

## Maximization and Search for Alternatives in Decision Situations With and Without Loss of Options

ANDREA L. PATALANO\*, EMMA L. WEIZENBAUM, SYDNEY L. LOLLI and ALEXANDRA ANDERSON

*Department of Psychology, Wesleyan University, Middletown, CT, USA*

### ABSTRACT

Maximizing tendency has been associated with greater accumulation of choice alternatives prior to selection of a preference. It is not known whether this search behavior extends to situations in which accumulation of new choice alternatives comes with the potential loss of existing ones. In Study 1, we replicate the original finding of greater accumulation of choice alternatives, using a computer-based laboratory task. We then provide evidence, in Studies 2 and 3, that when potential loss of existing options is incorporated into the task, maximization is associated with *less* rather than more search for additional options. Maximization components of decision difficulty and alternative search, but not high standards or satisficing, explain this behavior. Other task measures are also collected, but few maximization-related differences are observed. The findings support an interpretation of maximizers as decision makers who are as concerned with the potential loss of existing options as with the loss of undiscovered future ones. Copyright © 2015 John Wiley & Sons, Ltd.

KEY WORDS    maximizing tendency; alternative search

How does one decide when to buy a home, accept a post-college job, or commit to a life partner? Within a rational choice framework (von Neumann & Morgenstern, 1944), individuals have complete information about available options and use this information to form a set of well-ordered preferences. However, Simon (1955) argued that the notion of a person who knows all available choice options at the outset and acts based on mathematical rules for maximizing his or her interests exists in theory only. Instead, he proposed that individuals “satisfice,” or set a threshold for a sufficiently desirable outcome and select the first alternative surpassing the threshold. Rather than asking “Is this the best option?” the satisficer asks “Is this option good enough?” Simon argued that it is more advantageous for people to make decisions based on the criterion of adequacy than optimality. The notion that satisficing is a valuable strategy given limited human resources is consistent with research showing that choice difficulty can increase and satisfaction decrease with larger choice sets (Iyengar, Huberman & Jiang, 2004; Iyengar & Lepper, 2000; but refer to Scheinbehenne, Greifeneder, & Todd, 2010).

Schwartz, Ward, Monterosso, Lyubomirsky, White & Lehman (2002) were the first to propose that there might be individual differences in the extent to which people maximize, that is, have a tendency to set a goal of finding the best option. The researchers developed a self-report measure of maximizing tendency that included items such as “No matter how satisfied I am with my job, it is right for me to be on the lookout for better opportunities” and “Renting videos is very difficult; I’m always struggling to pick the best one.” Self-reported maximizing tendency has been associated with seeking out a greater number of options before making a choice, such as in post-college job searches (Iyengar, Wells

& Schwartz, 2006), chocolate and ice cream selections (Dar-Nimrod, Rawn, Lehman, & Schwartz, 2009), recollected consumer purchases (Schwartz et al., 2002), and hypothetical dilemmas (Diab, Gillespie, & Highhouse, 2008). Maximizers often make objectively better decisions (e.g., obtain better paying jobs), but at a cost of spending much more time and effort making the decision. They report lower satisfaction with their choices, perhaps because it is usually not possible to know whether the best alternative has been found (Iyengar et al., 2006; Schwartz et al., 2002). Maximizers are also less committed to their choices, as evidenced by greater willingness to switch choices (e.g., to change phone carriers when asked to consider doing so; Lai, 2010).

There is evidence from Schwartz et al. (2002) that maximizers adopt decision making behaviors that contribute to identifying the best alternative. Searching a large number of alternatives, in addition to increasing the likelihood of having the best alternative in the set, increases one’s understanding of the range of possibilities. Maximizers have also been shown to engage in greater social comparison during decision making, using others’ choices to gauge the quality of their own choice alternatives. Additionally, maximizers report experiencing regret more easily, and it has been suggested that one reason individuals might become maximizers is to minimize the experience of regret (Schwartz et al., 2002). Relatedly, individuals instructed to consider options sequentially as opposed to simultaneously have been shown to be more likely to mentally imagine an ideal alternative to which to compare actual alternatives and to experience regret about their choice (Mogilner, Shiv, & Iyengar, 2013), suggesting that the strategies adopted by maximizers might also in turn promote high standards and regret.

Past studies have focused on situations in which search for choice alternatives typically leads to a greater set of simultaneously available choice options and thus to an increased likelihood of finding the best alternative. However, a type of situation common in everyday life is one in which

\* Correspondence to: Andrea Patalano, Department of Psychology, Wesleyan University, 207 High St., Middletown, CT 06459. E-mail: apatalano@wesleyan.edu

extensive search comes with the risk of loss of at least some initially available alternatives. For example, if one looks for good deals on hotels as one approaches a travel date, some previously viewed options might sell out and become unavailable. Other examples include buying a home in a competitive market or selecting an academic job position. In these situations, search might lead to desirable new alternatives, better insight into the decision space, and information about the range of alternatives and what a best alternative might look like. However, it does not promise an increase in the overall number of options or the guarantee that a later set of options will contain one at least as desirable as the best previously viewed option. Thus, it is not clear whether or how maximization tendency might be related to behavior in these situations.

The question we ask here is whether maximizing tendency predicts behavior in contexts in which search for new alternatives comes with a prospect of loss of some existing alternatives. One reason the question is of interest is simply that an important use of measures such as maximization tendency is to predict decision behavior. Further, extending research to this context could shed additional light on dominant goals and alternative-search strategies of maximizers. Additionally, our interest in this context comes, in part, from past work on indecisiveness, a distinct but related construct ( $r=.40$  with maximization; Patalano & LeClair, 2011) involving excessive deliberation and ambivalence that prevents the initiation of action in decision making (Higgins, Kruglanski, & Pierro, 2003). In a past study that used a similar decision task to that which will be used here, indecisiveness was associated with no change of behavior in response to risk of loss of alternatives (Patalano & Wengrovitz, 2007). However, indecisiveness is associated with anxiety and decision avoidance (Rassin & Muris, 2005), which might differentiate indecisive individuals from maximizers.

In the present work, we expected that maximizers might explore more alternatives than satisficers before committing to a choice, even if this means loss of some initial options. Such behavior might reflect hope for the possibility of obtaining a better or ideal alternative in the future (Diab et al., 2008), an unwillingness to commit to an alternative without a better understanding of the decision space, or concern for the anticipated regret of missing out on better future

alternatives (Schwartz et al., 2002). The prediction is supported by a study by Diab et al. (2008) who constructed several hypothetical descriptive scenarios in which it was stated that a current good option could be lost if one were to hold out for one’s ideal option and, in these cases, maximizing tendency predicted willingness to wait. However, Diab et al. defined maximization very narrowly and did not look at behavior in the context of an ongoing decision, so it is important to establish whether the findings generalize more broadly.

It is also possible that maximization might not be so straightforwardly related to alternative search in situations in which alternative loss is possible. Although the satisficer might be inclined to choose an option that is good enough upon encountering it, with little regard to loss of options along the way, the maximizer might be more concerned with weighing the prospect of obtaining better future alternatives against the prospect of loss of existing ones. Further, if maximizers have strong experiences of regret, any immediate affective experience of anticipated regret over potential loss of a desirable current option might be as compelling as the possibility of missing out on future options. If a dominant goal of maximizers is to avoid regret (i.e., if this is one reason they become maximizers, as suggested by Schwartz et al., 2002, and Turner, Rim, Betz, & Nygren, 2012), this type of decision situation might require balancing competing sources of regret. In the end, maximizers and satisficers might show similar search behavior in these situations, though perhaps for different reasons and with greater effort expended by maximizers.

In the present three studies, we use a multi-attribute decision task previously used by Patalano and Wengrovitz (2007; based on materials modified from Ferrari & Dovidio, 2000) in which the hypothetical task goal is to find a final college course to round out one’s semester class schedule. In the context of a single task session, a 5-day course-registration period is simulated. On the simulated first day of registration, five courses that vary on six dimensions are presented (Figure 1). One has the opportunity to choose a course from the set or to go to the next day to see what further courses might be added when the registration system updates. In reality, on each simulated day, two new courses are added to the set. The user can choose a course at any time or can click to go to the next day for a total of 5 days

**Course Selection Task: Day 1**

	Seats Left	Meeting Time	Instructor Quality	Relevance to Goals	Amount of Work	Peer Evaluations	Interest in Topic
<input type="radio"/> Course A	12	Acceptable	Poor	High	Preferred	Fair	High
<input type="radio"/> Course B	14	Preferred		Moderate		Good	Low
<input type="radio"/> Course C	13	Acceptable		Moderate	Ok but high	Fair	
<input type="radio"/> Course D	14		Good			Fair	Moderate
<input type="radio"/> Course E	13			High		Good	

*This button won't work until you select a course.*

Submit Choice

Go To Next Day

*This button won't work after you get to last day.*

Figure 1. These five courses were available on the first day of the course selection task. Participants clicked in the blank grid cells to gain more information. To see more courses, participants clicked the “Go to Next Day” button for up to 5 days

and 13 courses. The fifth day is the last day of the course selection period, and a course must be chosen by that time. Also, using process tracing methodology, alternatives are presented to participants with attribute information initially hidden (e.g., time of day course meets and quality of instructor), and participants can reveal desired course information by clicking on attribute cells in the grid.

Given that most past work on maximization has focused on decisions with significant consequences for the decision maker (e.g., getting an actual job), the goal of the first study was simply to assess whether a simulation such as this one would reveal differences in the number of days viewed by individuals as a function of maximizing tendency. We expected that, in the absence of the prospect of loss of any alternatives, maximizers would search a greater number of days than satisficers, replicating past findings. The second and third studies used the same task except that alternative loss was introduced. Task instructions varied across studies but generally indicated that some alternatives might become unavailable when the system updated; in fact, 2 of the 13 courses did become unavailable. If maximizers focus on striving for an ideal alternative, they should continue to search more days than satisficers in this situation too. If instead their behavior reflects the weighing of future alternatives against the potential loss of current alternatives, they might search the same or fewer days than satisficers.

Multiple maximization scales have been developed since the original Maximization Scale (MS) was created (Schwartz et al., 2002). Each includes and refines some of the original three components (revealed through factor analysis; Nenkov, Morrin, Ward, Schwartz, & Hulland, 2008): *decision difficulty* (tendency to struggle over decisions), *alternative search* (tendency to expend resources and to desire to see all options), and *high standards* (tendency to have high expectations for oneself). There has been debate over which components should be included in a maximization scale. Turner et al. (2012; Rim, Turner, Betz, & Nygren, 2011) have argued that only decision difficulty and alternative search ( $r = .35$  between subscales) should be included because these components reflect decision process, and thus are most consistent with Schwartz's original conceptualization. Diab et al. (2008) have instead argued that the high standards component alone should be used because, in their view, this component better reflects the maximization construct and a high-standards-only scale is not correlated with negative indices of well being (e.g., unhappiness and depression), unlike scales that include decision difficulty and alternative search. Lai (2010), in contrast, created a scale with alternative search and high standards components, but without decision difficulty, on the grounds that decision difficulty is not directly related to search strategy. Finally, Turner et al. (2012) developed a separate satisficing subscale (with items directly related to choosing a good-enough option) to address the possibility that satisficing is a separate dimension, rather than one end of a maximizing continuum.

In the present work, we administer Turner et al.'s (2012) Maximization Inventory (MI,  $\alpha = .72-.89$ ) and Diab et al.'s (2008) Maximizing Tendency Scale (MTS,  $\alpha = .80$ ) because

both are less culture-specific and have higher internal reliability than the original MS, but together capture all of the original components. The MI focuses on choice process and has three subscales: alternative search (e.g., "I can't come to a decision unless I have carefully considered all of my options"), decision difficulty (e.g., "I often wonder why decisions can't be more easy"), and the new satisficing subscale (e.g., "I usually try to find a couple of good options and choose between them"). The MTS, in contrast, focuses on choice goals (Moyano-Díaz, Martínez-Molina & Ponce, 2014) by measuring high standards (e.g., "I never settle for second best"). Given ongoing debate about which components should be included in a maximization scale, we simply administer both scales (i.e., capturing all four components) and assess the extent to which each scale (and subscale) predicts decision behavior in a situation in which behaviors associated with maximization are likely to emerge. This approach allows us to address our question of interest without committing to a particular view of the construct and allows us to capture all components of Schwartz et al.'s original MS, while using newer scales with improved properties. The results of the present studies could inform scale development and refinement of the maximization construct.

In our studies, we also administer several other individual difference measures, some of which have been associated with some maximizing subscales in the past. Decision difficulty and, to a lesser extent, alternative search subscales of the MI have been associated with five-factor personality traits (John, Donahue, & Kentle, 1991) of neuroticism and low conscientiousness, and more generally with negative affect. In contrast, the MTS (i.e., high standards) has been associated with openness to new experience and conscientiousness, and more generally with positive affect (Purvis, Howell & Iyer, 2011). The full original MS (with items related to decision difficulty, alternative search, and high standards) has also been associated with perfectionism, low self-esteem (Schwartz et al., 2002), and indecisiveness (Patalano & LeClair, 2011). Less is known about correlates of the satisficing subscale of the MI. In addition to administering five-factor trait, perfectionism, and self-esteem scales, we administer a state/trait anxiety scale and a measure of approach versus avoidance motives, toward better understanding maximizing tendency. We present these findings briefly, at the end, using data combined from all three studies.

## STUDY 1: NO LOSS OF OPTIONS

In this study, participants were administered a course selection task and then were asked for a rating of their confidence in their decision and a rating of the importance of each course dimension (e.g., meeting time) to their decision process. The primary outcome measure was number of simulated days of alternative search prior to choice. We also collected the percentage of attribute information viewed as a function of all information available based on the number of days searched. After doing an unrelated distractor task, participants

completed a battery of scales including the MTS (Diab et al., 2008) and the MI (Turner et al., 2012) as well as other individual difference measures.

Our primary prediction was that maximizing tendency would be related to days of search, with those high in maximizing tendency searching more days than those with lower maximizing tendency scores. We further predicted that the MTS scale and the decision difficulty and alternative search subscales of the MI might each be related to days of search given that each has been related to search in some past work (e.g., Diab et al., 2008; Iyengar et al., 2006) and all reflect maximizing tendency. We did not have a strong prediction about the more recent satisficing measure, though satisficing seemed likely to negatively predict search. We additionally predicted that maximizers would be less confident in their decisions and might report less variability in dimension ratings (e.g., rating all dimensions as equally important rather than rating some as much more important to their decision than others), the latter consistent with having high standards across dimensions. Finally, we considered that maximizers might view more available information overall given a potential desire to obtain the best outcome on as large a number of highly valued dimensions as possible.

## Method

### *Participants*

A total of 60 Wesleyan University students (40 women and 20 men; 18–22 years old) volunteered in exchange for introductory psychology course credit or monetary compensation. They consisted of 58% first year students, 25% sophomores, 13% juniors, and 4% seniors. Thus, they were largely relative novices in the actual college course selection process that occurs twice yearly. Participants completed the 30-minute study in the lab individually.

### *Course selection task procedure*

The task was adapted from Patalano and Wengrovitz's (2007) course selection task. Thirteen courses (labeled Course A–M) varied on the following six dimensions: meeting time, instructor quality, potential relevance to goals, amount of work, peer evaluations, and interest in topic. Dimensions were chosen to be task relevant, and three attribute values were associated with each dimension (e.g., preferred, acceptable, and undesirable for meeting time), with values framed in terms of desirability (e.g., "preferred") rather than absolute values (e.g., "meets at 1 pm") to ensure that ordering and spacing was approximately the same across participants. Courses were constructed so as to create a challenging decision problem involving tradeoffs. See the Appendix for full materials. Assuming equal weighting of dimensions, Course G was the optimal choice.

A 5-day course enrollment period was simulated on the computer. The focus of the simulation was an information grid in which rows were labeled with course names, columns were labeled with course dimensions, and grid cells contained the attribute value of each course on each dimension. At the start, the cell information was hidden, requiring

the participant to click directly on the cells to see desired information. Seat availability appeared to the right of each course. On Day 1, five courses appeared in the grid; on each subsequent day, two courses were added to the list, for a total of 13 courses by Day 5.

Participants were able to take three types of actions. One was to click on a grid cell to display a desired piece of attribute information. Once visible, the information remained on the screen for the entire task. The second was to click on the "Go to Next Day" button to update the screen with the next day of enrollment information, and thus the two new alternatives. The third was to click to the left of the desired course and to select the "Submit Choice" button to make a course selection and end the task, which had to be carried out by the end of the fifth day. Other than the list of available courses, the only information that changed daily was seat availability, simulating a course database being updated daily. However, participants were informed that all courses would always remain available.

After completion of the task, participants were prompted with the following two questions. The first question asked participants to rate their confidence in their decision on a scale from 1 (not at all confident) to 6 (highly confident). The second asked participants to rate the importance of each dimension (e.g., meeting time) to them in this task on a scale from 1 (not at all important) to 6 (extremely important).

### *Questionnaire booklet*

After performing the course selection task and a framed-line task (Kitayama, Duffy, Kawamura, & Larsen, 2003) unrelated to the present study but serving as a distractor task here, participants completed a booklet of individual difference scales. In order of presentation, the scales were as follows: MTS (Diab et al., 2008), Multidimensional Perfectionism Scale (Frost, Marten, Lahart, & Rosenblate, 1990), Big Five Inventory (John, Donahue, & Kentle, 1991), MI (Turner et al., 2012), State–Trait Anxiety Index (Spielberger et al., 1983), Rosenberg's (1965) Self-esteem Scale, and Behavioral Inhibition and Behavioral Activation Systems Scale (Carver & White, 1994). All scales were administered with 1–5 response categories, where a 5 reflects strong endorsement of the item, except the State–Trait Anxiety Index and Behavioral Inhibition and Behavioral Activation Systems Scale, which were on 1–4 scales. Scale and subscale scores were computed as the average of all responses, with reverse coding as appropriate. After these scales, we administered several additional scales unrelated to the present study.

## Results

### *Maximization measures*

Individual scores were computed for the MTS (a measure of high standards) and the MI (including subscales for decision difficulty, alternative search, and satisficing; on the latter, a high score indicates low satisficing here), for a total of four maximization components. Refer to Table 1 for descriptive statistics. Ranges of scores were large for all of these measures except the satisficing subscale; participants



Table 1. Descriptive statistics for maximization scales and decision task measures in Studies 1–3

	Study 1: No loss (N = 60)		Study 2: Uncertain loss (N = 64)		Study 3: Certain loss (N = 69)	
	M	SD	M	SD	M	SD
<b>Maximization scales</b>						
MTS (no subscales)	3.53	.63	3.39	.69	3.50	.56
MI (three subscales)	2.85	.48	2.81	.49	2.90	.40
Alternative search	3.34	.72	3.25	.80	3.48	.62
Decision difficulty	3.22	.83	3.20	.79	3.24	.69
(Not) satisficing	1.81	.42	1.83	.37	1.82	.43
<b>Decision measures</b>						
Confidence	4.98	.87	4.69	.85	4.83	.64
Dimension weighting	1.38	.39	1.39	.44	1.25	.40
Cells viewed (%)	0.81	.25	.85	.19	0.83	.22

Notes: Maximizing Tendency Scale (MTS) is a measure of high standards. Dimension weighting is the standard deviation of the ratings of each dimension’s importance. Cells viewed is relative to the number available for viewing as a function of number of days searched.

Table 2. Correlations between maximization components across all three studies

	MTS		MI	
	High standards	Alternative search	Decision difficulty	(Not) satisficing
High standards	.78	.37***	.28***	-.10
Alternative search		.85	.39***	-.12
Decision difficulty			.87	.10*
(Not) satisficing				.67

\*\*\**p* < .001; \*\**p* < .01; \**p* < .05. *N* = 193.

Note: Values in the diagonal are Cronbach’s *α* for scale reliability. MTS, Maximizing Tendency Scale; MI, Maximization Inventory.

were generally identified as being satisficers. Because the same scales were administered in Studies 2 and 3 as well, test reliabilities and pairwise correlations are reported here using the data from all three studies together (Table 2). Cronbach’s alphas were  $\alpha > .70$  (a standard criterion of acceptability; Nunnally & Bernstein, 1984) for all measures except satisficing. Decision difficulty and alternative search were moderately correlated (as in Turner et al., 2012), and decision difficulty was weakly correlated with satisficing. High standards were moderately correlated with alternative search and decision difficulty.

*Maximization and search duration*

Because very few participants searched either 3 or 4 days (<8%), search days were recoded into a measure of search

duration where 1=low (1 day; 23% of participants), 2=moderate (2–4 days; 25%), and 3=high (5 days; 52%) (refer to Table 1 for descriptive statistics), and search duration was treated as an ordinal variable. There was a moderate correlation between search duration and MI ( $r_s(58) = .39, p = .002$ ), as shown in Table 3, but no correlation between search duration and the MTS ( $r_s(58) = -.02, p = .874$ ). We ran an ordinal regression with MI and MTS scores entered as predictors. As shown in Table 4, MI predicted search duration, but MTS did not (model fit:  $\chi^2(2, N = 60) = 6.27, p = .044$ ). The number of maximizers versus satisficers (based on a median split on MI scores; *mdn* = 2.90) with low, medium, or high search duration is shown in Figure 2a and illustrates that maximizers were more likely to search more than satisficers ( $r_s(58) = .52, p < .001$ ). To further understand the relationship between search duration and the

Table 3. Correlations between maximization scales, search duration, and other decision task measures in Studies 1–3

	Study 1: No loss		Study 2: Uncertain loss		Study 3: Certain loss	
	MTS	MI	MTS	MI	MTS	MI
Search duration	-.02	.39**	-.19	-.30*	-.03	-.30*
Confidence	-.03	-.01	-.06	-.31*	.02	.10
Dimension weighting	-.08	-.42***	-.12	-.04	-.12	-.03
Cells viewed	.05	.08	.03	-.01	.08	-.06

\*\*\**p* < .001; \*\**p* < .01; \**p* < .05.

Note: Spearman’s *r<sub>s</sub>* is reported for search duration, otherwise all are Pearson’s *r*. MTS, Maximizing Tendency Scale; MI, Maximization Inventory.

Table 4. Ordinal regression for predicting search duration from MI and MTS in Studies 1–3

	MTS score				MI score			
	Est.	SE	Wald	<i>p</i>	Est.	SE	Wald	<i>p</i>
Study 1: No loss	−0.33	.43	0.59	.442	1.36	.59	5.39	.020
Study 2: Uncertain loss	−0.22	.37	0.46	.509	−1.17	.54	4.70	.030
Study 3: Certain loss	0.53	.47	1.28	.258	−2.04	.70	8.54	.003

Note: Overall fit of each regression model is statistically significant ( $p < .05$ ). MTS, Maximizing Tendency Scale; MI, Maximization Inventory.

MI, we ran a second ordinal regression using the three subscales of the MI as predictors of search duration (Table 5). Decision difficulty (but not alternative search or satisficing) predicted search,  $\chi^2(3, N=60) = 11.45, p = .010$ .<sup>1</sup>

#### Maximization and other task measures

The most often selected course was Course G (67%), followed by Course D (13%), and Course E (10%). Maximizers (based on a median split on MI) chose Course G more often than satisficers (80% vs. 47%, respectively),  $\chi^2(1, N=64) = 7.18, p = .007$ , presumably because the former were more likely to search at least 2 days (and the course appeared on Day 2). Among only individuals who searched for at least 2 days, maximizers and satisficers did not differ reliably in their likelihood of selecting Course G (86% vs. 78%, respectively),  $\chi^2(1, N=46) = 0.48, p = .489$ . Choice of Course G did not differ on the basis of the MTS ( $p > .100$ ). Confidence in one's decision was high (Table 1) and was not correlated with any maximization measures (Table 3). For dimension importance ratings, the standard deviation of importance ratings was computed and referred to as a measure of dimension weighting, the extent to which some dimensions were prioritized over others. Dimension weighting was moderately correlated with the MI but not with the MTS (Table 3). Also in Table 3, percentage of informational cells viewed as a function of all information available (based on days of search) was not correlated with any maximization measures.

#### Study 1 discussion

In Study 1, a key question was whether we would replicate the past finding that maximizing tendency is associated with considering more options before making a decision (e.g., Iyengar et al., 2006; Schwartz et al., 2002; Dar-Nimrod et al., 2009). We did in fact find that maximization tendency reliably predicted search duration. Individuals high on MI had longer search durations. Further, maximizers, based on a median split on MI, were more likely to search all 5 days and less likely to search fewer days relative to satisficers. The finding was largely driven by the relationship between decision difficulty and search duration. The MTS, in contrast, did not predict search

duration. This finding adds to the growing body of literature indicating that maximizing tendency, as measured by the MI, is associated with a desire to increase the set of alternatives prior to choice and, in this case, with a greater desire to look at all possible alternatives.

Maximization tendency did not predict choice confidence, but confidence was generally quite high, likely because the task was not difficult and the entire set of choice alternatives could be explored. Maximization was, however, negatively correlated with dimension weighting. Maximizers had less variation in their rated importance of each dimension. The findings at this point suggest that maximizers might seek the best alternatives precisely because they have difficulty prioritizing dimensions or, alternatively, such prioritization might simply be less necessary once the choice set contains a highly desirable alternative. Unlike the MI, the MTS did not predict dimension weighting. We found no maximization-related differences in the percentage of

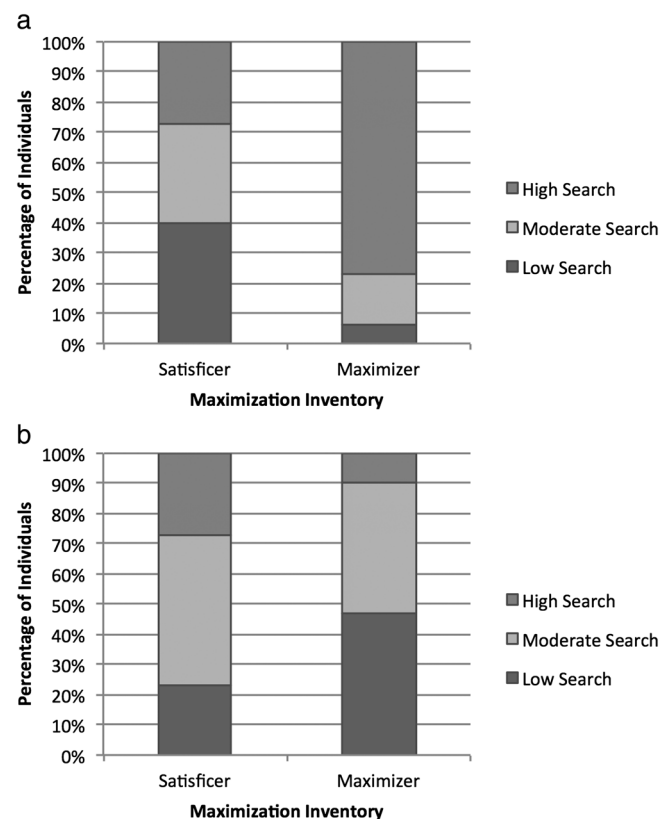


Figure 2. Percentage of maximizers versus satisficers with low, moderate, and high duration of search in (a) Study 1 and (b) Study 2. Maximization category is based on a median split on the Maximization Inventory. Search pattern differed as a function of maximization category ( $p < .001$ )

<sup>1</sup>Individuals who searched more days also took more time to do the task in all three studies. We cannot rule out that maximizers desired more time rather than alternatives although it is unclear why they would choose to acquire time through alternative selection rather than through, for example, attribute selection or contemplation.

Table 5. Ordinal regression for predicting search duration from MI subscales in Studies 1–3

	MI Subscales											
	Decision difficulty				Alternative search				(Not) satisficing			
	Est.	SE	Wald	<i>p</i>	Est.	SE	Wald	<i>p</i>	Est.	SE	Wald	<i>p</i>
Study 1	0.95	.36	6.82	.009	0.25	.39	0.40	.526	−1.08	.65	2.79	.100
Study 2	−0.19	.35	0.28	.594	−0.86	.36	5.70	.017	0.26	.69	0.15	.701
Study 3	0.20	.36	0.30	.582	−1.54	.45	11.69	.001	−0.67	.56	1.41	.235

Note: Overall fit of each regression model is statistically significant ( $ps < .05$ ).

information considered prior to choice. Thus, although maximization appears related to the desire to have more alternatives, we have no evidence that it is associated with a desire to explore choice attributes more fully.

The first study illustrates the viability of using the course selection paradigm to look at maximizing tendency behavior and replicates the central finding that relative to satisficers, maximizers consider a larger number of alternatives before deciding. The findings provide evidence for the role of the MI (and especially of decision difficulty), but not the MTS (a measure of high standards), in predicting search behavior. In the second study, we create a choice situation in which there is the possibility of some alternatives becoming unavailable over time, and we again look at how individuals behave as a function of maximizing tendency. Of focal interest is whether maximizing tendency is related to search duration, but we again also consider whether it is associated with any other decision-related behaviors under these different conditions.

## STUDY 2: UNCERTAIN LOSS OF OPTIONS

This study was the same as Study 1 except that participants were informed that some viewed courses could fill and become permanently unavailable when “the registration system refreshed over night.” Two courses did in fact become unavailable. Namely, Course G appeared on Day 2 and became unavailable on Day 3, and Course I appeared on Day 3 and became unavailable on Day 4. Our interest was in whether the findings of Study 1 would be replicated in this context. In other words, would individuals who find decision making difficult and who might otherwise search for more alternatives still be more likely to go on despite the possibility of loss of some options? We predicted that, given some evidence of a willingness of maximizers to take such risks, we would see the same behavior as in Study 1. However, we also considered the prospect that maximizers would be as averse to losing existing alternatives as they are to the prospect of missing out on future ones and thus would not have longer search durations.

## Method

### Participants

Participants were 64 Wesleyan University students (48 women and 16 men) 18–22 years old, who volunteered in exchange for introductory psychology course credit or

monetary compensation. They were 59% first year students, 30% sophomores, 8% juniors, and 4% seniors. They completed the 30-minute study in the lab individually.

### Procedure

The tasks, individual difference scales, and procedure were the same as in Study 1 with one exception. Namely, in the course selection task, participants were instructed that “Some viewed courses could also fill their seats and become unavailable the next day.” As in Study 1, when the “Go to Next Day” button was selected, seat availabilities changed. Unlike Study 1, the numbers were initially low (e.g., three seats left), and there was a possibility for a course to change to “0 seats” and be full. Two courses actually did become full during the task: Course G, introduced on Day 2, became full on Day 3, and Course I, introduced on Day 3, became full on Day 4. Once a course filled and thus became unavailable for selection, it remained this way for the duration of the registration period. In all other ways, the method was the same as Study 1.

## Results

### Maximization measures

Refer to Table 1 for descriptive statistics. Ranges were again large for all measures except the satisficing subscale, as in Study 1.

### Maximization and search duration

As in Study 1, search days were recoded into a measure of search duration where 1 = low (1 day; 34% of participants), 2 = moderate (2–4 days; 47%), and 3 = high (5 days; 19%) (refer to Table 1 for descriptive statistics). As shown in Table 3, search duration was moderately *negatively* correlated with overall MI score but was not reliably correlated with MTS score. In an ordinal regression analysis with MI and MTS as predictors, only MI reliably predicted search duration (Table 4),  $\chi^2(3, N=64)=9.21, p=.027$ . In other words, as maximization increased, search duration *decreased*. The number of maximizers versus satisficers (based on a median split on MI scores;  $mdn=2.84$ ) with low, medium, or high search duration is shown in Figure 2b and illustrates that maximizers were more likely to search *less* than satisficers ( $r_{s(62)}=-.24, p=.047$ ). We ran a second ordinal regression using the three subscales of the MI as predictors of search duration (Table 5). This time, alternative

search (but not decision difficulty or satisficing) predicted decreased search,  $\chi^2(3, N=64)=9.44, p=.024$ .

#### *Maximization and other task measures*

The most often selected course was Course G (34%), followed by Course D (17%), and Course A (16%). Maximizers (based on a median split on the MI) chose Course G less often than satisficers (27% vs. 43%, respectively) though the difference was not statistically reliable,  $\chi^2(1, N=64)=.249, p=.114$ . Among only individuals who searched for at least 2 days, maximizers and satisficers did not differ reliably in their likelihood of selecting Course G (47% vs. 57%, respectively),  $\chi^2(1, N=42)=0.35, p=.554$ . Confidence in the course decision was lower than in Study 1 (Table 1) and was negatively correlated with overall MI score (unlike Study 1) but not with MTS (Table 3). There were no reliable correlations between MI and either dimension weighting (unlike Study 1) or number of cells viewed, as also shown in Table 3.

#### **Study 2 discussion**

In Study 2, a key question was whether maximizing tendency would again be associated with considering more options before making a decision, this time in a context in which there is a risk of loss of some existing options. Counter to our predictions, we found that not only was maximizing tendency not positively correlated with search duration but was also moderately *negatively* correlated with search duration. Individuals high on MI searched fewer days. Maximizers (based on median splits on MI) were more than twice as likely to search only 1 day and a third as likely to search 5 days as compared with satisficers. This finding is contrary to the prediction that maximizing tendency might be associated with more determined search for an ideal option despite risk of loss of options. Surprisingly, unlike Study 1, the alternative search (rather than the decision difficulty) subscale of the MI drove this relationship. As in Study 1, we did not find evidence of any role of the MTS in predicting search duration.

Confidence in the decision was weakly negatively correlated with overall MI. This is consistent with past findings that maximizers have reported lower choice satisfaction (e.g., Schwartz et al., 2002) and greater willingness to switch choices (Lai, 2010). Unlike Study 1, neither MTS was associated with dimension weighting. What appears likely is that, in the first study, when there was no cost to alternative search, satisficers moved more quickly toward thinking about resolving tradeoffs and making a choice. However, when there was a cost to alternative search—a cost that was more concerning to maximizers—maximizers became as likely to move quickly toward resolving tradeoffs, and thus, there was no longer a relationship between maximization and dimension weighting. The results suggest that maximizers do not necessarily have difficulty prioritizing dimensions, but might sometimes be less inclined to do so. As in Study 1, we again found no maximization-related differences in the percentage of information considered prior to choice.

These findings suggest that maximizers behave differently than satisficers to situations involving potential loss of alternatives. In particular, maximizers do very little alternative search relative to satisficers, a reverse of the pattern of behavior in Study 1 when there was no alternative loss. However, an alternative interpretation is that maximizers and satisficers do not behave differently in response to loss *per se*, but rather that they interpret imprecise statements of possible loss differently. Maximizers relative to satisficers might have more negatively interpreted the possibility that some alternatives might fill and become unavailable (i.e., they might have imagined a greater number becoming unavailable) and might have curtailed search accordingly. We tested this possibility in Study 3 by repeating the procedure used in Study 2 except with a more precise statement of the rate at which alternatives would become unavailable during the task.

### STUDY 3: CERTAIN LOSS OF OPTIONS

This study was the same as Study 2 except that, previously, participants were informed that some viewed courses could fill and become permanently unavailable when the registration system refreshed overnight. In the present study, this was replaced with a statement that about one out of every seven courses would fill up and become permanently unavailable. If maximizers searched less than satisficers in Study 2 solely because they interpreted the key statement as indicating that a greater number of alternatives would be lost, then in Study 3, there should no longer be a maximization-related difference in alternative search behavior. If maximizers are instead as averse to losing existing alternatives as they are to the prospect of missing out on future ones, even given a more precise statement about loss, then we should replicate the findings of Study 2.

#### **Method**

##### *Participants*

Participants were 69 Wesleyan University students (45 women and 24 men) 18–22 years old, who volunteered in exchange for introductory psychology course credit. They were 57% first year students, 22% sophomores, 13% juniors, and 8% seniors. They completed the 30-minute study in the lab individually.

##### *Procedure*

The tasks, individual difference scales, and procedure were the same as in Study 2 with one exception. Namely, in the course selection task, participants were instructed that “approximately 1 out of 7 courses would fill and become unavailable on a later day.” In all other ways, the method was the same as Study 2.



## Results

### Maximization measures

Refer to Table 1 for descriptive statistics. Ranges were again large for all measures except the satisficing subscale; satisficing scores were high.

### Maximization and search duration

Refer to Table 1 for descriptive statistics. As shown in Table 3, search duration was moderately negatively correlated with overall MI score but was not reliably correlated with MTS score. In an ordinal regression analysis with MI and MTS as predictors, only MI reliably predicted search duration (Table 4),  $\chi^2(2, N=69)=9.64, p=.008$ . In other words, as MI score increased, search duration decreased, as in Study 2. Using a median split on the MI ( $mdn=2.92$ ), maximizers were more likely to search less than satisficers, though the difference did not reach statistical significance,  $r_s(67)=1.84, p=.175$  (however, with top and bottom third of maximizers,  $p=.015$ ). We ran a second ordinal regression using the three subscales of the MI as predictors of search duration (Table 5). As in Study 2, alternative search (but not decision difficulty or satisficing) predicted decreased search,  $\chi^2(3, N=69)=15.34, p=.002$ . Overall, these search findings replicate those in Study 2.

### Maximization and other task measures

The most often selected course was Course G (25%), followed by Course D (22%), and Course E (12%). Maximizers and satisficers (based on a median split) were equally likely to choose Course G (25% vs. 24%, respectively),  $\chi^2(1, N=69)=0.01, p=.948$ . Among only individuals who searched for at least 2 days, maximizers and satisficers also did not differ reliably in their likelihood of selecting Course G (40% vs. 32%, respectively),  $\chi^2(1, N=48)=0.32, p=.575$ . Confidence in the course decision was higher than in Study 2 (Table 2) and, unlike Study 2, was positively correlated with overall MI score, though not reliably (Table 3). As also shown in Table 3, there were also no reliable correlations between dimension weighting or informational cells viewed and MTS or MI.

## Study 3 discussion

In Study 3, a key question was whether maximizing tendency would again be associated with considering fewer options before making a decision, this time in a context in which the risk of loss of some existing options was communicated with precision (i.e., that one out of seven options would be lost). As in Study 2, we found that not only was maximizing tendency not positively correlated with search duration but was also moderately negatively correlated with search duration. Individuals with higher MI scores searched fewer days than those with lower scores. As in Study 2, the alternative search (rather than the decision difficulty) subscale of the MI drove this relationship. Also as in Study 2, we did not find evidence of any role of the MTS in predicting search duration. These findings are again contrary to the prediction

made at the outset of Study 2 that maximizing tendency might be associated with more determined search for an ideal option despite risk of loss of options.

Unlike Study 2, confidence in the decision was no longer weakly negatively correlated with overall MI, suggesting either that the relationship in Study 2 was spurious or that confidence grew with more knowledge of the precise likelihood of loss of alternatives. Like Study 2, neither MTS was associated with dimension weighting again supporting the argument that when there is a cost to alternative search—a cost that appears to be more concerning to maximizers—maximizers no longer weight dimensions equally (unlike the situation in which there were no costs to choice delay). As in Studies 1 and 2, we again found no maximization-related differences in the percentage of information considered prior to choice; maximizers and satisficers viewed the same amount of information.

## CORRELATIONS WITH OTHER INDIVIDUAL DIFFERENCE MEASURES

We combined the data from all studies before looking at correlations between maximization scales and other individual difference measures. Findings are shown in Table 6. We draw attention to some findings. First, a comparison of the MTS and the decision difficulty subscale of the MI is interesting. The MTS is correlated with drive, reward responsiveness, conscientiousness, and high personal standards and suggests a motivation toward obtaining desirable alternatives that meet one's standards. Decision difficulty, in contrast, is uniquely correlated with behavioral inhibition and is also highly correlated with trait anxiety, neuroticism, doubting of one's actions, and low self-esteem. The measures associated with decision difficulty suggest negative affect during decision making and a motivation toward avoiding undesirable outcomes.

A comparison of decision difficulty with satisficing and alternative search (the two other subscales of the MI) is also interesting. Satisficing is positively correlated with drive and reward, and negatively correlated with trait anxiety, neuroticism, doubting of actions, and low self-esteem. Individuals high in satisficing appear to have the same positive motivations as those high on the MTS but not the same high standards and are particularly low on the types of negative affect and thoughts associated with decision difficulty. The subscale of alternative search is striking in that unlike the other three scales, it is only weakly correlated with a few individual difference measures here. The findings suggest that alternative search might be the measure least related to affect or to other thought patterns associated with personality-related individual differences.

We ran regression analyses using combined data from Studies 2 and 3 to assess whether any of these personality-related variables might predict search duration, choice confidence, dimension weighting, or percentage of information viewed. Entering predictors using a stepwise regression procedure, we found no statistically reliable predictors of search duration, choice confidence, or dimension

Table 6. Correlations between maximization components and other individual difference measures

	High standards (MTS)	Decision difficulty (MI)	Alternative search (MI)	(Not) satisfying (MI)
Activation/inhibition (BIS/BAS)				
BAS drive	.37***	-.10	.11	-.26***
BAS fun seeking	.01	-.07	.08	-.15*
BAS reward responsiveness	.19**	.07	.08	-.28***
BIS inhibition	.09	.45***	.10	.07
Anxiety (STAI)				
Trait anxiety	.01	.54***	.18*	.28***
State anxiety	.02	.31***	.06	.29***
Five factor traits (BFI)				
Neuroticism	.06	.50***	.12	.17*
Agreeableness	.01	-.06	-.07	-.12
Conscientiousness	.34***	-.23**	.10	-.18*
Extraversion	.09	-.11	-.04	-.18*
Openness	.14	.07	.11	-.19**
Perfectionism (MDP)				
Parental criticism	.06	.19**	.04	.06
Personal standards	.64***	.11	.19**	-.10
Parental expectations	.15*	.12	-.03	-.03
Doubting of actions	.18*	.53***	.22**	.27***
Concern over mistakes	.33***	.33***	.22**	.13
Organization	.15*	-.04	.16*	-.14
Self-esteem (SES)	-.11	.39***	.11	.30***

MTS, Maximization Tendency Scale; MI, Maximization Inventory; MDP, Multidimensional Perfectionism Scale; BIS/BAS, Behavioral Inhibition and Behavioral Activation Systems Scale; STAI, State-Trait Anxiety Index; BFI, Big Five Inventory; SES, Self-esteem Scale.

\*\*\* $p < .001$ ; \*\* $p < .01$ ; \* $p < .05$ .

weighting. We found only that neuroticism negatively predicted percentage of available information viewed about choice attributes ( $t(133) = -3.37, p = .001$ ).

## GENERAL DISCUSSION

Maximizers as compared with satisficers have been found to desire larger choice sets when making decisions and to amass a greater number of options over time before committing to one. In the present work, we first extended this finding to a laboratory course selection task. In Study 1, we found that maximization (based on the MI) predicted number of alternatives viewed before choice and that the decision difficulty subscale was the strongest predictor of behavior. We then asked whether maximization would also predict alternative search when there is a possibility (Study 2) or certainty (Study 3) of some options becoming unavailable in the future, that is, if continued search did not ensure a larger choice set. In both of these situations, maximization predicted looking at *fewer* alternatives before choice. The pattern of behavior in Studies 2 and 3 was striking and is inconsistent with the prediction that maximizers might continue to search more than satisficers under these conditions, such as to better understand the choice set or due to the hope of finding an ideal alternative. This finding suggests that maximizers cannot be described as simply extending search under a wide variety of conditions.

How do we explain this pattern? Schwartz et al. (2002) previously described maximizers as individuals who might be maximizers because they have strong experiences of regret and argued that maximizers might look at a larger

number of options to minimize the anticipated regret associated with missing out on potentially better future options. Past research has largely focused on situations analogous to Study 1 here, but regret might also explain the findings in contexts with loss of alternatives. It is possible that the anticipated regret at missing out on a present opportunity (e.g., an option on Day 1) might be stronger than the less tangible prospect of missing out on a better alternative that could come along. For the maximizer, the salience of this regret possibility might lead to immediate choice, to prevent the loss of the most promising existing alternative. The satisficer, in contrast, who would be less likely to experience anticipated regret, would also be less likely to change behavior in response to the possibility of loss of alternatives. It is striking that in Study 2 compared with Study 1, the percentage of maximizers who searched only 1 day quadrupled, whereas the percentage of satisficers who searched only 1 day did not increase across situations. The explanation is broadly consistent with work by Carmon, Wertenbroch, and Zeelenberg (2003) who found that choosing an alternative can heighten feelings of regret over loss of non-chosen alternatives.

The studies conducted here are most similar to the study by Diab et al. (2008) in which participants were given descriptive hypothetical scenarios and asked what they would do. In some scenarios, they were told that if they rejected the present option, there was a chance that their ideal option could emerge. Maximizers were more likely than satisficers to report that they would hold out for the ideal alternative. In those scenarios, the possibility of an ideal alternative was highlighted, and the possibility of regret at missing out on such an alternative was particularly easy

to imagine. In other words, behavioral differences between that context and the present one might be due to the relative salience of the loss of existing options versus the hope of much better alternatives. This might be true, also, in situations such as Iyengar et al. (2006), in which decision makers considered actual post-college job options, which presumably had deadlines for acceptance after which the jobs were no longer viable. Maximizers might be more inclined to do mental calculations involving such information and thus to be more sensitive to changes in the salience of various pieces of information. In the future, it might be valuable to manipulate the salience of these factors to test this possibility.

The dimension weighting variable computed here also contributes to our understanding of decision behaviors associated with maximization. We found that when there was no potential loss of options, only satisficers indicated a weighting of some dimensions over others. However, when there was a potential or certain loss of options, there was no longer a relationship between weighting and maximizing tendency. One possible explanation is that satisficers routinely prioritize dimensions to facilitate decision making, whereas maximizers only do so when there is a strong external motivation to do so; otherwise, they simply seek an alternative that is strong on all dimensions. It is also possible that these ratings reflect a state that is not a precursor to action but, rather, is a result of having committed to one's choice, which is stronger for satisficers than for maximizers (Lai, 2011). In this case, the results would suggest that, for maximizers, choice commitment only occurs when maximizers feel externally compelled to make an early choice, perhaps because they no longer have such a large set of alternatives against which to judge their selection. However, the latter explanation seems less likely in that maximizers were also sometimes less confident in their early decisions.

We also collected measures related to how attribute information was searched in the displays. We found no evidence that maximizing tendency is related to how much attribute information one looks at as a percentage of the amount available. In some ways, this is surprising in that one might expect maximizers to view not only more alternatives but also more information about each alternative, but the findings further emphasize that the difference between maximizers and satisficers might be primarily about the number of alternatives considered prior to choice and not other aspects of informational search. In fact, one could just as easily imagine maximizers more quickly dismissing alternatives in light of initial less-than-ideal attribute values and thus actually looking at less information about the majority of alternatives rather than more information.

Multiple researchers have considered which scales should be part of the maximization construct, with some arguing that it should just be high standards (Diab et al., 2008), and others stressing decision difficulty and alternative search (with or without high standards; Schwartz et al., 2002) and more recently considering satisficing as well (Turner et al., 2012). The present

studies offer little evidence that the high standards measure alone predicts search for alternatives. It might be that desiring the best among choice alternatives is not really the same as having high standards more generally. Maximizers might require the best choice in a given context, whereas having high standards might be related more broadly to the kinds of decisions one engages in rather than what one chooses in a prescribed context. It is possible that high standards play a greater role in situations in which the options are more diverse—for example, buying a new luxury car versus an old and unattractive gas-guzzler—where value-based standards might come into play. We also did not find evidence that satisficing is related to search for alternatives. There was little variation in participants' scores, and the subscale had low reliability. There might be other outcome measures or participant groups not considered here for which high standards and satisficing scales might better predict behavior. It is interesting that these are the two measures that were associated with behavioral activation or motivation to approach a reward, rather than inhibition (Carver & White, 1994). Perhaps these two measures better predict behavior in situations in which there are promising or anticipated decision possibilities that might propel the decision maker forward.

In the studies here, decision difficulty predicted search in the context of no loss of alternatives, whereas alternative search predicted behavior in the context of loss. These two subscales are moderately correlated, and it is possible that the pattern across studies is a reflection of the correlation (i.e., that either decision difficulty or alternative search, but not both, can be used to predict search duration). However, when one subscale is removed from the regression model, the other is not a statistically reliable predictor of search duration, providing at least suggestive evidence that they do not explain the same variance in search behavior. One possible explanation is that decision difficulty is endorsed by individuals who delay choice for a variety of reasons (not only desire for many alternatives but also procrastination, indecisiveness, anxiety, etc.), only some of which would lead to curtailing search in the face of loss of alternatives. Thus, decision difficulty might better predict extended search in no-loss situations because it captures a range of reasons for delay. However, it might do less well in predicting decreased search in the loss situation because only a subset of individuals with decision difficulty (namely, individuals who desire many alternatives) might actually curtail search in this situation.

We have focused on anticipated regret as a potential motivator of behavior. It is also possible to frame the results of Studies 2 and 3 in terms of loss or risk aversion. On each simulated day of the task, one could choose a sure thing (a current set of options) or, by going on to the next day, could choose a set of options that had the potential to be worse, the same, or better than the current set. Maximizers might be less likely to go on because of greater loss or risk aversion (the latter is weakly related to maximization,  $r = .11$ ; Lai, 2010). However, such an account would not explain why maximizers searched more in

Study 1 here, or other findings such as that maximizers relative to satisficers generate a greater number of creative uses for a brick, more liberally use all decks in the Iowa Gambling Task (Polman, 2010), and have less consistency in probabilistic forecasts perhaps as a result of trying to integrate a larger number of cues (Jain, Bearden, & Filipowicz, 2013). Taken together, findings suggest that individuals high in maximization (which is also weakly correlated with need for cognition,  $r = .18$ ; Lai, 2010) keep active a greater amount of decision-related information and strive to integrate all of this information, rather than using simpler, more immediate representations such as whether a current choice is good enough. Polman (2010) speculated that maximizers might be trying to avoid bad outcomes; it is possible that monitoring a large amount of information arises from this goal.

The present work considered maximization tendency in an underexplored context—one in which search does not necessarily increase the size of the choice set. At the outset, there was some reason to consider that maximization might not actually be related to behavior in this context

and that it might be related to behavior only when there is the impression of an expanding choice set. Instead, the results provide evidence that maximization tendency predicts behavior in a somewhat counterintuitive way, in that it is associated with less rather than more search in these situations. In everyday contexts, this finding suggests that “limited time only” opportunities, or product displays showing diminishing merchandise (e.g., seats on a plane, pairs of shoes remaining in one’s size), might have a greater impact on maximizers in some situations. The finding might also, in part, explain why maximizers report making more “spontaneous decisions” than satisficers (Parker, Bruine de Bruin & Fischhoff, 2007); in other words, decisions made quickly in response to cues in the environment rather than to a more internal plan of action are reasonably described as more spontaneous. In the future, it will be important to consider how maximization is related to interpretation of potential rewards and risks in a variety of decision situations and how these interpretations might guide search for choice alternatives and, ultimately, choice commitment.

#### APPENDIX: COURSE SELECTION MATERIALS

In the actual materials, the numbers were replaced with the following:

Meeting time:	1 = Preferred, 2 = Acceptable, 3 = Undesirable
Instructor quality:	1 = Good, 2 = Fair, 3 = Poor
Relevance to goals:	1 = High, 2 = Moderate, 3 = No relevance
Amount of work:	1 = Preferred, 2 = Ok, but high, 3 = Burdensome
Peer evaluation:	1 = Good, 2 = Fair, 3 = Poor
Topic interest:	1 = High, 2 = Moderate, 3 = Low

	Seats available <sup>a</sup>	Meeting time	Instructor quality	Relevance to goals	Amount of work	Peer evaluation	Topic of interest
Day 1							
Course A	2	2	3	1	1	2	1
Course B	4	1	1	2	1	1	3
Course C	3	2	2	2	2	2	2
Course D	4	1	1	1	3	2	2
Course E	3	2	2	1	1	1	2
Day 2							
Course F	3	2	3	3	1	2	2
Course G	2 <sup>b</sup>	2	1	1	1	2	1
Day 3							
Course H	4	2	2	1	1	2	2
Course I	3 <sup>c</sup>	3	1	3	2	1	1
Day 4							
Course J	3	3	3	3	2	3	3
Course K	4	1	2	2	1	3	1
Day 5							
Course L	2	1	3	1	1	3	1
Course M	1	3	2	1	1	1	2

<sup>a</sup>These values are for Studies 2 and 3; in Study 1, all values were >10.

<sup>b</sup>Changes to 0 seats on Day 3 in Studies 2 and 3.

<sup>c</sup>Changes to 0 seats on Day 4 in Studies 2 and 3.



## REFERENCES

- Carmon, Z., Wertenbroch, K., & Zeelenberg, M. (2003). Option attachment: When deliberating makes choosing feel like losing. *Journal of Consumer Research*, *30*, 15–28.
- Carver, C., & White, T. (1994). Behavioral inhibition, behavioral activation, and affective responses to impending reward and punishment: The BIS/BAS Scales. *Journal of Personality and Social Psychology*, *67*, 319–333.
- Dar-Nimrod, I., Rawn, C., Lehman, D., & Schwartz, B. (2009). The Maximization Paradox: The costs of seeking alternatives. *Personality and Individual Differences*, *46*, 631–635.
- Diab, D., Gillespie, M., & Highhouse, S. (2008). Are maximizers really unhappy? The measurement of maximizing tendency. *Judgment and Decision Making*, *3*, 364–370.
- Ferrari, J., & Dovidio, J. (2000). Information search processes by indecisives: Individual differences in decisional procrastination. *Journal of Research in Personality*, *34*, 127–137.
- Frost, R., Marten, P., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism. *Cognitive Therapy and Research*, *14*, 449–468.
- Higgins, E. T., Kruglanski, A. W., Pierro, A. (2003). Regulatory mode: Locomotion and assessment as distinct orientations. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 35, pp. 293–344). New York: Academic Press.
- Iyengar, S. S., & Lepper, M. R. (2000). When choice is demotivating: Can one desire too much of a good thing? *Journal of Personality and Social Psychology*, *79*, 995–1006.
- Iyengar, S. S., Huberman, G., & Jiang, W. (2004). How much choice is too much? Contributions to 401(k) retirement plans. In O. S. Mitchell, & S. Utkus (Eds.), *Pension design and structure: New lessons from behavioral finance* (pp. 83–95). Oxford, England: Oxford University Press.
- Iyengar, S., Wells, R., & Schwartz, B. (2006). Doing better but feeling worse: Looking for the best job undermines job satisfaction. *Psychological Science*, *17*, 143–150.
- Jain, K., Bearden, N., & Filipowicz, A. (2013). Do maximizers predict better than satisficers? *Journal of Behavioral Decision Making*, *26*, 41–50.
- John, O., Donahue, E., & Kentle, R. (1991). *The Big Five Inventory: Versions 4a and 54*. Berkeley, CA: University of California, Berkeley, Institute of Personality and Social Research.
- Kitayama, S., Duffy, S., Kawamura, T., & Larsen, J. (2003). Perceiving an object and its context in different cultures: A cultural look at new look. *Psychological Science*, *14*, 201–206.
- Lai, L. (2010). Maximizing without difficulty: A modified maximizing scale and its correlates. *Judgment and Decision Making*, *5*, 164–175.
- Lai, L. (2011). Maximizing and customer loyalty: Are maximizers less loyal? *Judgment and Decision Making*, *6*, 307–313.
- Mogilner, C., Shiv, B., & Iyengar, S. S. (2013). Eternal quest for the best: Sequential (vs. simultaneous) option presentation undermines choice commitment. *Journal of Consumer Research*, *39*, 1300–1312.
- Moyano-Díaz, E., Martínez-Molina, A., & Ponce, F. P. (2014). The price of gaining: maximization in decision making, regret, and life satisfaction. *Judgment and Decision Making*, *9*, 500–509.
- Nenkov, G., Morrin, M., Ward, A., Schwartz, B., & Hulland, J. (2008). A short form of the Maximization Scale: Factor structure, reliability and validity studies. *Judgment and Decision Making*, *3*, 371–388.
- Nunnally, J. C., & Bernstein, I. H. (1984). *Psychometric theory*. New York, NY: McGraw-Hill.
- Parker, A. M., Bruine de Bruin, W. & Fischhoff, B. (2007). Maximizers versus satisficers: Decision making styles, competence, and outcomes. *Judgment and Decision Making*, *2*, 342–350.
- Patalano, A. L., & LeClair, Z. (2011). The influence of group decision making on indecisiveness related decisional confidence. *Judgment and Decision Making*, *6*, 163–175.
- Patalano, A., & Wengrovitz, S. (2007). Indecisiveness and response to risk in deciding when to decide. *Journal of Behavioral Decision Making*, *20*, 405–424.
- Polman, E. (2010). Why are maximizers less happy than satisficers? Because they maximize positive and negative outcomes. *Journal of Behavioral Decision Making*, *23*, 179–190.
- Purvis, A., Howell, R., & Iyer, R. (2011). Exploring the role of personality in the relationship between maximization and well-being. *Personality and Individual Differences*, *50*, 370–375.
- Rassin, E., & Muris, P. (2005). Indecisiveness and the interpretation of ambiguous situations. *Personality and Individual Differences*, *39*, 1285–1291.
- Rim, H., Turner, B., Betz, N., & Nygren, T. (2011). Studies of dimensionality, correlates, and meaning of measures of the maximizing tendency. *Judgment and Decision Making*, *6*, 565–579.
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Scheinbehenne, B., Greifeneder, R., & Todd, P. M. (2010). Can there ever be too many options: A meta-analytic review of choice overload. *Journal of Consumer Research*, *37*, 409–425.
- Schwartz, B., Ward, A., Monterosso, J., Lyubomirsky, S., White, K., & Lehman, D. (2002). Maximizing versus satisficing: Happiness is a matter of choice. *Journal of Personality and Social Psychology*, *83*, 1178–1197.
- Simon, H. (1955). A behavioral model of rational choice. *The Quarterly Journal of Economics*, *69*, 99–118.
- Spielberger, C., Gorsuch, R., Lushene, R., Vagg, P., & Jacobs, G. (1983). *Manual for the State-Trait Anxiety Inventory*. Palo Alto, CA: Consulting Psychologists Press.
- Turner, B., Rim, H. B., Betz, N., & Nygren, T. (2012). The Maximization Inventory. *Judgment and Decision Making*, *7*, 48–60.
- Von Neumann, J., & Morgenstern, O. (1944). *Theory of games and economic behavior*. Princeton, NJ: Princeton University Press.