

**Expectation Formation and the Timing of Outcomes: A
Cognitive Strategy for Balancing the Conflicting
Incentives for Savoring Success and
Avoiding Disappointment**

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Abstract

This study examines the interaction of two incentives that influence expectation formation. The first, which we term "desire for savoring," reflects the fact that optimism is pleasurable. The second, the "desire to avoid disappointment," reflects the fact that disappointment is aversive. The individual who awaits an uncertain self-relevant outcome is caught between these two conflicting incentives. Forming optimistic expectations enhances immediate savoring but increases the threat of later disappointment. Pessimistic expectations diminish the threat of future disappointment but also diminish interim pleasure from savoring. We propose that the timing of outcomes affects the relative strength of the two incentives. When outcomes are delayed substantially, the desire for savoring outweighs the desire to avoid disappointment. But when outcomes are imminent, the desire to avoid disappointment exerts a greater relative influence. Two hypotheses follow: First, people will be more optimistic toward remote than toward imminent self-relevant outcomes; second, they will become more pessimistic as they wait. These hypotheses were tested in an experiment in which subjects were given a test related to intelligence. Half the subjects anticipated receiving their score at the end of the session; half anticipated receiving their score in two weeks. Subjects gave their outcome expectations at two points during the session. As predicted, first, the longer the anticipated delay before outcomes were to be revealed, the more optimistic were subjects' initial expectations. Second, as the time of outcome revelation approached, subjects lowered their expectations.

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Most decisions, whether trivial or important, are influenced by expectations about the future. For example, the decision to have children may depend on expectations concerning one's future financial situation, the stability of one's marriage, and the pleasure and pain that parenting will provide. Everyday decisions, such as when to leave for work in the morning, may depend on expectations about traffic conditions, availability of parking, and the time that the boss will arrive at the office.

Current theories of decision making under uncertainty (Kahneman & Tversky, 1979) and theories of motivation (Weiner, 1980; Vroom, 1964; Feather, 1982) cast expectations in a central role. Two general approaches to the study of expectations have emerged. Cognitive theorists such as Kahneman and Tversky have examined the heuristics people use to form expectations and the errors that result from their application. Cognitive theories implicitly assume that people try to form accurate expectations; they view errors as unintentional "mistakes" that are byproducts of the heuristics people use. For instance, reliance on the representativeness heuristic leads people to ignore base rate information (Kahneman & Tversky, 1973), and reliance on the availability heuristic leads people to overestimate the likelihood of events that are highly publicized, unusually vivid, or have recently occurred (Tversky & Kahneman, 1973). Thus, the use of heuristic strategies results in biased inferences and expectations.

In this paper we consider a second source of bias in expectations; bias

that arises due to motivational or incentive effects. The desire to be accurate is but one of a variety of motives that affect the formation of expectations. Expectations may also be affected by competing incentives such as the desire for self-esteem and the desire to present oneself favorably to others. Thus expectations differ from what they would be if accuracy was the only motive.

In this paper we focus on two motives that may lead to biased expectations--the desire to savor positive expectations and the desire to avoid disappointment--and argue that they exert an interactive influence on the formation of expectations.

Incentive 1: Savoring of expectations

While waiting for an uncertain outcome with personal consequences, optimism tends to be pleasant, whereas pessimism is aversive. This creates an incentive for raising expectations. When expectations are initially favorable, raising them further can enhance pleasure from savoring. Savoring positive expectations is, in effect, deriving pleasure from a desired outcome before it occurs. When expectations are unfavorable, a shift toward optimism may serve to attenuate the anxiety or dread that accompanies waiting.

Almost fifty years ago, McGregor (1938) attempted to demonstrate a tendency toward "wishful thinking." He asked subjects both to predict the outcome of various public events (e.g., elections, marriage of the king) and to state how they personally hoped the events would be resolved. He found a positive correlation between individuals' desires for particular outcomes and their estimates of the likelihood of their occurrence, a result that has since been replicated in a variety of contexts (Marks, 1951; Irwin, 1953; Crandall, Solomon & Kelloway, 1955). Of course, these results do not attest unambiguously to the operation of wishful thinking. For example, instead of over-

estimating the likelihood of desirable events, people may accommodate to circumstances by magnifying the desirability of events that are likely to occur.

Incentive 2: Avoidance of disappointment

The second incentive, a desire to avoid disappointment, promotes pessimism. Prior expectations influence one's reaction to outcomes. When the outcome is inferior to what was expected (for example, a student expecting an "A" receives a "B"), one may experience disappointment.¹ Failure may seem especially painful when success seemed assured. Alternatively, when the outcome surpasses expectations, one may experience elation. Thus whether the outcome is favorable or unfavorable, the lower one's initial expectations, the greater one's satisfaction with the actual outcome (House and Perney, 1974; Ilgen, 1971; Feather, 1969). This inverse relationship between expectations and satisfaction with an outcome constitutes an incentive for lowering expectations.

The motivation to form pessimistic expectations can also be understood in terms of Mandler's theory of emotion (Mandler, 1975, 1982). According to Mandler, environmental "interrupts" or unexpected events intensify emotional response. Lowering expectations increases the likelihood that favorable events will be unexpected and decreases the likelihood that unfavorable events

¹Two recent theoretical works have examined the potential implications of disappointment for decision making. Bell (1985) developed a theory of choice under uncertainty in which people evaluate risky prospects partly on the basis of their potential for inducing disappointment. Jones (1977) shows how the interaction of "wishful thinking" and "anticipatory face saving" can explain the apparent tendency of decision makers to overweigh small probabilities and underweigh those that are large. "Anticipatory face saving," though similar to "desire to avoid disappointment," stems from a desire to avoid humiliation in front of other people, while desire to avoid disappointment would be operative even in the absence of external observers.

will come as a surprise. Thus we hypothesize that lowering expectations should heighten the pleasure from success while dampening the pain of failure.

A study by Pyszcynski (1982) seems to demonstrate "disappointment avoidance." Subjects played a game of chance to determine whether they would win a prize. For half the subjects, the prize was trivial (a 50¢ gift certificate); for the other half, it was more substantial (a \$5.00 gift certificate). Although the objective odds were clearly the same for both conditions, subjects who played for the trivial prize rated their chance of winning as higher than those who played for the more substantial prize. Pyszcynski explained the tendency to downgrade the likelihood of obtaining the more desirable prize as a "don't get your hopes up" strategy to minimize the negative affect that would result from failing to obtain the prize. Such negative affect would be a positive function of prize value; those who were playing for the more highly valued prize therefore faced greater potential negative affect and had a greater incentive to lower their expectations.

Timing of Outcomes

At first glance, this pattern of results appears contradictory. On the one hand, expectations are lower for more highly valued outcomes (Pyszcynski, 1982); on the other hand, more highly valued outcomes are, *ceteris paribus*, deemed more likely to occur (McGregor, 1938). How can these results be reconciled? We propose that the timing of outcomes is a critical factor. Pyszcynski's experiment involved outcomes that were expected to occur almost immediately. For his subjects, the threat of disappointment was immediate, whereas the opportunity to savor raised expectations would have been extremely short. Thus the incentive to lower expectations to avoid disappointment was substantial relative to the incentive to raise them to enhance savoring. As the value of the prize increased, the threat of disappointment would have risen commensur-

ately, motivating a self-protective shift of expectations in the direction of pessimism.

In contrast, McGregor's outcomes were unlikely to be resolved in the near future. McGregor's subjects faced a prolonged period of savoring and a substantially delayed threat of disappointment. Since individuals tend to discount the future (i.e., care less about the future than the present) (Ainslie, 1973), concern about possible future disappointment should diminish as outcome revelation is delayed. By raising expectations, McGregor's subjects could enhance pleasure from a prolonged period of savoring with little concern for the remote threat of disappointment. Because pleasure from savoring increases with the desirability of the awaited outcome, subjects were especially motivated to boost their expectations concerning highly desirable outcomes.

Combining "Savoring" and "Disappointment Avoidance":

Hypotheses Regarding Expectation Formation

McGregor and Pyszczynski's studies both examined the relationship between expectations and the desirability of outcomes. We have suggested that their contradictory results can be explained by the relative dominance of the desire to savor when outcome revelation is remote and the dominance of the desire to avoid disappointment when outcome revelation is imminent. But the shift in the strength of the incentive for optimism relative to pessimism as a function of delay of outcome revelation suggests a more fundamental relationship between optimism and delay -- namely, that people are more optimistic concerning remote outcomes than toward imminent outcomes.

Nisan (1972) obtained experimental results that support this hypothesis. He told half of his subjects that they were going to take a test four weeks from the date of the experiment and half that the test would be administered

immediately. All were told that studying for the test would have no effect on their score. Those anticipating a delay reported higher expectations than did those anticipating immediate testing.

But outcomes that are initially remote eventually become imminent. Thus, while an individual waits for an outcome to be revealed, the incentives for optimism should decline relative to incentives for pessimism as the desire to savor becomes eclipsed by a desire to avoid disappointment. As a result, expectations should lower over time.

In short, an individual forming expectations is caught between two conflicting motivations: to raise expectations (to enhance pleasure from savoring or to reduce anxiety) and to lower expectations (to protect against disappointment). One way to get the best of both worlds is to exploit the fact that the two effects do not operate simultaneously. Savoring or anxiety is experienced prior to the event, whereas disappointment is experienced following it. As a result, the individual can savor high expectations while waiting, but avoid disappointment by lowering them as the moment of outcome revelation approaches. The above line of argument suggests two hypotheses concerning the effect of time delay on optimism.

Hypothesis 1: The longer individuals anticipate waiting for self-relevant outcomes, the more optimistic they will initially be regarding those outcomes.

Hypothesis 2: As the moment of outcome revelation approaches, people will become more pessimistic and lower their expectations regarding those outcomes.

To test these hypotheses, we conducted a study in which subjects took a test described as a strong predictor of future academic success. Subjects were randomly assigned to one of two groups: immediate outcome subjects were

told that they would receive their test scores at the end of the experimental session; delayed outcome subjects were told that they would receive their results in two weeks. Subjects gave their outcome expectations at two points during the session: Time 1, immediately after completing the task; and Time 2, at the end of the session.

The predictions are first, that delayed outcome subjects will form higher expectations concerning their test score at Time 1 than will immediate outcome subjects. Second, immediate outcome subjects will lower their expectations from Time 1 to Time 2 to a greater degree than will delayed outcome subjects.

Methods

Subjects

Seventeen male and nine female undergraduate students enrolled in introductory psychology classes participated in an experiment titled "attitudes toward test taking" as partial fulfillment of their research participation requirement. Subjects were run individually. Four students were excluded (two males, two females); two guessed that a staged computer breakdown was bogus, and two failed to receive the proper manipulation. Thus all analyses involved 22 subjects.

Procedure

The experimenter explained that the purpose of the session was to pretest two research instruments: a "verbal logic test" and an "aesthetic rating task." He stated that he was interested in the subject's reactions to these two instruments. He further explained that the verbal logic test consisted of items taken from the Graduate Records Exam, stressing that GREs are an important determinant of graduate school admissions and academic success. The aesthetic rating task, a filler task, involved rating a series of photographs

of elementary schools according to their attractiveness.

Before beginning the tasks, the experimenter explained the sequence of events in the study. First, subjects would be given ten minutes to complete as many items as possible on the verbal logic test. Next, they would give their reactions to the test by entering their responses to questions presented on a computer terminal. The experimenter mentioned that a new computer program had been written specifically for this purpose. They would then proceed to the aesthetic rating task while the experimenter scored their verbal logic test. Upon completing the aesthetic rating task, they would fill out a form that asked for their reactions to the aesthetics task.

Subjects in the immediate outcome condition were told that they would receive their verbal logic scores at the end of the experiment. Subjects in the delayed outcome condition were told that they would receive their scores in two weeks, at the completion of running all subjects in the study. Subjects in both conditions anticipated receiving their scores privately, in a sealed envelope. Delayed outcome subjects were asked to self-address an envelope for this purpose. Immediate outcome subjects would receive their scores in a sealed envelope at the close of the experimental session. Subjects in both conditions were told that their tests would be scored by the experimenter at the same point in the session. And, at the same point in the sessions, subjects in both conditions were made aware that the experimenter knew their score. Thus, the manipulation only involved the time delay in receiving their scores.

After working for ten minutes on the verbal logic test (composed of fifty analogy, antonym, and sentence completion items), the subject was asked to stop working and to sit in front of a computer display screen. Displayed on the screen was the first of four items. Below each item was a line with

labeled end-points. The subject was given a joystick with which to move an "X" back and forth along the line. By pushing a button on the joystick, the subject could enter his or her response to the question, and a new item would immediately appear on the screen. The expectation item was worded as follows: "How many questions do you think you answered correctly?" ("all" to "none"). (All responses were later assigned numerical scores between 0 and 100%).

Several items were included as controls for alternative explanations. These control items were as follows: "How would you rate your mood at the current time?" ("extremely happy" to "extremely unhappy"); "What is the probability that it will rain on your next birthday?" ("no chance" to "certain"); "What is the probability that the unemployment rate will hit ten percent within the next two years?" ("no chance" to "certain").

After the subject had answered four items, a conspicuous and unmistakable error message appeared on the screen, and the joystick became inoperative. All subjects then fetched the experimenter who casually mentioned that "we have been having some problems with the new program." He suggested that the subject move on to the aesthetic rating task while he restarted the program and scored the verbal logic test. Shortly after the subject began working on the aesthetic rating task, the experimenter, who had been fiddling with the computer, mentioned that the computer was once again operative. After the subject completed the aesthetic rating task (which took about seven minutes), the experimenter announced that the verbal logic test had been scored and proceeded to place the folded test containing the score into an envelope. For delayed outcome subjects, he used their self-addressed envelope; for immediate outcome subjects, he used a blank envelope to be given to subjects at the end of the session. The experimenter then told subjects that their reactions to the verbal logic test that they had entered earlier on the computer had been

lost, and he asked subjects to reenter their reactions on the computer. After reentering their reactions, subjects were probed for suspicion, then fully debriefed.

Results

Hypothesis 1

Recall that Hypothesis 1 predicts that delayed outcome subjects will form higher expectations at Time 1 regarding their test score than will immediate outcome subjects. An analysis of the estimated number of correct answers tested this prediction.

Insert Table 1 about here

As seen in Table 1, delayed outcome subjects estimated at Time 1 that they had answered more questions correctly than did immediate outcome subjects ($M = 61.9$ versus $M = 43.2$). An analysis of covariance with expectations at Time 1 as the dependent variable, immediate or delayed outcome condition as the independent variable, and actual score³ and gender as covariates yielded a significant effect for outcome condition, $F(1,18) = 8.35$, $p < .01$. As a covariate, actual score had a significant impact on Time 1 expectations, $F(1,18) = 31.44$, $p < .01$. The effect of gender was insignificant, $F(1,18) = 1.77$, and was thus dropped from subsequent analyses.

³The actual score (i.e., the number of questions actually correctly answered) was included as a covariate because it is highly likely that expectations are based in part on actual performance.

Hypothesis 2

Recall that Hypothesis 2 predicts that immediate outcome subjects will lower their expectations from Time 1 to Time 2 to a greater degree than will delayed outcome subjects. Because of the anticipated delay of several weeks for delayed outcome subjects in the present experiment, we expected these subjects to change very little over the approximately one-half hour they waited during the experiment. As can be seen by the raw scores in Table 1, immediate outcome subjects became more pessimistic in their expectations over time ($M = 43.2$ to $M = 38.6$), while delayed subjects did not change their expectations ($M = 61.7$ to $M = 62.1$).

An analysis of covariance was performed using expectations at Time 2 as the dependent variable, outcome condition as the independent variable, and expectations at Time 1 as the covariate.⁴ As predicted, controlling for initial expectations, immediate outcome subjects lowered their expectations over time more than did delayed outcome subjects, $F(1,19) = 5.05$, $p < .04$. In addition, the effect of the covariate, Time 1 expectations, was highly significant, $F(1,19) = 416.97$, $p < .001$. As seen in Table 2, the drop in expectations for immediate outcome subjects was quite consistent across subjects. Not one immediate outcome subject became more optimistic over time, while only three delayed outcome subjects became more pessimistic ($\chi^2(2) = 10.1$, $p < .01$).

Insert Table 2 about here

⁴We assume that any effects of actual performance are captured in Time 1 expectations. Thus, we do not include actual score as a covariate in this analysis.

Control Variables

One alternative explanation for our results is that repeating any expectation item leads to lowered expectations. An argument against this alternative hypothesis is that only immediate outcome subjects lowered their test score expectations over time, a result consistent with our proposed theory. In addition, we included two control items, one asking for the probability of rain on the subject's next birthday and the other asking for the probability of rising unemployment. An analysis of covariance that paralleled our analysis for the test score item revealed no significant effects for either control item. In neither the immediate nor the delayed outcome conditions did subjects significantly change their probability estimates over time on either control item. Thus simply responding to probability items twice cannot account for our predicted pattern of results.

Another possibility is that both the initial differences in expectations between the two groups, and the subsequent drop in the expectations of the immediate outcome subjects, are due to mood effects. The knowledge that one will shortly learn the result of a self-relevant test may cause a decline in mood. Even subtle changes in mood can exert an impact on expectations (Johnson & Tversky, 1983). Several observations mitigate against such an interpretation. First, the two groups did not differ in mood at Time 2 ($F < 1$). Second, there was no evidence that mood did, in fact, affect expectations. Expectations concerning test scores were not significantly correlated with mood ($r = -.04$). Nor does mood appear to be responsible for the drop in the expectations of immediate outcome subjects between Time 1 and Time 2. An analysis of covariance comparable to that used to test Hypothesis 2 revealed no difference between the two groups in change of mood between Time 1 and Time 2 ($F < 1$). In fact, neither group's mood changed significantly over time ($F < 1$).

Discussion

The main contribution of this paper is to demonstrate a subtle and complex interaction between the incentive to form optimistic expectations to savor potential success and the incentive to form pessimistic expectations in order to avoid later disappointment. The results clearly supported our hypotheses: First, subjects were more optimistic about delayed outcomes than about relatively imminent ones. Second, expectations lowered as self-relevant outcomes approached in time.

These changes can not be attributed to a general tendency to lower one's expectations when queried a second time. Only expectations concerning test scores dropped, whereas other self-relevant probability estimates remained unchanged. Moreover, only immediate outcome subjects lowered their expectations over time.

Nor can the results be accounted for by self-presentation concerns causing immediate outcome subjects to lower their expectations in order to avoid appearing overconfident to the experimenter. In both conditions, the experimenter scored the exams at the same point in the experimental session and informed all subjects that their scores would be written and sealed in an envelope for them to read privately. In both conditions, the subject believed that the experimenter knew the actual score. The only difference between outcome groups, therefore, was the anticipated length of the delay to learn the results. Thus neither alternative explanation can account for the differential shift in expectations of the two conditions.

Cognitive Buffering Strategies.

The theory of expectations proposed here is conceptually related to theories regarding individual differences in optimism and pessimism. In past research, negative expectations have been associated with effort withdrawal,

helplessness, and depression (e.g., Abramson, Seligman, and Teasdale, 1978; Beck, 1976). More recently, both optimism and pessimism have been found to be functional, self-protective strategies that prepare and cushion people in situations of stress and potential failure. For example, dispositional optimism has been associated with lower physical symptom reporting and lower post-partum depression (Gaines & Carver, 1984; Scheier & Carver, in press). On the other hand, defensive pessimism is a strategy by which unrealistically low expectations are used to cushion one against the possibility of failure in achievement settings (Norem & Cantor, in press, 1985; Showers & Cantor, 1985). Despite their low expectations, defensive pessimists performed as well as optimists on an achievement task (Norem & Cantor, in press). Other research, however, indicates that explicitly stating low expectations can become a self-fulfilling prophecy (Sherman, Skov, Hervitz, & Stork, 1981).

Our current work extends this research in at least two respects. First, our work suggests that expectations do not function solely as self-protective strategies, but that people are also motivated to enjoy the anticipation of positive outcomes. Second, while past work has focused on individual differences in optimism and pessimism, our work suggests that people engage in both optimistic and pessimistic thinking. Instead of adopting a consistently optimistic or pessimistic approach to expectation formation, people set their expectations in a manner that balances the conflicting goals of savoring anticipated success and avoiding possible disappointment. Moreover, our theory predicts and our results indicate that people shift from optimism toward pessimism as outcomes draw near.

Future Research

The current model and findings leave several questions open at this point. First, what is the time path of the decline in expectations? For example, is it gradual or a sharp drop? Expectations may remain high until just prior to outcome revelation, in order to maximally prolong savoring, and then drop abruptly. Alternatively, expectations may drop gradually, or in response to salient events or cues that remind individuals of future outcomes.

Second, individual differences may modify the influence of time delay or exert an independent influence on expectations. A person's tendency to delay gratification might be one such factor. When people strike a balance between their desire to savor pleasurable expectations and their desire to avoid disappointment, they are balancing a pleasure that is immediate against a threat of disappointment that is deferred. Thus, people who demand immediate gratification may opt for maximum immediate pleasure from savoring (by forming optimistic expectations) at the expense of future disappointment, whereas those who delay gratification may opt for protection against the threat of future disappointment by forming pessimistic expectations.

Other individual differences may also affect tendencies toward pessimism or optimism. Individuals who are highly susceptible to disappointment have an incentive to form pessimistic expectations that protect against disappointment. Those who derive considerable pleasure from savoring or who suffer acutely from anxiety have an incentive to be optimistic.

A third question concerns the subtlety of the observed drop in expectations. If shifting expectations protects one from disappointment, why were drops in expectations just prior to outcome revelation not more extreme? One possibility is that movement toward pessimism cannot fully protect against negative affect, partly because sudden drops of expectations are similar to

disappointment itself and thus are aversive. Second, there are undoubtedly limits to individuals' capacities for self delusion. For example, sudden extreme shifts in expectations that cannot be attributed to new information may challenge the individual's self-credibility. Similarly, the implications of information derived from experience or external sources may be difficult to ignore. A straight "C" student may have difficulty persuading herself that she will obtain an "A" on an upcoming test, regardless of the pleasure that would result from such wishful thinking. These constraints on self-delusion may stem from the strong bias in Western society toward "objectivity." Aphorisms such as "don't count your chickens before they hatch" seek to discourage people from substituting the short-term pleasures of over-optimism for the increased efficiency and productivity that are thought to result from objectivity and realism.

A final issue concerns to what extent individuals are persuaded by their own shifts of expectation. For example, would subjects show the same degree of expectational shift if incentives for accuracy were increased?

Theoretical Implications

Theories of decision making have traditionally assumed that subjective beliefs about the likelihood of outcomes are independent of preferences for these outcomes. This assumption is explicitly incorporated in expected utility theory (Luce & Raiffa, 1957; von Neumann & Morgenstern, 1947) and is implicitly incorporated in Kahneman and Tversky's (1979) prospect theory. These theories assume that expectations and preferences result from independent psychological processes that are in some sense distinct from and presumably more basic than decision making per se. But our results suggest that expectations are influenced by incentives to savor success and avoid disappointment. Thus, one of the key inputs to the choice process --

expectations of outcomes -- is itself the result of a motivated decision process in which the person balances incentives for accuracy, optimism, and pessimism. Thus, our results open a Pandora's box that greatly complicate the task of modelling expectations and choice.

Table 1

Mean Responses to Dependent and Control Items
By Delay Condition and Time of Response

	Immediate Outcome (n=11)		Delayed Outcome (n=11)	
	<u>T1</u>	<u>T2</u>	<u>T1</u>	<u>T2</u>
Expected number correct	43.3 (3.8)	38.6 (4.4)	61.8 (4.1)	62.2 (4.3)
Mood (high = good)	48.5 (3.3)	49.3 (3.3)	48.3 (3.2)	48.4 (3.4)
Probability of rain on birthday	34.2 (5.4)	34.1 (5.6)	21.8 (5.8)	21.2 (5.0)
Probability of unemployment > 10%	49.9 (5.6)	47.0 (6.5)	54.7 (7.1)	54.8 (7.1)

Note: Response range: 0 to 100.
Standard errors of means in parentheses.

Table 2

Direction of Change in Expectation, Time 1 to Time 2:
Immediate versus Delayed Outcome Conditions
(number of subjects)

	Immediate Outcome	Delayed Outcome
Became more pessimistic over time	10	3
no change	1	2
Became more optimistic over time	0	6

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