

The Effect of Time on Pleasure with Chosen Outcomes

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ABSTRACT

Emotional reactions, such as regret and disappointment, are associated with the comparison of an obtained outcome with what might have been. Past research revealed that these counterfactual comparisons affect one's pleasure with the outcome, at least in the short term. However, whether such effects are transient or long lasting is unknown. The present research explores the time course of outcome evaluation, by eliciting ratings of pleasure with a specific real choice at two points in time. In three experimental studies, pleasure with a small gift immediately following the gift's selection was compared to pleasure with the gift 4 to 8 weeks later. The results indicate that satisfaction with a chosen outcome, unlike satisfaction with a randomly assigned one, decreases in the long term. These findings are compatible with the assumption that under some conditions the impact of forgone options on the evaluation of decision outcomes does not diminish, and may even increase with time. A fourth study, a survey of people's retrospective evaluation of their choice of undergraduate major, yielded compatible results. Copyright © 2006 John Wiley & Sons, Ltd.

KEY WORDS decision evaluation; regret; counterfactuals

INTRODUCTION

When evaluating the outcome of their choice, people are affected not only by the utility of the outcome itself, but also by the alternatives contemplated as part of the decision process. A large body of research shows that either known or imagined outcomes of forgone options affect the way in which obtained outcomes are experienced: An outcome is less pleasurable when compared to a better counterfactual than when compared to a worse one (Baron & Ritov, 1994; Boles & Messick, 1995; Carmon & Ariely, 2000; Kahneman & Miller, 1986; Larrick, 1993; Mellers, Schwartz, & Ritov, 1999; Ritov, 1996; Ritov & Baron, 1995; Zeelenberg, 1999; Zeelenberg et al., 1998).

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The counterfactuals affecting immediate judgment are essentially of two kinds: alternative states that could have occurred by chance, and alternative options that the person could have selected. Although perceived personal responsibility plays an important role, the impact of counterfactuals is not confined to the outcomes of forgone options (Connolly, Ordóñez, & Coughlan, 1997; Zeelenberg et al., 1998). Indeed, as Mellers et al. (1999) showed, the feelings associated with an outcome may be simultaneously affected by both kinds of counterfactuals, when the two are presented concurrently.

The anticipated effect of counterfactual comparisons on subjective evaluation of the outcome influences people's choices. In particular, the wish to avoid regret may lead to preference for risky gambles (Ritov, 1996), preference for higher-priced, well-known brands of consumer goods (Simonson, 1992), and a tougher bargaining stand in negotiation (Larrick & Boles, 1995), to name just a few examples. Clearly, the long-term effect of the initial counterfactuals is a key factor in considering their normative status as determinants of choice. A decision in which anticipated regret plays a major role, as in the above examples, may be considered biased if those counterfactual-related emotions are short-lived. To the extent that one's pleasure with a selected option, such as, for example, a purchased consumer good, greatly outlives the emotions resulting from the comparison of this good to the forgone option, allowing one's choice to be influenced by anticipated regret can lead to non-optimal choices. However, in order to determine that such choice is indeed biased, one needs to gain some understanding of the extent to which those initial counterfactuals affect the long-term pleasure of the chooser.

The effect of counterfactual comparisons has been shown mostly for immediate evaluations. However, since evaluations may change over time (see, for example, Gilovich & Medvec, 1994, 1995), it is important to examine whether the same counterfactuals affecting initial judgment continue to play a role in retrospective evaluation. As little is known about temporal course of option evaluation, the main purpose of the present research is to explore whether circumstances related to the decision affect long-term satisfaction in the same way they affect immediate pleasure with the selected outcome. Several processes suggest that pleasure with a selected option may undergo temporal changes, leading to decreased pleasure over time. These processes are briefly discussed next. We note, however, that the present research considers all these processes as potentially contributing to long-term decrease in satisfaction, leaving open the more intricate question of determining the exact source of the effect.

To start with an example, consider two women, Jane and Rachel, who were recently transferred to California by their firm. Jane was offered the choice between working in California and working in New York, and after some thought she decided she preferred California to New York. Rachel also knew that these two options existed, but she was not given a choice. The firm sent her to California. Would these two women be equally happy about living in California? In the short term, Jane may be happier, because her living in California is a result of her own choice. But would this difference persist in the long term?

As time goes by, the novelty of the selected option wears off. A person who chose one option over another may increasingly tend to imagine a state in which she had selected the other option. This thought may result in less pleasure with the selected option, particularly if the alternative is also attractive. For a person who was randomly assigned an option, the image of having been assigned another option is perhaps less likely to be evoked (Kahneman & Miller, 1986; Roesse, 1997). If, as suggested, controllability plays a greater role in the spontaneous mental mutation of the factual state in the long term, retrospective evaluation of the obtained outcome may depend on whether this outcome was chosen or randomly determined. While immediate pleasure with a selected outcome may be greater than the pleasure with an outcome that was not freely chosen, in the long term pleasure is likely to decline in the former case more than in the latter.

Another potential reason for decreasing long-term satisfaction with a freely chosen option is the "distinction bias," recently proposed by Hsee and Zhang (2004). These authors suggest that people may not make the optimal choice because when choosing, people are in "joint evaluation" mode, whereas the outcome is often experienced in "separate evaluation" mode. The joint evaluation mode is a comparative process, in which quantitative differences between options are given relatively great weight. The weights

of such differences are diminished when an option is evaluated on its own, without the presence of the comparison set. Although Hsee and Zhang (2004) did not address temporal processes, it is possible that the further one gets from the moment of choice, the less prominent the forgone alternatives, and consequently, the more “separate mode” the evaluation. Consequently, the sub-optimality of the choice may become clearer in the long term.

We note that the distinction bias is not restricted to free choice. It applies to any situation in which the outcome is obtained under joint evaluation circumstances, and is later experienced in a separate mode. Thus, at least *prima-facie*, the same change in evaluation should occur for chosen outcomes and for those determined by a random draw, provided the set of available alternatives is identical in both cases. However, if one assumes that an individual who does not have to choose is less likely to carry out a truly comparative (joint) evaluation, then a stronger distinction bias may be predicted for freely chosen outcomes.

The effect of initially available options may determine long-term pleasure with an outcome not only due to direct comparison of the actual and counterfactual alternatives at the time the judgment is elicited, but also through a more indirect inferential process. A central theory in current research on attitudes proposes that in judging their own attitudes people draw inferences from their subjective feelings (Schwarz & Clore, 1996; Schwarz, 1998; Schwarz, 2004). The main tenet of the theory is that feelings may serve informative functions, as individuals use their apparent affective response to a target as a source of information in evaluating the target. A particular implication of this approach involves evaluation of decision outcomes. When one is free to choose one’s preferred option, the act of choosing may involve a subjective experience of conflict. A choice set including several similarly attractive options is likely to make the selection difficult. Subsequently, the phenomenal experience of difficulty may itself be used to infer that the available options are similarly attractive. Thus, when asked to evaluate the options retrospectively, one may remember that the choice was a difficult one, and hence deduce that some of the forgone options must have also been attractive.

The meta-cognitive experience of decision fluency, namely the ease or difficulty with which a decision is reached, may be coded as separate from the other aspects of the choice, including evaluation of the available options. Indeed, recent research provides evidence that fluency itself is hedonically marked (Winkielman & Cacioppo, 2001). To the extent that the emotions associated with decision difficulty are coded separately from the content information, these may affect pleasure with an outcome independently of the evaluation of forgone options. Furthermore, while the specific alternatives, both selected and rejected ones, may be more salient at the time of choice, their weight, relative to that of the general hedonic marking of the decision, may decrease with time. This process can result in a long-term decrease of pleasure with a selected option, even if the forgone options are not expressly revisited.

The above predictions appear to run contrary to Cognitive Dissonance Theory (Festinger, 1957) and Self-Perception Theory (Bem, 1972). According to Dissonance Theory, unpleasant emotions are associated with awareness of the negative attributes of the chosen alternative and the positive features of the forgone ones. People are motivated to reduce these aversive feelings by changing their attitudes about the options. Thus, the prediction of the theory is that deciding tends to cause increased attractiveness of the chosen alternative and decreased attractiveness of the rejected ones. The same prediction of “spreading apart” of the chosen and rejected alternatives follows from Self-Perception Theory, although the assumed process is somewhat different. According to this theory, when internal cues are weak or ambiguous, the individual is functionally in the same position as an outside observer: she comes to “know” her own attitudes partially by inferring them from observing her overt behavior and the circumstances in which this behavior occurs. Self-Perception Theory, unlike Dissonance Theory, does not posit a motivational component. As stated above, both theories predict “spreading apart” of the alternatives following free choice. The predictions of the two theories for situations in which the individual does not have control over which option she receives are also identical: Dissonance Theory predicts no attitude change because there are no dissonant cognitions, while Self-Perception Theory predicts no attitude change because no inference can be drawn from the fact that the individual obtains one option rather than another.

Research on Dissonance Theory and on Self-Perception Theory does not explicitly specify whether the behaviorally induced attitude change is permanent or even long lasting. Earlier (Brehm & Wicklund, 1970; Hammock & Brehm, 1966) as well as more recent empirical studies (Brown & Feinberg, 2001; Gilbert & Ebert, 2002; Lieberman, Ochsner, Gilbert, & Schacter, 2001; Russo, Medvec, & Meloy, 1996; Svenson & Benthorn, 1992; Svenson & Malmsten, 1996; Svenson & Shamoun, 1997) focused either on ratings of specific attributes, or on overall short-term changes. These studies found support for the notion that people tend to “bolster” their choices by spreading apart the evaluations of chosen and forgone alternatives immediately following the decision, or a short time later.¹ However, the spreading apart effect of choice may not be long lasting. If the impact of choice on attitude change diminishes with time, then the selected option may not seem as attractive and pleasing as it seems at first. The short-term effect of dissonance may thus give way to a long-term decrease in satisfaction with a chosen outcome.

In sum, the above discussion suggests that pleasure with a freely chosen option is likely to decrease as one gets further away from the time of the decision. The main purpose of the research described here was to explore this prediction. Specifically, three experiments were designed to test the effect of choice and the choice set on temporal changes in pleasure with the obtained option. In those experiments participants received a small gift that was determined either by their choice among available options or by a random device. Evaluation of the gift was elicited immediately upon reception, and again, at a later time. Comparison of the two evaluations offered a way to examine change in pleasure over time, under the different conditions. Finally, the last experiment examined satisfaction with a real-life important choice of participants who were at varied time distances from the decision.

STUDY 1—RECEIVING VS. CHOOSING A GIFT

In this experiment, the participant’s gift was determined in one of three ways: Participants in the first condition were simply given a gift (one of two gifts), without seeing or being aware of any other option. In the second condition participants were shown the two gifts, and then tossed a coin in order to determine which one of the gifts they would receive. Lastly, participants in the third condition were allowed to freely choose one of the two gifts. The two gifts featured in this study were a desk organizer and a paper holder, priced at approximately 15 shekels (about \$3) each.

As controllability plays a major role in the spontaneous mental mutation of the factual state, it is more likely that a person who chose one gift over another will continue to imagine a state in which she had selected the other gift. This thought may result in lower satisfaction with the selected gift, particularly if the alternative is also attractive. For a person who was simply given a gift, or who won it in a lottery, the image of having received another gift is perhaps less likely to persist (unless the odds were strictly in favor of receiving another gift or no gift at all). Hence, while immediate pleasure with a selected outcome is expected to be greater than pleasure with an outcome that was not freely chosen, in the long term, pleasure is expected to decline in the former case more than in the latter.

Method

One hundred and fifty one Hebrew University students participated in this study. They were run individually, and were randomly assigned to one of three conditions. Upon receiving their gifts, participants in all

¹Although Gilbert and Ebert (2002) examined a time span of 11 days after the decision, their results do not clearly show a long-term effect. They report an interaction of condition (changeable vs. non-changeable) by time on the relative preference for selected and forgone alternatives, but there is no indication of an increase over time in the spreading apart in the non-changeable condition during the research period, nor even that the difference between the chosen and unchosen alternatives has significantly positive across the 11 days.

conditions rated the attractiveness of the gift (on a 10-point scale ranging from “not attractive” to “very attractive”). Participants in the second and third conditions rated the attractiveness of the other gift as well. Finally, all participants rated their pleasure with the gift. The same pleasure rating scale was used throughout this research, namely a 10-point scale ranging from “not pleased” to “very pleased.” Four to five weeks later, participants were contacted by phone and asked to rate their present day pleasure with their gift. Ten participants could not be reached at this point. These participants did not significantly differ from the participants who were successfully contacted on any of the reported measures (including satisfaction, attractiveness of the selected gift, and attractiveness of the other gift). In all three experiments reported here, the final, long-term evaluation was elicited in a phone interview. Only the responses of participants who were successfully contacted for the final evaluation were included in the analyses. Thus, the final sample included 45, 50, and 44 participants in the single gift, the lottery, and the choice conditions, respectively.

Results

Figure 1a presents the mean immediate and long-term pleasure ratings for the three conditions. Those means suggest a different temporal pattern of pleasure with the gifts in the three conditions. A repeated measure analysis of immediate and long-term pleasure ratings with the gift as within-subject dependent measures (“time”), by condition as the independent between-subject measure, yielded a significant interaction of condition with time, $F(2, 136) = 4.138, p < 0.05$. Separate comparisons of the immediate and long-term pleasure within each group yielded no significant change for participants who were simply handed one gift, $t(44) = 0.886, p = 0.380$, a significant increase for participants in the lottery (coin toss) condition, $t(49) = 2.194, p < 0.05$, and a significant decrease for participants in the choice condition $t(43) = 2.321, p < 0.05$.

In order to better understand the source of the increase in pleasure among participants whose gifts were determined by a coin toss, this group was divided into two subgroups, according to their subjective attractiveness ranking of the gifts: One subgroup consisting of the participants who won the more (or equally) attractive gift ($n = 29$), and a second subgroup consisting of the participants who won the less attractive gift ($n = 20$). Figure 1b presents the mean immediate and long-term pleasure ratings of the two subgroups. As the

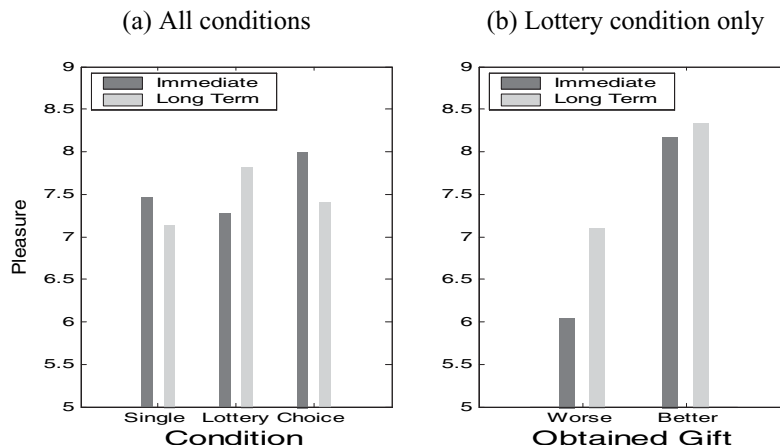


Figure 1. Study 1: mean immediate and long-term pleasure ratings. Pleasure with the obtained gift was rated on a 10-point scale ranging from 1—“not pleased” to 10—“very pleased.” Panel (a) shows the ratings for each of the three conditions. Panel (b) shows the ratings of the lottery condition only, separately for participants who won the gift they considered the better one and those who won the gift they considered to be the worse one

figure shows, the increase in pleasure occurred mostly for participants who received the less desirable gift, suggesting that the disappointment of winning the less preferred gift lessened with time. The interaction between the temporal change in pleasure and relative ranking of the obtained and unobtained gifts is marginally significant, $F(1, 48) = 3.220$, $p = 0.08$, in a repeated measure analysis of immediate and long-term pleasure, by the relative attractiveness ranking of the gift as the independent variable.

An interaction like the pattern of results observed suggests that, in order to compare the temporal change in pleasure with a chosen gift to that of pleasure with a lottery-determined gift, one needs to control for the relative ranking of the obtained and unobtained gifts. Hence the pleasure ratings of the two groups were reanalyzed, using only the responses of participants who ranked the gift they received at least as high in attractiveness as the other gift.² A repeated measure analysis of immediate and long-term pleasure with the gift as within-subject dependent measures, and condition as the between-subject independent measure replicated the above finding. It yielded a marginally significant interaction of condition with the time of evaluation, $F(1, 67) = 3.519$, $p = 0.06$. Further analysis showed that, in the long term, satisfaction of choosers was significantly lower than satisfaction of lottery participants, $t(67) = 2.004$, $p < 0.05$. Thus, it seems that even when receiving one's preferred gift, the change in pleasure over time depended on whether or not acquiring this particular gift was a matter of choice.

STUDY 2—CHOICE UNDER UNCERTAINTY

In Study 1, the gift was determined either by choice or by a random device. Thus, the selection of the gift involved either a decision without uncertainty or no decision at all. In the present experiment, as in many real-life situations, participants were required to make a choice under uncertainty. The temporal course of evaluation in such circumstances cannot be inferred uniquely from the previous findings, as both types of counterfactuals, alternative states of the world, on the one hand, and forgone options, on the other, may play a role. However, if the impact of the former counterfactuals diminishes with time whereas the impact of the latter persists, one may expect pleasure to decrease only among those choosers for whom chance played a favorable role. Choosers who, due to bad luck, did not obtain their preferred option are expected to be unhappy at first, but they are less likely to focus on potential outcomes of forgone options. Thus, the pleasure of those latter participants is likely to increase with time.

Method

One hundred and sixty five Hebrew University students participated in this study. Participants chose one of two lotteries, with two outcomes each: one outcome was a higher valued ("better") gift (a desk clock or a mug, each priced at approximately 15 shekels), and the other was a lower valued ("worse") gift (an inexpensive memo paper holder, with a store price of 5 shekels). The lower valued gift was identical in both lotteries. For each participant, the selected lottery was resolved by drawing a stick from an urn containing 50% sticks marked "paper holder" and 50% sticks marked "table organizer." Immediately following reception of the gift, participants rated their pleasure with it (on the same 10-point scale described earlier). Four to eight weeks later, participants were contacted by phone and asked to rate how pleased they were with their gift at that time. One hundred and three participants were reached at that time, 54 of whom won the better gift, and the rest of whom won the worse one.

²Only 4 of 44 subjects who participated in the choice condition selected the less attractive gift. These participants were excluded from the present analysis.

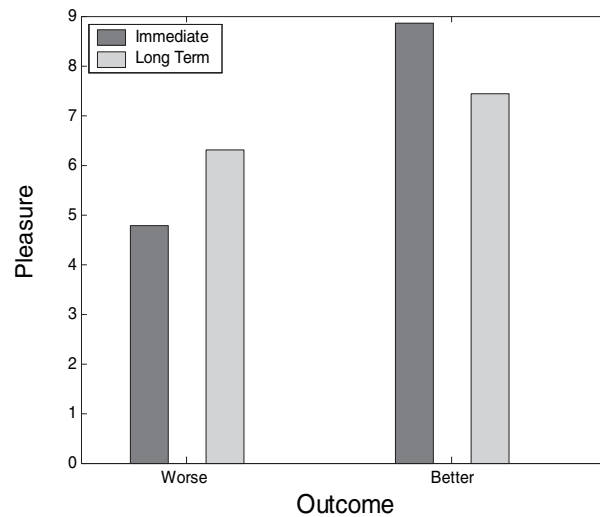


Figure 2. Study 2: mean ratings of immediate and long-term pleasure with lottery determined gift, computed separately for participants who won the better gift and those who won the worse one. Pleasure was rated on a 10-point scale ranging from 1—“not pleased” to 10—“very pleased”

Results

Participants were classified into two groups according to the lottery's outcome. Figure 2 presents the mean immediate and long-term pleasure with the gifts, computed separately for participants who won the better gift (the desk clock or the mug), and those who won the worse one. A repeated measure analysis of immediate and long-term pleasure with the gift as within-subject dependent measures, by the lottery outcome (better/worse) as the independent between-subject factor, confirmed the assumed ranking of the two gifts' attractiveness, and, more importantly, also supported the hypothesized difference in the temporal trajectory of the two groups, $F(1, 100) = 41.15$, $p < 0.001$, for the main effect of outcome, and $F(1, 100) = 27.82$, $p < 0.001$, for the interaction of outcome with the within-subject time factor.³ Separate analyses of the two groups confirmed that in the long term, pleasure of winners of the lesser gift increased ($t(46) = 2.980$, $p = 0.005$), whereas pleasure of winners of the better gift decreased ($t(52) = 4.649$, $p < 0.001$).

The findings of the present study are compatible with the hypothesis that the impact of counterfactual comparisons of the obtained outcome with the outcome that would have obtained under a different state of the world diminishes over time. Thus, winning the better gift is initially elating, but the elation lessens in the long run. Similarly, the disappointment of not winning the better prize also wears off with time.

Participants in the present study who won the better gift were in a similar situation to participants in the lottery condition in Study 1 who won the more attractive gift, except for the fact that Study 2 participants chose their lottery whereas Study 1 participants did not. If the diminished pleasure of winners is solely due to the reduced excitement with winning the lottery, then the same temporal pattern should be observed for both groups. As we have seen, participants who won the lottery in Study 1 did not experience a decrease

³Notice that the classification of subjects into two groups, those who won the better gift and those who won the worse one, was based on an external factor (the lottery's outcome), and not on reported pleasure. Hence, while regression to the mean is expected to affect individual ratings within each group, it does not predicted reduction of the distance between the groups' means in the second measurement.

in satisfaction, whereas participants in Study 2 who won their selected lottery did. In order to test whether the difference between those two groups was significant, the data from the two were combined for a repeated measure analysis of immediate and long-term pleasure ratings, by group (Study 1/Study 2).⁴ The analysis yielded a significant interaction of the within subject factor by group, $F(1, 81) = 11.05$, $p = 0.001$: While Study 2 participants were initially slightly more pleased than Study 1 participants (8.85 vs. 8.17, respectively, $t(81) = 1.64$, $p = 0.05$, one-tailed), in the long term, the latter were less pleased than the former (7.43 vs. 8.35, respectively, $t(81) = 1.910$, $p < 0.05$, one-tailed). Thus, although for both groups the lottery yielded the preferred outcome, their long-term pleasure with the gift differed: the decrease in pleasure was observed only for participants who chose the lottery they preferred to play.

STUDY 3—SELECTING FROM A LARGER CHOICE SET

The present study examined the long-term effect of the dispersion of the available alternatives. As explicated earlier, deciding may be more difficult, and forgone options more salient, if the choice set includes several similarly attractive options, as compared to a situation in which one option clearly stands out. Based on earlier findings, we expected that the lower the dispersion of the choice set, in terms of the subjective attractiveness of the options for the decision maker, the more her pleasure with the selected option will decrease over time.

Participants in this study selected (each in his or her own turn) one gift from a set of eight different small gifts, similar in kind and value to the ones used in the first study. The gifts naturally varied in subjective attractiveness depending upon the participants' tastes and needs. Presumably, for some participants the preference was clear, as a particular gift stood out among the rest, while for other participants the choice was more of a close call, with several gifts appearing equally attractive. Thus, the gifts' perceived attractiveness dispersion offers a direct way, albeit a crude one, of examining the link between temporal change in the selected gift's evaluation and the relative appeal of counterfactuals.

Method

One hundred and twenty four Hebrew University students participated in this study. In addition to selecting a gift, they rated the attractiveness of each gift (on a scale ranging from "not attractive" to "very attractive") and their pleasure with the gift they selected (on a scale ranging from "not pleased" to "very pleased"). All scales used in this study were 10-point scales.

Between 6 and 8 weeks later, participants were contacted by phone and asked to rate their pleasure with the gift at the present time. Thirty nine of the 124 participants could not be reached at this time. These participants did not significantly differ from the ones who were successfully contacted on any of the reported measures, including attractiveness ratings of the selected gift, perceived attractiveness dispersion of the available gifts (SD of attractiveness ratings), and reported immediate pleasure with the chosen gift. Three out of the 85 remaining participants rated the majority of the gifts (more than 3) as strictly higher in attractiveness than the gift they had selected. This response pattern may indicate that these respondents did not use the scale as intended, or that they had selected the gift based on need or some other criterion unrelated to attractiveness. In either case, their responses were difficult to interpret, and they were dropped from further analyses. Hence the analyses reported here pertain to the remaining 82 participants who provided the second rating.

⁴Although the two studies were run separately, the sample populations as well as the gifts employed were quite similar.

Results

Mean rating of pleasure with the selected gifts after a few weeks was lower than the mean of the initial ratings (8.43 vs. 7.89, $t(81) = 2.083$, $p < 0.05$). Thus, the present results replicated the decrease in pleasure among choosers, found in Study 1. The main purpose of the present study, however, was to examine the effect of the closeness of the forgone options. The attractiveness ratings elicited at the time of the decision provided measures of the immediate subjective evaluation of both the selected option and the forgone ones. The standard deviation of attractiveness ratings of all the gifts included in the choice set was computed for each participant. This SD served as a rough indicator of the degree of individual subjective differentiation between the gifts in the choice set. Presumably, a high SD suggests that the participant clearly differentiated between gifts and had likely seriously considered only a small subset. A low SD, on the other hand, suggests that many of the gifts included in the gift set were judged as equally attractive and hence likely candidates for selection.

In order to examine the separate effect of the perceived attractiveness of the selected gift and the standard deviation of the choice set attractiveness ratings, a general linear model was tested, for predicting immediate and long-term pleasure ratings (as a within-subject repeated measure), including as the two independent factors attractiveness of the selected gift and SD of all attractiveness ratings. The analysis yielded a significant main effect for the attractiveness of the selected gift and a marginally significant effect of the role of SD across time, $F(1, 79) = 20.197$, $p < 0.05$, and $F(1, 79) = 3.647$, $p = 0.06$, respectively. Thus, across time, the gift was judged more pleasurable the more attractive it appeared and the more differentiated the choice set. More important for the present purpose, the same analysis also yielded one significant and one marginally significant interaction: attractiveness significantly interacted with time, $F(1, 79) = 8.48$, $p < 0.05$, and the interaction of SD of all attractiveness ratings with time was marginally significant, $F(1, 79) = 3.53$, $p = 0.06$. The interaction of an independent predictor with the dependent repeated measure indicates that the difference between the repeated measures is affected by the predictor. More specifically, in our case, the significant interaction suggests that the temporal course of satisfaction, namely the difference between immediate and long-term pleasure, was affected by the initial attractiveness of the chosen gift and marginally affected by the degree of differentiation among options in the choice set (SD).

To gain a better understanding of the results, the joint analysis was followed up by separate linear regressions for immediate and for long-term pleasure ratings. As expected, immediate pleasure was significantly and positively affected only by the perceived attractiveness of the selected gift: the standardized regression coefficient for attractiveness of gift was 0.59, $t(79) = 5.632$, $p < 0.001$, and the standardized regression coefficient for SD was 0.05, $t(79) = 0.435$, $p = 0.67$. In the long term, pleasure was no longer significantly affected by the initial attractiveness of the selected gift, but the subjective dispersion of forgone options came to play a role. The linear model predicting long-term pleasure from the perceived attractiveness of the selected gift and the subjective dispersion of the choice set yielded standardized regression coefficients of -0.01 , $t(79) = 0.07$, $p = 0.94$, and 0.27 , $t(79) = 2.12$, $p < 0.05$, for attractiveness of the selected gift and SD of all attractiveness ratings, respectively. In sum, the above analyses indicate that while immediate pleasure was affected mostly by the perceived attractiveness of the selected gift, long-term pleasure was affected by the dispersion of the available options, as viewed at the time of choice.

Another way of directly examining how the two factors, the gift's attractiveness and the set's dispersion, modify the experienced pleasure with one's choice, is by using the two to predict the change in pleasure over time. A regression analysis of the change by the above two factors yielded a significant positive effect of the gift's attractiveness, with standardized regression coefficient of 0.37, $t(79) = 2.91$, $p = 0.005$, and a significant negative effect of the SD, with standardized regression coefficient of -0.24 , $t(79) = 1.88$, $p < 0.05$, one-tailed. Thus, the greater the attractiveness of the gift, and the smaller the dispersion, the larger the decrease in pleasure over time.

The above studies involved evaluation of an inconsequential choice, examined over a period of at most a few weeks. Future longitudinal studies focusing on important personal decisions may shed more light on the

effect of time and its boundaries. In the meanwhile, the next study elicited retrospective evaluations of a relatively important decision, made by participants 1 to 20 years earlier. We note, however, that all information, including considered but forgone options, as well as feelings of conflict associated with making the choice, was obtained at the same time as the retrospective evaluation of the outcome. Because of the potential problem of biased recall, the findings of this study cannot be regarded as conclusive, but merely as compatible or incompatible with our hypothesis and experimental findings.

STUDY 4—CHOICE OF UNDERGRADUATE MAJOR

The results of the previous study suggest that the pleasure with one's choice is more likely to decrease over time the more difficult the decision. This would imply, for example, that a student who experiences great inner conflict in deciding on her undergraduate major is likely to become increasingly less satisfied with her choice as years go by. In the present study we examined this implication by asking participants about their decision concerning their undergraduate major, as well as their present day satisfaction with their choice. We expected participants who reported having experienced great difficulty in choosing to be less satisfied with their choice the more distant they were from the time of the decision.

Method

Ninety one Hebrew University students, currently studying at the School of Education, participated in this study. Participants were at varied time distances, between 1 year and 20 years, from the time they had decided about their undergraduate major. They were all currently studying (for a B.A. or an M.A. degree) at the Hebrew University. In addition to rating their satisfaction with the B.A. major (on a -9 to $+9$ scale, ranging from "very dissatisfied" to "very satisfied") participants were asked if they had considered any other majors besides the one they selected, what these other majors were (if any), and how intense the decisional conflict they experienced was (on a rating scale ranging from 0 to 10). Finally, they were also asked to rate their assessment of how much better or worse their present or future situation would have been, had they not selected the major they did.

Sixty four participants reported having considered at least one other option besides the one they eventually selected, with the number of enumerated alternative majors varying from 1 to 5. With the exception of one respondent, all the above participants also indicated they had experienced some degree of decisional conflict. The remaining 27 participants reported having considered no other option at all.

Results

Figure 3 presents satisfaction as a function of the time that elapsed since the decision, with means computed separately for participants who reported having considered other options, and participants who reported having considered no other option at the time of the decision. As can clearly be seen, participants who reported having considered alternative choices were less satisfied the longer the time distance from the decision. In contrast, participants who reported selecting the only option in their choice set seem more satisfied the longer the time distance from the decision.

A regression analysis confirmed the significant effect of the interaction between group (having considered or not having considered other options) and time since the decision, on the respondents' satisfaction with their choice. A linear model for predicting satisfaction, with time, reported presence or absence of conflict (coded as 1 or 0, respectively), and the interaction between time and reported conflict as independent variables, yielded significant results only for the interaction factor, $t(87) = 1.565$, $p = 0.12$; $t(87) = 1.01$, $p = 0.31$, and $t(87) = 2.720$, $p = 0.008$ for time, conflict, and the interaction factor, respectively. Follow-up separate

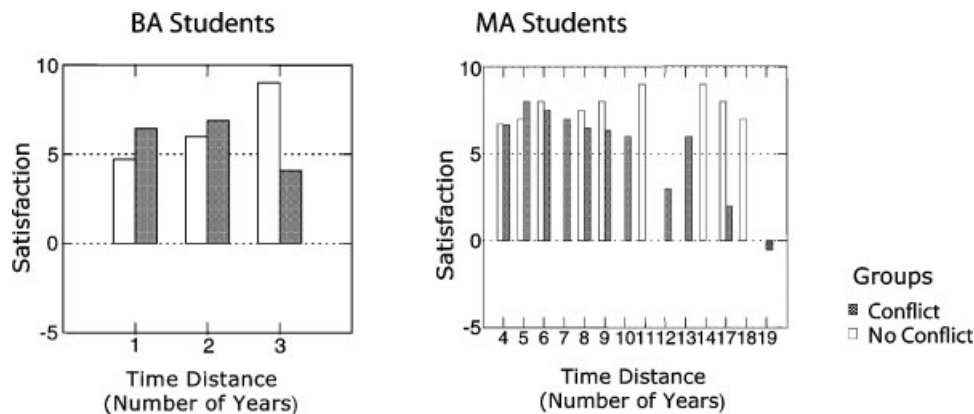


Figure 3. Undergraduate major selection: Mean satisfaction ratings as a function of the time that elapsed since the decision, computed separately for participants who reported having considered other options (Conflict) and participants who reported having considered no other options (No Conflict) at the time of the decision. Satisfaction was rated on a -9 to $+9$ scale, ranging from “very dissatisfied” to “very satisfied”

regression analyses of satisfaction by temporal distance for the “conflict” and “no conflict” groups confirmed the apparent direction of the above interaction: the coefficient of time distance was negative in the former group, $B = -0.21$, $t(60) = 2.138$, $p < 0.05$, and a positive in the latter, $B = 0.16$, $t(27) = 2.178$, $p < 0.05$. Similar analyses using the number of alternatives considered by the participant or the rated intensity of conflict as the dependent variable (instead of the binary measure used above) yielded essentially the same results. Furthermore, the interaction of time with decision difficulty (as reflected in each of the three measures) was significant even in analyses including only the participants who had already finished their undergraduate studies.

As noted earlier, the interaction between time and decision difficulty may be the result of biased recall. A person who is unhappy with her present professional occupation may tend to think that a different choice would have led to a better outcome. In this case, this person may falsely “remember” that at the time she made the decision leading to the present situation, namely the choice of her undergraduate major, she really was not at all sure about her preferences. If the decline in satisfaction of participants who report having experienced difficulty is merely the result of biased recall of decisional conflict, the reported conflict should also be related to the evaluation of the impact of this choice on one’s life. In particular, conflict would be expected to interact with time as predictors of “decision impact” rating. However, this did not appear to happen: time had a negligible effect on ‘decision impact’ ratings. A regression analysis of impact ratings by group (having considered or not having considered other options) and time yielded no significant effects.

In sum, the above results show a link between the reported decision difficulty (as reflected in the number of alternatives considered and the extent of experienced conflict), and present day satisfaction with the selected option. These findings are compatible with the notion that the impact of close counterfactuals on outcome evaluation, in this case, have increased with time.

GENERAL DISCUSSION

The present research sought to explore how circumstances related to the decision affect evaluation of the outcome in the long term. Before further discussion of the results, some limitations must be acknowledged. In all three experimental studies the evaluated outcomes were fairly trivial, and all of the same kind.

Furthermore, the time span between the elicited initial and final evaluations did not exceed several weeks. Although the findings of Study 4, examining evaluation of an important decision at longer time spans, are compatible with those of the experimental studies, the conclusions from this study are constrained by its retrospective perspective. Thus, the conclusions that emerge from this research should presently be regarded as tentative.

In all three experimental studies, evaluation of a gift immediately upon receiving it was compared to evaluation of the same gift a few weeks or a few months later. In Study 1, participants' pleasure with a gift they selected was lower in the long term than the pleasure they experienced immediately upon receiving the gift. The decrease in pleasure did not occur for participants who could not choose their gift. Study 2 involved choice under uncertainty: the gifts were determined by lottery, but participants could select which lottery they preferred to play. In this case, pleasure of the winners decreased with time, whereas pleasure of the losers increased.

In sum, the results of these studies support the main prediction of the present research, namely that when an outcome is obtained in circumstances that involve choice, pleasure with the outcome tends to decrease as one gets further away in time from the event. Studies 3 and 4 further imply that the decrease in pleasure among choosers is affected by the experience of conflict evoked by the need to select between similarly attractive options. In Study 3, the dispersion of subjective attractiveness of the available options served as a predictor of pleasure with the selected option. Its role proved more important in the long term than immediately after the decision. Study 4 yielded compatible findings for a highly important personal choice. Participants who recalled having considered more than one option for their undergraduate major were less satisfied with their choice the longer the time distance from the decision.

The main purpose of the present research was to test the effect of choice and the choice set on temporal changes in pleasure with the obtained option. The experiments reported here are inconclusive with respect to the exact nature of the processes leading to the observed long-term decrease in satisfaction, as they are compatible with more than one of the theories described earlier. In particular, the findings are consistent with the notion that when evaluating an outcome in retrospect, long after it has been obtained, people are more likely to evoke in their imagination options they decided to relinquish, than other counterfactual states that were not in their control. Thus, pleasure with chance outcomes may increase, especially if they are initially disappointing, while pleasure with chosen outcomes, although higher at first, may decrease over time. The same pattern of results, however, would be expected even if the initial options are not explicitly re-considered, but the marking of the outcome as associated with a difficult decision continues to play a role. Finally, a diminished effect of dissonance-reducing attitude changes may also account for the obtained results. Future research is clearly needed in order to shed light on the reasons behind the uncovered effect of choice on long-term pleasure.

The present findings are in line with recent research showing that choice may have a negative effect on satisfaction, particularly when it involves a deliberative or prolonged process (Carmon, Wertenbroch, & Zeelenberg, 2003; Gilbert & Ebert, 2002; Liberman & Forster, in press). These and other findings lead researchers to challenge the commonly held assumption that any increase in consumer empowerment is beneficial (Wathier et al., 2002). The present research suggests that choice, in itself, may have significant implications not just for immediate, but also for long-term, well-being, as the need to revisit earlier attitudes, or even just the hedonic marking of the outcome as being associated with conflict, appear more salient in evaluating the consequences of free choice than in evaluating other outcomes. Returning to the example of Jane and Rachel introduced earlier, the present findings provide some basis for speculating that the two women's long-term satisfaction with their residence in California would differ. In the short run, Jane, who chose to move to California, might feel happier about the move than Rachel, who did not have an option. However, when thinking about it in the long term, Jane might be more likely than Rachel to imagine living in New York, instead of California. If living in New York holds its attractions for her, Jane could become increasingly less happy about living in California.

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