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Reasonable Reasons for Waiting

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Abstract

Recent decision-making research claims to establish that, in violation of Savage's normative sure-thing principle, individuals often wait to acquire noninstrumental information and subsequently base their decisions upon this information. The current research suggests that characterizing individuals as pursuing noninstrumental or useless information may be overstated. Through a series of experiments we establish, first, that many people choose to wait, even when waiting provides no additional information at all. Second, the longer people are allowed to wait before having to decide, the more people prefer to wait rather than decide immediately. Third, those individuals who choose to wait are the ones less confident about committing themselves to a decision. For them, the information acquired from waiting may be especially valuable by allowing them to come to terms with a less-than-ideal decision.

Reasonable reasons for waiting

When facing an important decision conventional wisdom suggests seeking out all information that may have a bearing on subsequent choice. But not all information is relevant or worth pursuing. Information that is unlikely to change our preferences or alter our choices is probably not worth pursuing or waiting for. For example, an inexpensive, well-timed vacation package to Jamaica may be worth booking independent of the pending weather forecast from which the potential traveler will learn if the temperatures in Jamaica will be in the high 80s or the low 80s. The point is that if one would make the same decision regardless of how the uncertainty is resolved, then waiting for its resolution before deciding seems irrational (Savage, 1954). Despite the intuitive appeal of this "sure-thing" principle, recent decision-making research has demonstrated that it is often violated (Bastardi and Shafir, 1998, 2000; Croson, 1999; Shafir and Tversky, 1992; Tversky and Shafir 1992).

In their 1998 article entitled, "On the Pursuit and Misuse of Useless Information", Bastardi and Shafir used several scenario studies to document that people wait to pursue information that ultimately has no bearing on the decision they make. Many of their scenarios share the following format: in one "certain" scenario, the respondent is asked to decide between two options; there is no uncertainty. The second "uncertain" scenario makes two simultaneous additions: uncertainty about the resolution of a consideration potentially relevant to the decision task is introduced and the respondent is given a third option, namely, to wait until the resolution of uncertainty before deciding. For example, one pair of their scenarios entails the decision of

whether to accept a college applicant who has supportive letters of recommendation and is active in extra-curricular activities, but who has a B average from high school in the certain version or an A or a B average, subject to clarification, in the uncertain version.

In this paper, we select one of their scenarios, to be referred to as the course registration scenario, and demonstrate the difficulties inherent in comparing responses from a two-option scenario with no uncertainty to a three-option scenario containing uncertainty.

In the course registration scenario (problem 1 in Bastardi and Shafir, 1998) the participants were asked if they would register for an interesting course in their major, knowing that the popular professor who usually teaches it (who is reputed to be an excellent teacher) will be on a sabbatical leave. The course will instead be taught by a less popular professor. In this “certain” version 82% of the respondents indicated that they would register for the course while only 18% chose not to register. A separate group of respondents were exposed to an “uncertain” version of this scenario: participants were told that the popular professor who usually teaches the course may be on sabbatical and they would not know for certain until tomorrow whether he or a less popular professor will teach the course. The participants had three response options to choose from, namely, register, not register, and wait until tomorrow (after finding out who will be teaching the course) to decide about registering. The “waiting” option was preferred by 56% of the participants, with only 42% deciding to register, and 2% deciding not to register.

According to Bastardi and Shafir, the initial finding that 82% chose to register for the course even though they knew for certain that it would be

taught by the less popular professor indicates that, “the missing information regarding the professor had no instrumental value for more than 80% of participants and, thus, less than 20% of participants were expected wait.” (p. 21). This raises the question, why do more than half of the respondents in the uncertain version choose to wait?

The first point we would like to make is that people may have different motives that could lead them to delay their decision other than, or in addition to, the pursuit of more information. Sometimes people prefer to wait simply to think matters over, to come to terms with a difficult decision, or to consult with friends or family. The need for further contemplation may be particularly intense when one has to choose the lesser of two evils. The participants in the certain version of the course registration scenario are faced with choosing between registering for a poorly taught course and passing up a course containing very interesting subject matter. This dilemma may have introduced serious doubts in the minds of the respondents. Some of them may have chosen to take the course despite these doubts simply because they were forced to decide between registering and not registering. Given the chance, these individuals may have preferred an option such as “I will need more time to think about it”. Unfortunately, this choice was unavailable to them. Their response options placed them in a deterministic, binary mold, which made them appear determined even if in fact they were not.

In view of the above, the reference to the 82% of the respondents who chose to register for the course in the two-option, certain condition as those who have no value for waiting may be overstated. Similarly, the choice of waiting in the uncertain version cannot be automatically equated with waiting

for more information. Some of the respondents may have chosen to wait because they felt that they needed more time for contemplation. Although Bastardi and Shafir acknowledge that people may have different reasons for waiting, their methodology, in which they compare a two-option, full-information world with a three-option, uncertain one, does not afford any insight into possible motives other than information seeking.

The first study reported here introduces a proper control condition for Bastardi and Shafir's three-option, uncertain condition by including a three-option, certain condition. We show that even when no new information is forthcoming, many people like to wait. Furthermore, increasing the waiting period enhances the attractiveness of waiting.

Bastardi and Shafir (1998) argued further that people who pursue noninstrumental information misconstrue it as instrumental and in so doing allow it to affect their choices in accordance with the resolution of uncertainty. Indeed, in their uncertain version when the participants who chose to wait were told, "It is now the next day and you found out that the less popular professor will be teaching the course, do you a) decide to register for the course? b) decide not to register for the course?", nearly half of those who waited decided not to register for the course.

Our second study addresses the source of this effect. In experiments 2 and 3 we demonstrate that the option to postpone deciding has the greatest appeal for those who lack confidence in their decision. Waiting allows further contemplation or seeking advice, behaviors likely to build-up confidence.

Experiment 1

Two-hundred and seventy-five students at Ben-Gurion University were asked to read and respond to one of five versions of the course registration scenario adapted from Bastardi and Shafir (1998). Following are the versions used, and the participants' responses to each version.

Versions 1 and 2: Replication

The first two versions were identical to those employed by Bastardi and Shafir (translated to Hebrew by the authors). These were included in an attempt to replicate previous findings.

Version 1 (Certain): "You are considering registering for a course in your major that has very interesting subject matter and will not be offered again before you graduate. While the course is reputed to be taught by an excellent professor, you have just discovered that he will be on leave, and that a less popular professor will be teaching the course. Do you a) decide to register for the course? b) decide not to register for the course?"

Version 2 (Uncertain): "You are considering registering for a course in your major that has very interesting subject matter and will not be offered again before you graduate. While the course is reputed to be taught by an excellent professor, you have just discovered that he may be on leave. It will not be known until tomorrow if the regular professor will teach the course or if a less popular professor will". In addition to the response options of "register" and "not register", this version included a third option; "c) wait until tomorrow (after finding out if the regular professor will be teaching the course) to decide about registering for the course."

Results

Table 1a: Proportion of Participants Choosing Each of the Options

Version	N	% Register	% Not register	% Wait
1. Certain	55	81.82	18.18	---------
2. Uncertain	56	48.21	3.57	48.21

Following Bastardi and Shafir (1998), participants who chose to wait were asked to respond to the second part of the uncertain version questionnaire: “It is now the next day, and you find out that the less popular professor will be teaching the course. Do you a) decide to register for the course? b) decide not to register for the course?”

Table 1b: Decisions Following the Waiting Period

Version	% Register	% Not register	Total
2. Uncertain	21.42	26.79	48.21

The results of versions 1 and 2 successfully replicated Bastardi and Shafir’s (1998) original findings. In the two-option, certain version, their results were precisely duplicated with 82% of respondents choosing to register and 18% who decided not to register. In the uncertain, three-option version, as in Bastardi and Shafir, a large proportion (nearly half) of the participants chose to wait for the professor information. The effect of the resolution of uncertainty in the second part of the questionnaire on participants’ decisions was marginally significant: a total of 29.36% chose not to register in the three-option, uncertain version (3.57% before and 26.79%

after pursuing the information) in contrast to only 18.18% of the respondents in the two-option, certain version, $\chi^2(1)=2.23$, $p<.07$.

Version 3: Three-Option Certain

It may be that even in the absence of uncertainty, some participants might welcome the opportunity to postpone their decision in order to contemplate which outcome is more acceptable, forgoing an interesting course or attending a poorly taught one. To investigate this hypothesis a third, "three-option certain" version was created. This version was identical to version 1 (that is, certain knowledge that the course will be taught by the less popular professor), with one addition, the inclusion of a third alternative, namely, "c) wait until tomorrow to decide about registering for the course." Participants who chose this option were subsequently asked to respond to the second part of the questionnaire and indicate their decisions the following day.

Results

Table 2a: Proportion of Participants Choosing Each of the Options

Version	N	% Register	% Not register	% Wait
3. Three-Option Certain	54	70.37	12.96	16.67

Table 2b: Decisions Following the Waiting Period

Version	% Register	% Not register	Total
3. Three-Option Certain	16.67	0	16.67

The fact that one in six participants chose to wait although no further information was forthcoming strongly suggests that waiting may serve a purpose other than obtaining additional information. It may be that the participants who chose this option were less confident about committing themselves to either decision and were in need of more time to come to terms with the less-than-ideal scenario of registering for a poorly taught course.

Versions 4 and 5: Longer delay

If indeed the decision to wait reflects, at least to some extent, an attempt to "buy time" for further deliberation, more time may be welcomed by someone trying to come to terms with a choice, or attempting to muster up confidence before committing to a decision. This suggests that granting respondents who choose to wait more time before they have to decide should increase the number of respondents opting to wait. In this vein, two additional versions were created in which the option to postpone the decision to wait was offered not for a day, but for an entire week.

Version 4 (One-Week Certain): This version was identical to version 3 (certain knowledge that the course will be taught by the less popular professor); however the third response option read as follows: "c) wait another week (until the end of the registration period) to decide about registering for the course."

Version 5 (One-Week Uncertain): In this version participants do not learn until the last day of the registration period (a week from now) who will teach the course. The third response option in this version read as follows: "c) wait another week (after finding out if the regular professor will be teaching) to decide about registering for the course."

In both versions 4 and 5, participants who chose to wait were asked to complete the second part of the questionnaire and indicate their subsequent choice at the end of the registration period (for version 4), or after they had found out that the less popular professor will be teaching the course (in version 5).

Results

Table 3a: Proportion of Participants Choosing Each of the Options.

Version	N	% Register	% Not register	% Wait
4. One-Week Certain	55	45.45	1.82	52.73
5. One-Week Uncertain	54	38.88	0	61.11

Table 3b: Decisions Following the Week-Long Waiting Period

Version	% Register	% Not register	Total
4. One-Week Certain	45.46	7.27	52.73
5. One-Week Uncertain	27.78	33.33	61.11

The simple extension of the waiting period to a week, without the expectation or provision of additional information, dramatically increased the fraction of respondents who chose to wait: over half (52.73%) of the participants chose to wait in version 4 compared to 16.67% in version 3 in which the waiting period was a single day, $\chi^2(2)=20.01$, $p<.001$. This striking increase is consistent with the idea of "buying time" for further contemplation and acceptance of an uncomfortable choice. A longer time interval is more conducive towards this goal and thus more appealing.[1]

Comparing the distributions of “register” and “not register” decisions in the three certain conditions (“certain”, “three-option certain” and “one-week certain”), we find no significant difference, $\chi^2(2)=1.97$, $p=.373$. In other words, waiting in itself, without the provision of new information, does not alter significantly participants’ decisions. On the other hand, precisely as Bastardi and Shafir demonstrated, waiting for the resolution of uncertainty does alter participants’ decisions. Substantially more participants in the (three-option) uncertain condition ultimately chose not to register (30.36%) than in the three-option certain condition (12.96%), $\chi^2(1)=4.88$, $p=.027$. Similarly, a total of 33.33% of the respondents in the one-week uncertain condition decided not to register compared to only 9.09% in the one-week certain version, $\chi^2(1)=9.62$, $p=.002$.

In their experiment, Bastardi and Shafir attributed the increase in the number of participants who ultimately chose not to register in the uncertain version to a misconstrual of the professor information as instrumental. Having pursued this information, they reasoned, participants proceed to allow it to affect their subsequent choice in accordance with the resolution of the uncertainty. The current results illustrate, however, that waiting cannot be automatically equated with waiting for information. People may have different reasons to wait. Although Bastardi and Shafir acknowledge reasons to wait other than the pursuit of information, their methodology does not allow them to identify these additional motives.

If the choice to delay one’s decision reflects at least to some extent the presence of doubts, additional information that may help resolve these doubts will be particularly useful. It is possible, then, that the psychological state of

lack of confidence leads both to the postponement of decision and to the assignment of extra weight to relevant information. Experiments 2 and 3 were designed to examine the psychological state, more precisely, the confidence levels of those participants who choose to wait.

Experiment 2

One-hundred and twenty-eight students at Ben-Gurion University were asked to read the uncertain version of the course registration scenario (version 2), and choose one of two options: "Do you a) decide to register for the course? b) decide not to register for the course?" Participants were then asked to indicate how confident they were in their decision on an 11-point scale, ranging from 0 (not confident at all) to 10 (absolutely confident). The following passage was presented next: "Imagine that apart from the options to register or not to register for the course you were also offered a third option – to postpone your decision to the next day (after finding out if the regular professor will be teaching the course) to decide about registering for the course. In your opinion what is the probability that you would choose this option instead of the one you chose." Participants indicated their response on an 11-point scale ranging from 0 (very low probability) to 10 (very high probability). The correlation between respondents' confidence in their initial choice and their subsequently indicated likelihood of changing that choice when given the opportunity to do so is reported below.

Results

Table 4: Proportion of Participants Choosing Each Option, Confidence and Probability Ratings, and Correlation Between Confidence and Probability.

	Register	Not register	Total sample
N	119	9	128
Proportion	92.96%	7.03%	100%
Mean Confidence	7.86	5.33	7.67
Mean Probability	8.20	9.78	8.31
Correlation (R^2)	-.22 ($p<.017$)	.09 (ns)	-.25 ($p<.004$)

Consistent with the hypothesis that it is those less confident who choose to wait, confidence levels were found to be negatively associated with the probability of waiting when given the chance. That this relationship was not found for those respondents who initially chose not to register for the course may be attributed to the small number of participants in this group (n=9).

One could justifiably argue, however, that the above results were influenced by participants' desire to appear logical and consistent in their responses. Just having indicated that she is not confident in her initial choice, the participant may feel compelled to assign a high probability to the possibility of changing her choice. By the same token, a participant who expressed a high degree of confidence about his initial choice may sense that to indicate a high probability of changing would somehow contradict his

previously expressed confidence. Experiment 3 was designed to overcome this demand problem.

Experiment 3

Forty-nine students at Ben-Gurion University participated in this experiment. The students were asked to read the uncertain version of the course registration scenario, choose between the two options of “register” and “not register” and then rate their confidence level using the same 11-point scale described in Experiment 2. At this point the experimenter collected the forms, looked at them in dismay, and appearing embarrassed confessed, “I am so sorry. I made a mistake. I gave you the wrong forms. These forms contain a printing error: there should have been three options not two. I hope you don’t mind completing the forms again”. The experimenter then dropped the first set of questionnaires in a trash bin, and distributed the “correct” forms. These were identical to the ones the participants had just filled out except that the response options included a third alternative: “c) wait until tomorrow (after finding out if the regular professor will be teaching the course) to decide about registering for the course.”

By comparing responses from the first and second questionnaires, it was possible to divide the participants into two “decision constancy” groups: “switched” (those participants who chose “c” on the second form, n=28), and “did not switch” (those respondents who chose the same response option on both forms, n=21).

Results

Table 5: Proportion and Mean Confidence Levels in the Two Decision Constancy Groups as a Function of Initial Choice.

Constancy	Switched		Did not switch		total
Initial choice	Register	not register	register	not register	
N	25	3	21	0	49
Proportion	51%	6%	43%	0%	100%
Initial confidence	7.64	6.67	8.71	--------	8.04
Subsequent confidence	8.80	9.67	8.61	--------	8.78

The initial confidence level as indicated by the respondents on the first form (following their initial choice) was used to predict decision constancy in a logistic regression analysis. This analysis yielded significant results, Beta=.457, $p<.009$, indicating that participants who were less sure of their initial choice tended to switch to the waiting option on the second form.

These results, as well as those reported for Experiment 2, are consistent with the hypothesis that the option to delay one's decision has particular appeal to those who need more time to contemplate their decision, to come to terms with an unpleasant choice, or to feel reassured about their decision. All of these behaviors are likely to boost the decision makers confidence before committing to a decision.

In order to detect changes in the confidence level as a result of the decision to maintain or change one's initial choice, a 2X2 ANOVA was

conducted. The design included two levels of within-factor confidence ratings (initial confidence, as rated on the first form, and subsequent confidence, as rated on the second form), and two levels of constancy (switched, and did not switch). This analysis yielded a significant interaction, $F(1,47)=25.73$, $p<.0001$. A simple comparison revealed a significant increase in the confidence level for those who changed their original choice, $F(1,47)=52.1$, $p<.0001$. That is to say, respondents who felt uncomfortable when forced to choose between two imperfect actions gained confidence once allowed to ponder their decision. Interestingly, initial and subsequent confidence levels were no different for those who stuck with their original choice ($F<1$).

Discussion

Violations of Savage's sure-thing principle have been well documented in a variety of different decision-making contexts. The main goal of the current work was not to cast doubt on the existence of this phenomenon but rather to explore the underlying motivation for delaying decisions seemingly in order to pursue noninstrumental information. The reported studies illustrated the problem inherent in characterizing certain kinds of information as noninstrumental based on an unbalanced comparison of responses of participants in a two-option, certain decision scenario with a three-option, uncertain one.

In the first experiment it was demonstrated that some people choose to wait even when no additional information is forthcoming; thus we cannot automatically equate waiting with the pursuit of noninstrumental information. Other reasons for waiting exist. We show that allowing people more time

before having to commit to a decision enhances the attractiveness of these reasons, whatever they may be.

Experiments 2 and 3 explored one specific reason for waiting, namely, lack of confidence. In these experiments it was demonstrated that the decision to wait appeals most to those least confident about committing themselves to a decision. Waiting allows these individuals to "buy time" for further contemplation or to come to terms with a less-than-ideal decision, and, as a result, gain confidence. Lack of confidence may have two effects: first, to encourage people to wait before deciding so that more confidence can be acquired; and second, to make the decision maker extra sensitive to any incoming information that may be relevant to the decision in question. It is possible then that the effect that the professor information had on the decisions of those who waited for it may have stemmed not from a reasoning process that endows this information with extra weight since one has pursued it (as suggested by Bastardi and Shafir), but from the extra sensitivity of the unsure decision maker.

One may well ask the question, should increased confidence play a normative role in decision-making, given that waiting in itself (that is, without the provision of new information) does not alter participants' decisions? We believe that it should. In the motivation literature, confidence in one's chances of success has been implicated in the ability to mobilize motivational energy that allows one to take action (e.g., Feather 1990; Kuhl, 1986). In the persuasion literature, it was suggested that people require a certain level of confidence in order to form judgements concerning persuasive messages. In the absence of this required level of confidence, they continue processing

these messages (given adequate cognitive capacity) until they acquire such confidence (Chaiken, Liberman, & Eagly, 1989; Maheswaren & Chaiken, 1991). It seems then that in order to make judgements, commit to a decision, or take action people require some level of confidence (that may vary with situational and dispositional factors), and that people are willing to prolong the processing of information in order to acquire this confidence.

To the question “why wait?” there is undoubtedly more than one answer. When choosing between two imperfect alternatives people may wait to boost their confidence about their pending decision; they may wait to keep their options open or to acquire more information; or they may wait in the hope that unpleasant aspects of the situation may in time diminish or disappear altogether. An old Jewish tale captures such a hope.

A feudal tenant tells a friend that he was ordered by his squire to teach the squire’s dog to speak.

“What did you say?” asked the alarmed friend.

“I agreed, but I asked that the dog stay in my house for three years so that I can teach it”.

“And what will you do in three years time?” asked his friend.

“In three years, God willing, either the dog will die or the squire will die or they may both be dead”, replied the tenant.

References

Bastardi, A., & Shafir, E. (2000). Nonconsequential reasoning and its consequences. Current Directions in Psychological Science, 9, 216-219.

Bastardi, A., & Shafir, E. (1998). On the Pursuit and Misuse of Useless Information. Journal of Personality and Social Psychology. 75, 19-32.

Chaiken, S., Liberman, A. & Eagly, A. H. (1989). Heuristic and systematic information processing within and beyond the persuasion context. In: J. S. Uleman, & J. A. Bargh, (Eds). Unintended Thought, pp. 212-252. New York: Guilford Press.

Croson, R. T. A. (1999). The Disjunction Effect and Reason-Based Choice in Games. Organizational Behavior and Human Decision Processes. 80, 118-133.

Feather, N. T. (1990). Bridging the gap between values and action; recent applications of expectancy value model. In E.T. Higgins, & R.M. Sorrentino (Eds.), Handbook of Motivation and Cognition: Foundations of Social Behavior, Vol. 2 (pp. 151-192). New York: Guilford Press

Kuhl, J. (1986). Motivation and information processing: a new look at decision making, dynamic change, and action control. In R.M. Sorrentino & E.T. Higgins (Eds.), Handbook of Motivation and Cognition: Foundations of Social Behavior (pp. 404-434). New York: Guilford Press.

Maheswaran, D, & Chaiken, S. (1991). Promoting systematic processing in low-motivation settings: Effect of incongruent information on processing and judgment. Journal of Personality and Social Psychology, 61, 13-25.

Savage, L. J. (1954). The Foundations of Statistics. New York, Wiley.

Shafir, E. and Tversky, A. (1992). Thinking through Uncertainty: Nonconsequential Reasoning and Choice. Cognitive Psychology. 24, 449-474.

Tversky, A. and Shafir, E. (1992). The Disjunction Effect in Choice under Uncertainty. Psychological Science, 3, 305-309.

Footnotes

1. It is worth noting that the current results probably understate the degree to which people like to wait. Some forms of action may be "waiting in disguise". In the course registration scenario, the decision to register may be a form of waiting for some participants. Unsure whether they indeed want to take the class, to avoid being shut out of a course that is full, students may choose to register to keep the option available. At a later date, they can always drop the course.

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