenter introduced the puzzle and letter-string activities in sequence, with the order of presentation counterbalanced. The cube solution of the puzzle and the first page of the letter-string task, intended only to familiarize the participant with each task, took roughly 2 min each to complete.[5]

After the participant completed both the cube and page 1 of the letter-string task, the experimenter explained that he had allowed the participant only enough time to formulate a tentative impression of each activity. He said that he now wished to provide the participant with a more extended opportunity with the activities. To do this, the experimenter said, he planned to leave the experimental room and allow the participant to be alone with the activities. The experimenter said he would return after 8 min and ask the participant to report his or her impression of each activity on a questionnaire. He encouraged the participant to use this time to gain further familiarity with either or both tasks, so long as the participant believed that further engagement might solidify his or her impression of each task. The experimenter then announced that if the participant identified

[5] We tested for possible order effects to see whether first playing with one activity or the other affected any of our five dependent measures. Participants who puzzle-solved first did not differ significantly from participants who engaged the letter strings first on any measure: Interest in puzzle ($t < 1$); interest in letter strings ($t < 1$); free-choice persistence with puzzle ($t = 1.61$, $p > .1$); free-choice persistence with letter strings ($t = 1.28$; $p > .1$); and performance speed on letter strings ($t = 1.37$; $p > .1$).

and circled all 15 alphabetized letter strings on page two of the letter string task, he or she would receive $2 as a prize. Before his exit, the experimenter announced that the participant was free to do as he or she pleased –"play with the puzzle, work on the letter strings, do both the puzzle and the letter strings, read a magazine, or just whatever you please."

The experimenter left the room and went next door to an observation room from which he observed the participant's behavior through a one-way mirror during the 8-min period. This 8-min period constituted the free-choice interval in which the experimenter recorded the time the participant spent engaged with each task. After the free-choice interval, the experimenter re-entered the experimental room and administered the post-experimental questionnaire to assess the participant's interest/enjoyment on each task. After the participant completed the questionnaire, the experimenter announced that the experiment was over, and debriefed the participant. During the debriefing, the participants in the two control groups received the bag of candy of their choice.

Extrinsic Incentive for the Uninteresting (Letter-String) Task. To create an extrinsic motivational orientation for the uninteresting task, the experimenter announced that if the participant circled all 15 alphabetized letter strings (on the second page of the task) during the experimenter's absence (the free-choice interval), then he or she would receive a prize of $2. To receive the prize, however, the experimenter stipulated, the participant had to circle all 15 alphabetized letter strings while not circling any of the other (false-positive) 219 letter strings. Pilot testing determined that (1) it was unlikely that any participant could complete the page of 234 letter strings in the allotted 8 min, and (2) most participants believed that they could complete the page before the experimenter's return (i.e., in less than the allotted 8 min). Denying participants enough time to complete the page was necessary to insure that no participant actually gained the $2 prize, a confound that might have affected participants' ratings of how (intrinsically) interesting they found that task to be. That is, if a participant actually gained the $2 prize, it would have been impossible on the questionnaire to disentangle reported intrinsic interest (in doing the letter-string task per se) from extrinsic interest (generated by having won the prize for doing the letter-string task).

Results

Preliminary Data Reduction

We expected no mean differences to occur between the two control groups on any dependent measure. As expected, the neutral-rate group did not differ significantly from the neutral-rate-after group on any dependent measure, all $t(38)$'s < 1, n.s.: Interest in puzzle (Ms, 5.43 vs. 5.61); interest in letter strings (Ms, 4.27 vs. 4.31); free-choice persistence with puzzle (Ms, 127.0 vs. 127.7); free-choice

Table I. Experiment 1: Means and Standard Deviations (in Parentheses) of Amount of Free-Choice Time (in Seconds) Spent on Each Task, and Proportion of Participants Beginning the Free-Choice Interval with Puzzle-Solving

	Puzzle (Interesting) task		Letter-string (Uninteresting) task	
Dependent measure	Positive affect $n = 20$	Neutral affect $n = 40$	Positive affect $n = 20$	Neutral affect $n = 40$
Number of seconds[a]				
M	233.3	127.4	236.2	327.5
(*SD*)	(183.1)	(154.5)	(182.1)	(175.7)
Initial choice				
Began FCI[b] with puzzle activity	13/20	13/40		

[a]Total number of seconds spent on each task, possible range 0–480.
[b]FCI = Free-choice interval.

persistence with letter-string task (*M*s, 347.5 vs. 307.5); and performance speed at finding alphabetized letter strings (*M*s, 55.1 vs. 59.4). Because these two groups did not differ on any measure, we collapsed the data from the two neutral affect groups to form a single control group ($n = 40$) for all remaining tests.

Tests of Hypotheses

Table I shows the means, standard deviations, and number of participants per condition for the behavioral measure of intrinsic motivation (i.e., number of seconds spent on each task), and the proportion of participants in each condition who chose to begin their free-choice session with the puzzle (i.e., chose the puzzle for their initial task).

Number of Seconds on the Two Types of Tasks

A planned comparison showed that positive-affect participants spent more time ($M = 233.3$ s) on the interesting task than did neutral affect participants ($M = 127.4$ s), $t(58) = 2.35$, $p < .05$. There was no significant difference, however, between groups in the amount of time they engaged in the uninteresting task (*M*s = 236.2 s and 327.5 s, respectively, $t = 1.85$, ns, two-tailed).

As shown in Table I, participants in the positive-affect condition split their time about evenly on the two tasks, whereas the participants in the control condition spent about 70% of their time on the task that had the potential of paying $2.00. We could not directly test whether there was an interaction between affect and type of task, because the persistence times for the two tasks were not independent of one another (i.e., playing with the puzzle meant not spending that time on

the letter-string task and vice versa, even though there were also other activities that could be engaged in, such as reading magazines). However, as noted, people in the affect condition spent significantly more time on the interesting task than controls, but did not spend significantly less time than controls working on the uninteresting task (suggesting that they did not completely neglect the task that could pay money, either). We do address the formal interaction between these conditions using a subsequent measure, interest and enjoyment (to be reported later), on which scores were independent of one another.

Initial Task Choice

We also examined which of the two activities each participant initiated first during the free-choice time. By looking at the initial-task choice measure, we hoped to identify an additional indication of each participant's initial motivational orientation (i.e., intrinsic or extrinsic). Positive affect participants were more likely to begin their free-choice activity by engaging the interesting puzzle (13 of 20, 65%), while neutral affect participants were more likely to begin their free-choice time by engaging the uninteresting (but extrinsically motivating) letter-string task (27 of 40, 68%), χ^2 ($df = 1, N = 60$) $= 6.70, p < .05$. This finding supports our expectation that people in positive affect would be more intrinsically motivated than controls.

Interest Ratings

Table II shows the means, standard deviations, and number of participants per condition for the self-report measure of intrinsic motivation (i.e., self-reported interest/enjoyment). A two-way ANOVA revealed significant main effects for both affect and type of task. Positive-affect participants reported greater interest/enjoyment across tasks than did neutral affect participants (*M*s, 4.86 vs. 4.29), $F(1, 58) = 4.35$, $p < .05$, and participants reported greater interest/enjoyment on the interesting task than the uninteresting one (*M*s, 5.19 vs. 4.11), $F(1, 58) = 39.05$, $p < .001$. These main effects were qualified, however, by a significant affect by task interaction, $F(1, 58) = 4.10$, $p < .05$. Planned comparisons revealed that positive-affect participants reported greater interest/enjoyment for the puzzle than did neutral-affect participants (*M*s, 5.91 vs. 4.83, $t = 3.03$, $p < .05$), but not more (nor less) interest/enjoyment for the letter-string task (*M*s, 3.81 vs. 3.75, $t < 1$, *n.s.*). Thus, the apparent main effect of affect on interest/enjoyment results from the evaluation of the puzzle task only and does not reflect a more global tendency on the part of people who feel good to evaluate everything more positively.

Table II. Experiment 1: Number of Participants, Means, and Standard Deviations (in Parentheses) of Self-Reported Intrinsic Interest in Each Task for Each Affect Condition

	Puzzle (Interesting) Task		Letter-string (Uninteresting) Task	
Dependent measure	Positive affect $n = 20$	Neutral affect $n = 40$	Positive affect $n = 20$	Neutral affect $n = 40$
Self-report interest/enjoyment[a]				
M	5.91	4.83	3.81	3.75
(*SD*)	(.74)	(1.24)	(1.73)	(1.50)

[a]Higher scores represent greater interest/enjoyment, possible range is 1–7.

Performance Speed/Accuracy

Seven participants (4 positive affect, 3 neutral affect) spent no free-choice time working on the letter-string task, so it was impossible to calculate performance speed for these participants. The performance speed analyses therefore include data from only 53 participants.

Positive affect participants performed significantly faster than did the neutral affect participants, (*M*s, 42.7 s per letter string identified vs. 57.0 s, $t(51) = 2.29$, $p < .05$). Recall that they did not spend significantly less time than controls working on the letter-string task. To insure that the faster performance of the positive affect participants was not achieved at a cost of performance quality, we tabulated the error (false-positives) rate made by each participant as he or she attempted to circle the alphabetized letter strings (i.e., error rate = number of incorrect letter strings circled divided by total number circled). The positive affect participants had a group mean error rate of 3%, as 1 participant had an error rate of 17%, 1 had an error rate of 25%, and the remaining 14 had 0% error rates. The neutral affect participants had a group mean error rate of 2%, as 6 participants made a single error (individual error rates of 7%, 7%, 9%, 9%, 17%, and 20%), and the remaining 31 participants had 0% error rates. This difference in error rates between the positive and neutral affect participants was not significant, $t(51) < 1$, *n.s*. Thus, the positive-affect group's faster performance on the relatively unpleasant task does not signify more superficial or sloppier task performance.

EXPERIMENT 2

In the previous experiment, we found that when given a free-choice opportunity to engage either a fun-and-interesting task or an uninteresting-but-extrinsically-motivating task, people in the positive-affect condition chose the intrinsically motivating task more than controls did, and they also reported liking

that task more than controls did. It should also be noted, however, that in this context, where both tasks were presented as important to the experimenter, the positive-affect participants did spend a reasonable portion (about half) of their time on the less-preferred task as well. In contrast, neutral-affect controls chose the extrinsically motivating task to a greater extent than the interesting task, even though they rated the interesting task as significantly more interesting and enjoyable than the other task.

We interpret the free-choice persistence behavior of positive-affect persons on the enjoyable task as a reasonable choice, given that they were told the choice was theirs. However, it is also possible that their choice resulted from a desire to avoid becoming involved in a task that was possibly incompatible with, or even antagonistic to, their good mood, as has been found in some previous studies (e.g., Isen & Simmonds, 1978). However, as noted above, they did spend half of their time working on the less preferred letter-string task, and consequently this argument is not persuasive. Thus, in contrast to some researchers' assumptions that people in positive affect will avoid unpleasant tasks above all else (e.g., Erber & Erber, 2000; Wegener & Petty, 1994; Wegener, Petty, & Smith, 1995), the results of the first study indicate that people in a mild positive state do work on their less-preferred task (as much as controls do) and perform just as accurately on it, not making more errors than controls. Interestingly, participants in the positive-mood condition achieved the same level of accuracy with a significantly greater rate of speed. They also spend more time on their preferred task, which they also like more than controls do.

These findings run counter to another alternative prediction – that people in positive affect will behave irresponsibly or show a carefree aversion to work – because the results showed that they did spend half of their time on the task that was less pleasant but on which they could possibly earn a small amount of money ($2.00). One possible reason for their engaging the less interesting task might have been that they believed that spending some of their time on that task could have been helpful to the experimenter, because the cover-story of the study had indicated that the researchers were trying to obtain information on the two tasks. If so, spending a little bit of time (about half) would have been sufficient for that purpose.

Thus, the assumption that people in positive affect will typically simply avoid the more tedious task, or be superficial and irresponsible in performing difficult tasks, no matter what the circumstances, was not supported by the results of Experiment 1, just as it was not supported by the findings of many previous experiments (e.g., Erez & Isen, 2002; Estrada et al., 1997; see Isen, 2000 for review). However, in Experiment 2 we wanted to investigate specifically, in the context of competing motives (intrinsic and extrinsic), the role of a work orientation on the choices and persistence of people in positive affect. Thus, in the next experiment, we address the question of whether people in positive affect, though they will display higher levels of intrinsic motivation, will also behave flexibly and responsibly by

undertaking and completing work, when they know that there is work that needs to be done.

In Experiment 2, we tested this prediction of flexible allocation of effort to intrinsically and extrinsically motivated tasks, by including a work-orientation manipulation. To induce the work orientation, the experimenter said that there was some work to be done by the participant during the free-choice interval. The first two pages of the uninteresting task were labeled, "To be finished during the 8 min period." We also included a free-orientation manipulation in which the experimenter made no mention that there was any "work to be done," and the first two pages of the letter-string sheets were not labeled. By adding the work orientation, we tested whether or not positive-affect persons would act responsibly and complete the work that needed to be done even when the work-task had to compete with a more preferred play-task. This would more clearly address, in a second way, the reason that the people in positive affect worked on the less preferred task at all in Experiment 1, and further dispel the alternative interpretation, mentioned above, that positive-affect people are irresponsible, will only choose the task that is more fun, or will perform superficially on the less-preferred task if they undertake it. Our prediction, then, was that people in positive affect would be responsive to situational and task needs, and not shirk responsibility; that is, we predicted that when they knew that there was work that needed to be done (on the less-preferred task), they would neither fail to do that work nor perform poorly on it.

The design of this study was a 2-way, between-subjects ANOVA, with affect (2 levels, positive vs. neutral) and motivational orientation (2 levels, "work" orientation vs. "free" orientation) as the independent variables.

Method

Participants

Sixty introductory psychology students, 34 women and 26 men, at a private university in the northeast participated in partial fulfillment of a course requirement.

Positive Affect Manipulation

We randomly assigned each participant to either a positive- or a neutral-affect condition. We conducted the positive affect manipulation in the same way as was done in Experiment 1. There was only 1 neutral-affect condition in Experiment 2, the treatment described for the "neutral-rate" condition in Experiment 1.[6]

[6] As in Experiment 1, the experimenter asked the participant to rate each bag of candy on a 1–7 scale. Again the two types of candy were rated and chosen about equally (bag of chocolates, $M = 5.1$ rating with 35 of 60, 58% choosing it; bag of hard candies, $M = 4.6$ rating with 25 of 60, 42% choosing it).

Work Versus Free Motivational Orientation

To foster a work motivational orientation for the letter-string activity, the experimenter made the following announcement just before leaving the participant alone for the free-choice interval: "While I'm gone, there is some work to be done. Sometime during the eight minutes that you will be alone, you are to work through and complete the first two pages of the letter-string task. Other than this work to be done, you may do as you please: Play with the puzzle, work on the letter-string task, do both the puzzle and the letter-string task, read a magazine, or whatever." The experimenter instructed the participant to complete the two pages entitled, "To be finished during 8 min period," and explained that the remaining two pages were optional. In the free (i.e., intrinsic) motivational-orientation condition, the experimenter made no mention that there was any "work to be done" and the first two pages of the letter-string sheets were not labeled. Instead, the experimenter announced that the participant was free to do whatever he or she pleased–"play with the puzzle, work on the letter-string task, do both the puzzle and the letter-string task, read a magazine, or just whatever you please." There was no monetary incentive involved in Experiment 2.

Materials

Experimental Tasks. We used the same two experimental tasks as in Experiment 1, but altered the format of the letter-string task by presenting the letter strings on five (instead of two) sheets of paper. For the first page we used the same demonstration page as in Experiment 1 (with its 32 letter-strings arranged in 8 columns and 4 rows), but for the actual task used during the free-choice period we replaced the one long page with four shorter pages. Each of these four pages listed only 40 letter-strings (in 8 columns and 5 rows). Of the 40 letter-strings, pages 1 and 3 had three that were alphabetized while pages 2 and 4 had two that were alphabetized. By breaking the one long letter-string page into four shorter segments, we were able to divide the task into required and non-required halves. That is, for participants in the "work" condition, pages 1 and 2 carried the title, "To be finished during the 8 min period," and for participants in the "free" condition, pages 1 and 2 did not carry this title. According to pilot testing, each of these four pages took about 2 min to complete.

Dependent Measures. As in Experiment 1, we used both behavioral and self-report measures of intrinsic motivation. For the self-report measure, we used the same 8-item questionnaire that asked participants to rate how interesting and enjoyable they found the puzzle and letter-string activity to be (puzzle, $\alpha = .93$; letter-string, $\alpha = .87$). For the behavioral measure, we again used the number of seconds the participant spent engaged with the puzzle during the free-choice

interval. As in Experiment 1, we operationally defined performance speed as the average number of seconds taken to find each correct alphabetized letter string.

Procedure

We tested participants one at a time. The experimental room was set-up as in Experiment 1 with the puzzle on one side of the table, the sheets of letter strings on the other side, and a stack of current, popular magazines on the far right-hand side of the table. As in Experiment 1, the experimenter announced that the purpose of the experiment was pilot testing to assess people's initial impression of each activity. After the participant signed the consent form, the experimenter conducted the affect manipulation. The experimenter then introduced the puzzle and letter-string activity in a sequential order, with the order of presentation counterbalanced.[7]

As in Experiment 1, the cube solution of the puzzle and the first page (practice page) of the letter-string task each took roughly 2 min to complete.

The procedure in Experiment 2 began as it had in Experiment 1. After the participant completed both the cube and the practice page of the letter-string task, the experimenter explained that up to that point he had allowed the participant time enough to formulate only a tentative impression of each activity and that he now wished to provide the participant with a more extended opportunity to engage each. To do this, the experimenter said that he planned to leave the experimental room for 8 min to allow the participant time alone with the two activities. Before his exit, however, the experimenter said either the words that fostered a work orientation or the words that fostered a free orientation. He said that he would return in 8 min and administer a questionnaire to assess the participant's impression of each activity. He then left the room, observed and recorded the participant's free-choice behavior, as was described for Experiment 1, and later returned to administer the post-experimental questionnaire and debrief the participant.

Results

Table III presents the means and standard deviations for the behavioral measure of intrinsic motivation (number of seconds spent on each task) for positive- and neutral-affect participants, separately for each type of motivational orientation.

[7]We tested for possible order effects to see whether first playing with one activity or the other affected any of our five dependent measures. Participants who puzzle-solved first did not differ significantly from participants who engaged the letter strings task first on any measure: Interest in puzzle ($t = 1.04$; $p > .1$); interest in letter strings ($t < 1$); free-choice persistence with puzzle ($t < 1$); free-choice persistence with letter strings ($t < 1$); and performance speed on letter strings ($t < 1$).

Table III. Experiment 2: Number of Participants, Means, and Standard Deviations (in Parentheses) of Amount of Free-Choice Time Spent with Each Task, in Each Experimental Condition

	Puzzle (Interesting) Task		Letter-string (Uninteresting) Task	
Dependent measure	Positive affect $n = 15$	Neutral affect $n = 15$	Positive affect $n = 15$	Neutral affect $n = 15$
Number of seconds[a]				
Free orientation				
M	370.1	218.6	93.7	197.2
(*SD*)	(99.3)	(137.7)	(94.1)	(169.2)
Work orientation				
M	229.3	167.3	239.7	290.5
(*SD*)	(106.3)	(91.2)	(101.9)	(96.9)

[a]Total number of seconds spent on each task, possible range 0–480.

Time Spent on Each Type of Task

As in Study 1, we could not treat type of task as a within-subjects independent variable in our analysis of behavioral persistence, because the times spent on the two experimental tasks were not independent (i.e., playing with the puzzle precluded working on the letter task, and vice versa). Accordingly, we analyzed amount of time spent on each task (puzzle or letter-string task) separately. In order to investigate whether the behavioral effect obtained in Study 1 – that people in positive affect spent more time on the interesting task than did controls – replicated in Study 2, we analyzed time spent on the *interesting puzzle task* with a two-way ANOVA in which the independent variables were affect (positive vs. control) and type of motivational orientation (free orientation vs. work orientation). We then conducted planned comparisons to test for two predicted differences: (1) when given a free motivational orientation, positive-affect participants would play with the interesting task more than would the neutral-affect participants; but (2) the tendency of people in positive affect to engage more in the interesting task would be reduced when they were given a work-motivational orientation. We know from Study 1 that participants (both affect groups, but especially the positive-affect group) show greater liking of the interesting puzzle task. Thus, our prediction indicates that we also expected that the positive-affect participants' preference for the interesting task would not interfere with their work orientation and, thus, that people in the positive-affect condition would not shirk the task or perform poorly on it.

Because Study 2 was also focused on the effect of positive affect on task choice and persistence when there was work that needed to be done (that is, performance of the uninteresting letter-string task, especially in the work-motivation conditions), we also performed a 2-way ANOVA on the amount of time spent

on the *uninteresting task*, with affect (positive vs. control) and work orientation (work vs. free) as the independent variables. We used a planned comparison to test the prediction of primary concern to us, that people in the positive-affect condition would spend more time on the work task (the uninteresting task) in the work-orientation condition than in the free-orientation condition.

Persistence on the Interesting Task

For number of seconds spent on the *interesting task*, the main effects of both affect, $F(1, 56) = 14.11, p < .01$, and motivational orientation, $F(1, 56) = 11.43$, $p < .01$, were significant, indicating that people spent more time on the interesting task in the free-orientation condition than in the work-orientation condition, and people in positive affect spent more time on this task than did controls, as expected. Although the two-way interaction effect was not significant, $F(1, 56) = 2.48$, *n.s*, planned comparisons confirmed, as predicted, that in the free-orientation condition, positive-affect participants spent more time on the interesting puzzle task than did neutral-affect participants (*M*s, 370.1 vs. 218.6, $t = 2.60, p < .05$). That is, positive-affect participants spent most of their 8-min (77.1%) playing with the puzzle, while neutral-affect participants did not (45.5%). As was also predicted, those in the positive-affect condition spent less time on the interesting puzzle task when in the work-orientation condition than when in the free-orientation condition, reducing the amount of time on that task substantially (*M*s, 229.3 vs. 370.1, $t = 3.55$, $p < .01$). It should also be noted that, in the work-orientation condition, people in the positive-affect condition did not differ from those in the neutral-affect condition in the amount of time they spent on the interesting task (*M*s, 229.3 vs. 167.3, $t = 1.71$, $p = .1$. This was not a specific prediction of ours, but it is compatible with the fact that under the work-orientation instruction, we expected people in positive affect to reduce the amount of time they spent on the interesting task.[8]

Persistence on the Uninteresting Task

For number of seconds on the *uninteresting task*, the planned comparison indicated that, as expected, positive affect participants in the work-orientation condition did spend more time on the work task than did positive affect participants given a free orientation (time increased from 93.7 s. to 239.7 s, $t = 4.08, p < .01$). These findings illustrate that when positive affect participants knew they had an

[8]When we used difference scores (persistence on puzzle minus persistence on letter-strings) instead of persistence on the puzzle as the dependent measure, results were virtually the same. Planned comparisons showed that when given a free orientation positive affect participants played relatively more with the puzzle than did neutral affect participants (*Ms* = 276.4 vs. 21.4, $t = 3.14, t < .01$); when given a work orientation, positive affect participants played relatively less with the puzzle than when given a free orientation (*Ms*, 10.5 vs. 276.4, $t = 3.53, p < 01$).

Table IV. Experiment 2: Means and Standard Deviations of Self-Reported Intrinsic Interest in Each Task by Type of Affect and Type of Motivational Orientation

	Puzzle (Interesting) Task		Letter-string (Uninteresting) Task	
Dependent measure	Positive affect $n = 15$	Neutral affect $n = 15$	Positive affect $n = 15$	Neutral affect $n = 15$
Self-report interest/enjoyment[a]				
Free orientation				
M	5.94	5.04	2.69	3.11
(*SD*)	(.79)	(1.38)	(1.14)	(.98)
Work orientation				
M	6.09	5.14	3.19	3.29
(*SD*)	(.55)	(1.41)	(1.28)	(1.61)

[a]Higher scores represent greater interest/enjoyment, possible range is 1–7.

assigned job to do, they indeed did increase their time spent on the work task, even though that meant they would have less time to spend on the interesting task. In addition, in the work situation, the positive-affect and neutral-affect participants did not differ in amount of time they spent on the uninteresting task (*M*s, 239.7 vs. 290.5, $t = 1.40$, $p > .1$). Further, all participants in both the positive and neutral affect conditions completed both of the required pages and circled all five alphabetized arrangements. As in Study 1, error rates were very low and equal across the affect conditions; see analyses to follow.

Interest Ratings. Table IV shows the means and standard deviations for the self-report measure of intrinsic motivation (i.e., self-reported interest/enjoyment). For the interest/enjoyment ratings, we performed a three-way mixed-design analysis of variance (ANOVA) in which the two between-groups factors were affect (positive, neutral) and type of motivational orientation (work, free), and the repeated, within-groups factor was type of task (interesting, uninteresting). In conjunction with the ANOVA, we used a planned comparison to test for our predicted group mean difference between positive and neutral affect participants on the interesting task. The main effect for type of task was significant, $F(1, 56) = 174.7$, $p < .001$, as participants reported more interest in the puzzle than in the letter-string task (*M*s, 5.55 vs. 3.08). Neither the affect, $F(1, 56) = 1.85$, *n.s.*, nor the motivational orientation, $F(1, 56) < 1$, *n.s.*, effect was significant. As expected, the type-of-task main effect was qualified by an interaction between the motivational orientation variable and affect $F(1, 56) = 9.88$, $p < .01$. No other interactions approached significance, Fs < 1. The planned comparison showed that, as hypothesized, positive-affect participants reported more interest in the puzzle task than did the neutral affect participants (*M*s, 6.01 vs. 5.09, $t = 2.49$, $p < .05$), but this was not true for the letter-string task (*M*s, 2.94 vs. 3.20, $t < 1$, *n.s.*), and this interaction was found with both the work orientation and the free orientation.

Performance Speed

We calculated performance speed only for participants in the work condition, because all 15 participants with this motivational orientation completed their required two pages of the letter-string task. (In the free condition, only 4 (27%) positive affect and 6 (40%) neutral affect participants completed both pages one and two of the letter-string task.) In contrast to the findings of Experiment 1, the positive-affect and control groups did not differ in work speed (*M*s, 39.5 vs. 46.0, $t(28) < 1$, *n.s.*). As to the error-rate analysis, the positive affect participants had a mean error-rate of 2%, as one participant had an error rate of 25% and the remaining 14 had 0% error rates. The neutral affect participants had a mean error-rate of 5%, as 4 participants made 1 error each (error rates of 11%, 20%, 25%, and 25%) and the remaining 11 participants had 0% error rates. This difference in error rates between the positive and neutral affect participants was non-significant, $t(28) = 1.43, p > .1$.

GENERAL DISCUSSION

The results of these two studies indicate that, when people are free to choose among activities, positive affect does promote intrinsic motivation, but that this enhanced evaluation of, and preference for, enjoyable tasks does not come at the expense of completing work that needs to be done, even when that work is uninteresting or unpleasant. In both experiments, people in positive affect, compared with controls, showed more favorable evaluation of the enjoyable task, but not of the uninteresting task, and they also spent more time on the enjoyable task than control participants did, and were more likely to work on it first than controls were. Nonetheless, again in both experiments, people in positive affect spent a substantial proportion of their time (about half) on the uninteresting task. In Experiment 1 this may possibly have been in order to be able to provide the experimenter with the evaluation they may have thought he needed (given the cover story for the study), and in Experiment 2, where it was more clear that a certain portion of the uninteresting task was like a work-task that needed to be done, they spent the time needed to complete the work and performed it correctly, with no more errors than controls.

Thus, although some researchers have assumed that positive affect would promote only a "fun" or irresponsible orientation, or a lack of caution or lack of self-control, the data from these two studies show that feeling happy, even though it promotes enjoyment of enjoyable tasks, leads at the same time to forward-looking thinking, self-control, and the ability to stay on task, even on a task that may be uninteresting or unpleasant. At the same time, the need to perform the uninteresting task does not interfere with enjoyment of a pleasant activity when there is time to engage that task.

It should also be noted that positive affect, when it resulted in the more positive evaluation of the potentially enjoyable task, did not influence reported enjoyment of the uninteresting task. Thus, twice again, as has been shown in many studies previously (e.g., Isen et al., 1992; Kraiger et al., 1989), these experiments indicate that positive affect does not serve as a filter or lens, coloring everything in the environment, but is more specific in the kinds of stimuli that are influenced. This selectivity indicates in yet another way that positive affect does not result in mindless perception of everything as "good," or a careless view that everything is better than it was when one was not feeling happy. Rather, these effects of positive affect reflect a process of careful consideration of individual situations and stimuli, in which positive affect enhances appreciation of enjoyable situations but not of negative situations or stimulus materials.

Positive Affect and Self-Control

These findings have important implications regarding the development and maintenance of self-control and forward-looking thinking. First, they show that enjoyment of an activity and attention to duty or the needs of others that requires performance of a different activity – even though the activities may seem to compete for the same time period or resources – are not necessarily antithetical and do not preclude one another. Enjoying the puzzle task more did not lead people in positive affect to neglect the work that needed to be done; and needing to spend some of the available time working on the unappealing task did not interfere with increasing enjoyment of the enjoyable task.

Second, our results show that positive affect fosters responsible behavior and effective performance of tasks that need to be done, even while promoting increased enjoyment of enjoyable tasks. This means that positive affect does not necessarily lead to careless or superficial behavior, but rather to consideration of the context, overall requirements, and/or long-term best outcome.

These findings are compatible with others in the literature that indicate in other ways that positive affect fosters flexible thinking that is conducive to careful consideration of the details and requirements of situations, which leads to effective problem solving, self-control, forward-looking thinking, and caution in dangerous situations (e.g., Aspinwall, 1998; Aspinwall et al., 2001; Erez & Isen, 2002; Isen & Geva, 1987; Kahn & Isen, 1993; Staw & Barsade, 1993; Trope & Neter, 1994). For example, in risk-taking or gambling situations, studies have shown that positive affect, contrary to what people may intuit about its impact, leads people to avoid dangerous risks, compared with controls (e.g., Isen & Geva, 1979; Isen et al., 1988). For another example, although positive affect leads people to prefer variety in product choices, that tendency disappears if the products to be sampled are of uncertain quality (e.g., Kahn & Isen, 1993).

In other words, neither the stereotype of what kind of behavior and thinking processes would be promoted by positive affect, nor common predictions about what kinds of behaviors cluster together (e.g., that impulsive behavior implies enjoyable behavior, and vice-versa; or that enjoyable behavior implies present-focused thought that excludes consideration of multiple goals or of the future) have been upheld in the literature that deals with the effects of positive affect on cognition and behavior. The present findings add to this body of work demonstrating that positive affect does not imply impulsiveness or lack of responsibility and self-control. In fact, to the contrary, these findings show that people in positive affect can monitor the requirements of the situation, deploy their self-control and resources, and choose the appropriate behavior for the situation.

Positive Affect and Self-Determination Theory

Our findings have implications for a self-determination theory view of people's intrinsic motivation toward interesting tasks. According to this theory (Deci & Ryan, 1985; Ryan & Deci, 2002), people who engage in intrinsically interesting activities experience positive affect. The positive affect they experience, however, is closely tied to their experience with the task and it is largely an epiphenomenal experience (Deci, 1987). That is, according to the theory, task engagement produces perceptions of competence and autonomy and these experiences, which are thought to satisfy a need, produce inherent satisfaction, or positive affect, through this need-satisfaction (Ryan & Deci, 2001). In our research, the positive affect manipulation was created by an experience that was unrelated to the task itself. This is an important point because we showed that positive affect that was not related to the task also affects intrinsic motivational processes.

As to whether positive affect is an epiphenomenal experience, the self-determination theory view is that intrinsic motivation is a function of psychological need satisfaction, not positive affect. That is, task participation produces the positive affect, and it does so when the task is able to involve and nurture the person's psychological needs for competence and autonomy. Thus, according to the theory, psychological need satisfaction produces both intrinsic motivation and positive affect, although the intrinsic motivation and positive affect are unrelated to one another, except that, according to the theory, positive affect signals the presence of intrinsic motivation. In our research, however, the experience of positive affect directly, not indirectly or epiphenomenally, increased intrinsic motivation on a potentially interesting task.

In light of our findings, we can make two suggestions for research on self-determination theory. First, positive affect experiences from sources not related to the task at hand can affect intrinsic motivational processes in much the same way as do positive affect experiences that arise out of direct experiences with the task. Thus, it appears that positive affect may have an additional role in enhancing

intrinsic motivation that is not yet incorporated into the theory. Second, positive affect appears to be more than a mere epiphenomenal experience within intrinsic motivational processes. In our experiments, positive affect clearly enhanced participants' intrinsic motivation toward an interesting activity (but not an uninteresting, extrinsically motivated one), and this was true for both the self-report and the behavioral measures. Further, it seems unlikely that the presence of positive affect functions as a "signal" that intrinsic motivation is present, because in the context of an uninteresting task people in positive affect did not show more intrinsic motivation, such as a more positive evaluation of the uninteresting task. Together, these two suggestions point to the conclusion that positive affect may play a more central role in understanding intrinsic motivational process than is currently recognized by self-determination theory.

In addition, it may be important, theoretically, that people in positive affect, while experiencing increased intrinsic motivation and not inflating the attractiveness of the uninteresting, extrinsically motivated task, did not reject the extrinsic motivational source, as if it would be antithetical to their autonomy. Perhaps they saw additional aspects of the extrinsic motivational source, or developed ways of construing that source and those motives, that allowed them to see those as potentially beneficial, reasonable, and/or necessary, rather than as autonomy-threatening, and thus to respond to the extrinsic motivation while not losing (in fact, even increasing) their enjoyment of the enjoyable.

This possibility remains to be investigated, but it does fit with the existing literature on the effects of induced positive affect, and also with the existing literature on self-control, where the ability to construe situations in different, multiple ways has been shown to enhance self-control of, for example, the type studied in the delay-of-gratification paradigm (e.g., Mischel, Shoda, & Rodriguez, 1989). There, it has been found that children who are given a choice between taking a small reward immediately or waiting to be given a larger reward after a time delay of several minutes are better able to delay gratification and wait for the larger reward, if they are able to reconstrue the reward items (e.g., marshmallows) and think of them in multiple, alternative ways, such as abstract representations or fantasy items (e.g., a white cloud). Positive affect may enable exactly this kind of ability to construe stimuli in multiple ways, because it has been demonstrated to facilitate seeing more different aspects of stimuli and situations. This latter finding has been obtained in the literature, in many domains and contexts, including giving word associations to neutral words (e.g., Isen et al., 1985), solving a difficult problem that involves insight and looking at the situation in a new way (Isen et al., 1987), and organizing and solving a medical diagnostic problem (e.g., Estrada et al., 1997; Isen et al., 1991) or a managerial decision problem (e.g., Staw & Barsade, 1993), to name just a few. It has also been reflected in studies showing that positive affect leads to more thoughts about the potential loss, and to caution in dangerous situations and risk-aversion where large, meaningful losses

are possible (e.g., Isen & Geva, 1987; Isen, Nygren, & Ashby, 1988; Isen & Patrick, 1983). Seeing more different aspects of situations and problems may promote self-control and effective problem solution because of the additional perspective it provides.

This discussion of the relevance of self-determination theory, and the importance of integrating the effects of positive affect with some of the central concepts of self-determination theory, suggests an additional way in which positive affect helps to enable self-control. We have argued in this paper that positive affect promotes self-control and forward-looking functioning. But now we can also see that positive affect influences not only intrinsic motivation and enjoyment, but also attention to extrinsic considerations and responsibilities as well, and this kind of demonstration of self-control while increasing enjoyment, may contribute to understanding the processes that underlie self-control and forward-looking orientation.

Finally, the reactions of participants in the neutral affect condition may illustrate people's typical, everyday thinking and self-regulation with respect to intrinsic and extrinsic motivation. We found that these participants were generally responsive to an extrinsic motivational orientation in Experiment 1 and to external regulation in Experiment 2, choosing the activity with the possible financial incentive in Experiment 1 and the externally imposed task in Experiment 2 (even after the specific requirement was completed). These findings are important because self-determination theory research shows rather convincingly that people with an extrinsic motivational orientation and people who are externally regulated show relatively poor functioning (e.g., low engagement, immature coping, poor learning outcomes; Deci & Ryan, 1987; Ryan & Connell, 1989; Ryan & Deci, 2000). In contrast to the extrinsic motivation and external regulation exhibited by participants in the neutral-affect condition, the results of both of the present studies show that people in the positive-affect condition, although they responded appropriately to the extrinsically motivated activities and got the job done, enhanced their enjoyment of the interesting activity and their intrinsically motivated behavior. This greater capacity for intrinsic motivation may, thus, imply that positive affect will also foster enhanced coping ability and responsiveness to situations. This possibility already seems likely, as it is compatible with lines of work in the coping literature, and conceptualizations such as Fredrickson's "broaden-and-build" hypothesis, Isen's flexibility hypothesis, and others' compatible views, showing that positive affect, and states such as optimism, foster the development and maintenance of resources and skills relevant to improved coping, effective problem solving, and better outcomes (e.g., Aspinwall, 1998; Aspinwall & Taylor, 1997; Aspinwall et al., 2001; Fredrickson 2001; Fredrickson, 1998; Frederickson & Joiner, 2002; Isen, 1990, 2000). Thus, based on all of these considerations, the topic of the role of positive affect in development of self-control seems a promising one for investigation.

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