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Experiment 1 tested whether the number of solutions to a proposed policy that did or did not have a direct impact on participants would influence their current satisfaction. Diverse relative to limited future choices enhanced current satisfaction when they had relevance for participants; there was, however, only a tendency for the number of future choices to influence current satisfaction when the choices did not have relevance for participants. Experiment 2 further explored the influence of choice on satisfaction, tested potential underlying processes, and the influence of individual differences. Results showed that (1) people did not show a preference for diverse over limited relevant choices when the policy had a direct effect on them (relevant condition); (2) when the policy did not have a direct effect (nonrelevant condition), people did not show a preference for diverse over limited options; and (3) participants simulated a future alternative world when considering future choices.

BACK TO THE FUTURE: HOW FUTURE CHOICES IMPACT CURRENT SATISFACTION

by

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Approved by

_____
Committee Chair

To my loving and supportive wife, Traci. To my sons, Josh, and Alex,

and to my mom and dad, Flossye and Sam.

APPROVAL PAGE

This dissertation has been approved by the following committee of the Faculty of The Graduate School at The University of North Carolina at Greensboro.

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CHAPTER I

INTRODUCTION

Choice is a fundamental part of our lives; a quick trip to the supermarket confirms this—85 different varieties and brands of crackers; 285 varieties of cookies, with 21 options for chocolate chips alone; 13 brands of sports drinks; 85 different juices; 75 iced teas, and on and on (Schwartz, 2004). In fact, the average American grocery store has been growing steadily for the past 30 years, with some stores exceeding the size of a football field and carrying upwards of 60,000 items (Fasolo, Hertwig, Huber, & Ludwig, 2009). Choosing, however, is not solely a marketplace phenomenon; we make choices about dating, how to take care of ourselves, what to name our kids, and what job we wish to pursue for a living (Lenton, Fasolo, & Todd, 2008; McClure et al., 2004; Ogden, Daniells, & Barnett, 2009; Pelham, Mirenberg, & Jones, 2002; Sauermann, 2005). Since choice is such a pervasive part of our lives, one would think that describing choice is as tantalizing as Loewenstein (1999) suggests—it would seem to contain something that one can't have too much of, like clean air or beauty.

One conceptual way of understanding choice involves a consideration of the number of options in any given selection set—those options from which we have to choose (Chernev, 2003; Iyengar & Lepper, 2000). Inherent to choosing is an experiential

state—one that involves perceptions of personal control (Steiner, 1979) and carries profound emotional implications (Anderson, 2003). Choices shape our affective and motivational states by allowing us to perceive control of a situation. Yet different theoretical perspectives have conflicting interpretations about choosing; some extol choice (e.g., Deci & Ryan, 1985), while others carry a less exuberant portrayal (e.g., Burger, 1989). How can choice feel good sometimes, yet aversive in other circumstances?

Part of determining how one feels about choice involves a comparison of alternatives. Prior research has explored how options make us feel about our decisions (Chernev, 2003; Iyengar & Lepper, 2000); how we feel when we reflect back on decisions we have made in the past (Brehm, 1956; Egan, Santos, & Bloom, 2007); and how much confidence we have about future decisions (Knox & Inkster, 1968). In this paper, however, I examine how decision contexts containing different numbers of choices (limited versus diverse) influence our evaluation of our current circumstances. Specifically, I am interested in how the number of options that we have to consider for our future makes us feel about what we have available now. Situations that are relevant, furthermore, will have a different affective impact than those situations that are not personally relevant. This paper will contain a review of the relevant literature on choice and satisfaction, as well as offer a theoretical prediction about how the two interface; I will describe two experiments that show how our future choices impact our current perceptions of satisfaction, propose the decision determinants responsible for this effect,

and consider two personality types that should differentially affect how we process our choices.

Understanding Choice

Choice as a construct is beginning to capture more attention (Iyengar, 2010). Early work considered motivational aspects about how choice lends perceptions of personal control (e.g., Deci & Ryan, 1985; Langer, 1975; Perlmuter & Monty, 1979), or circumstances when we feel little or no choice, and consequently, perceive little personal control (Brehm, 1966; Peterson & Seligman, 1985). The commonality among these viewpoints was that choice tended to confer agency and personal control, and the lack of control felt from having diminished choices seems stifling and demotivating.

Choice and Emotions

Traditionally, psychologists and economists alike thought of choice from a consequentialist perspective that portrayed decisions as an evaluation of consequences to possible choice alternatives (Loewenstein, Weber, Hsee, &Welch, 2001). Consequentialist views of choice—considering only the cognitive aspects of choice—ignore the emotional impact of decision-making. Gradually, psychologists came to understand that decision-making involves emotions, whereas economics held steadfast to views of rational choice. Simon (1956) summarized the distinction between the two disciplines:

> A comparative examination of the models of adaptive behavior employed in psychology (e.g., learning theories), and of the models of rational behavior employed in economics, shows that in almost all respects the latter postulate

> a much greater complexity in the choice mechanisms, and a much larger capacity in the organism for obtaining information and performing computations, than do the former. Moreover, in the limited range of situations where the predictions of the two theories have been compared…, the learning theories appear to account for the observed behavior rather better than do the theories of rational behavior. (p. 129)

In recent years, there has been a renewed interest in the emotions produced by choice (Mellers, 2000). Contrary to the notion that people assess the desirability and likelihood of possible outcomes of choice alternatives and can integrate that into decision-making, we perceive the emotional implications in our decisions (Loewenstein, Weber, Hsee, & Welch, 2001). In order to solve problems, choices can involve difficult-to-reverse commitments that sometimes prove contrary to short-term self-interests. Emotions, thus, set boundaries for proper social behavior and appeal to acting in a manner that satisfies one's needs while contemplating the needs of others. Not only do we experience immediate emotions while making choices, we anticipate how we will feel about future consequences.

Decision-making studies have considered various implications of choosing. Complex and unknown choices can lead to avoidance, delay, and fatigue (Ariely, 2000; Benartzi & Thaler, 2002; Thompson, Hamilton, & Rust, 2005). Ariely (2000) has explored preferences for how people begin to make sense of unfamiliar options; he showed that consumers have a preference for more narrow options until they are familiar with the product being purchased. A number of researchers propose that making choices involves trade-offs and inherent opportunity costs for the options not chosen (Loewenstein & Elster (1992), Montague (2006), Luce, Bettman, & Payne (2001), and

Luce, Payne, & Bettman (1999)). Schwartz (2000) suggests, furthermore, that choices confer responsibility—we feel indebted to make the right decision when ample options arise. Researchers are also beginning to pursue a better understanding of the decision-making strategies people rely on when choices are complex (Payne, 1982; Payne, Bettman, & Johnson, 1988, 1993; Timmermans, 1993; Wright, 1975).

Timing of Choices

Theoretically, choices can have qualitatively different intrapersonal implications. While many studies contemplate consumer decisions that have relatively short-time horizons (Ariely, 2000; Iyengar & Lepper, 2000), other choices can have long-term implications, such as making achievement-related choices (Eccles, 2005), setting goals for the future (Brunstein, 1993; Sheldon & Elliot, 1999; Sheldon & Houser-Marko, 2001), selecting a potential mate (Lenton, Fasolo, & Todd, 2008), picking a vocation (Sauermann, 2005), or choosing the appropriate medical intervention (Ogden, Daniells, & Barnett, 2009). Time, itself, must be factored in decisions when we consider whether to "rise late or rise early, munch snacks or eat a healthy lunch, buy a snazzy sports car or the reliable sedan, get a job or go to college, risk pregnancy or use a contraceptive" (Loewenstein & Elster, 1992).

The idea that our future can influence how we perceive our current circumstances is not an entirely new concept. Khan and Dhar (2007) showed that many of our choices involve conflicts of self-control over vice or virtue. So, for example, whether we engage in a low- or high-brow movie or magazine or eat a healthy or unhealthy snack can be

influenced by future sequential options for choosing. When we feel we can choose something virtuous in the future, we are much more likely to consume a vice with the expectation of being better "next time". This suggests that our choices are not viewed in isolation, and we frame our choices with a broader perspective about how choices will occur in the future. I propose that choices need not even be intertemporal or sequential—but that simply thinking about our future choices has an effect on determining what we do and feel right now.

Influence of Culture and Context on Choosing

Our choices can also be strongly influenced by our culture and context. Triandis (1989) suggests that Westerners are more likely to be individualistic, and therefore, give more priority to personal goals over the goals of collectives. Eastern cultures, by contrast, tend to be more collectivistic and either make no distinctions between personal and collective goals, or if such distinctions are made, tend to subordinate their personal goals to the collective goals. This view is consistent with Markus and Kitayama's (2003) disjoint and conjoint models that distinguish preferences for agency between North American and Asian cultures. North American cultures are saturated with the promotion of choice and opportunity, and relative to Asian cultures, North Americans tend to choose based on their preferences and are more motivated to express their preferences in their choices.

In support of these models, Iyengar and Lepper (1999) found that Anglo-American children showed more motivation and a greater preference for making their

own choices, whereas Asian-American children showed higher motivation and a preference for choices to be made for them by trusted authority figures. Thus, this suggests that the culture that we are raised in, in and of itself, can determine how we view the importance of making personal choices and demonstrating preferences in the promotion of agency. Iyengar and DeVoe (2003) suggested that even the Asian cultures reported having much less freedom of choice—above and beyond the effects of socioeconomic status, household status, age, and gender. This suggests that North Americans, relative to Eastern cultures, want and need perceptually more choices. Our pursuit and desire for the expression of choice is thus malleable and open to cultural influence.

Cultural messages that promote the benefits of a consumer product can even have an influence over some of the decisions that we make. Montague and colleagues (McClure et al., 2004) propose that social, cognitive, and cultural influences coalesce to produce behavioral preferences for what we eat and drink. In a behavioral and brain imaging study, researchers delivered Coca-Cola or Pepsi to participants during an event-related functional magnetic resonance imaging (fMRI) to probe for neural correlates of behavioral preferences. These drinks were chosen because of their nearly identical chemical compositions and their cultural familiarity. In the absence of brand information, subjects were equally split in their taste preferences, thus demonstrating virtually indistinguishable differences between drinks. In semi-blind taste tests, however, participants preferred the Coke in the labeled cups significantly more than the Coke in the

blind task and significantly more than Pepsi in the parallel semi-blind task. Coke, it appears, has captured the hearts of many through cultural messages despite the fact that people have a difficult time differentiating the taste between the two brands. Powerful messages disseminated in brand management and advertising have thus distinguished these choices from one another.

Personality and Choice

Individual differences exist in how we perceive choices. While it is clear that choice carries many benefits to the chooser, maximizers—those who carefully examine all options to seek the most optimal—can be overwhelmed with many choices (Simon, 1956; Schwartz, 2000; Schwartz et al., 2002). Satisficiers, by contrast, are more likely to pick an option that simply crosses the threshold of acceptability. Relative to satisficiers, maximizers are more likely to experience regret and depression, are less happy and less optimistic, and tend to have lower scores in overall life satisfaction. Maximizing behaviors are highly correlated with perfectionism, social comparison, counter-factual thinking, and slower decision-making. When maximizers and satisficiers leave college and enter the job market, although maximizers tend to secure jobs with salaries approximately 20% higher, they tend to experience lower satisfaction and more negative affect during the search process (Iyengar, Wells, & Schwartz, 2006).

The Number of Options

Perceiving choice involves having at least two evaluative options to consider (Steiner, 1979). Beyond two options, a decision context impacts how we feel and how motivated we are (Ariely, 2000; Chernev, 2003; Iyengar & Lepper, 2000; Thompson, Hamilton, & Rust, 2005). Too few options does not allow for perceptions of personal control and choice (Steiner, 1979); yet, too many choices can feel burdensome and overwhelming (Schwartz, 2000; Mick, Broniarczyk, & Haidt, 2004). Several independent lines of research suggest that choice is positive. More options can lead to a general sense of increased motivation and personal control (Perlmuter & Monty, 1977). Brigham (1979), for example, found that participants who were given the option to choose their own consequences in the classroom tended to work harder and faster, and responded more favorably to the situation as opposed to when they were unable to make such choices.

From a consumer perspective, choice confers the benefit of satisfying people's varied tastes. It also promotes competition among providers of goods and services while promoting lowered prices and improved quality (Loewenstein, 1999). Loewenstein suggests that variety is particularly good for people with highly differentiated tastes—so called "experts"—whose needs and wants are more satisfied by plenty. To the extent that we are familiar with what we are shopping for, abundant choice is beneficial.

Choice is also associated with greater intrinsic motivation, task performance, life skills, and higher outcome evaluation (Botti & Iyengar, 2006; Deci & Ryan, 1985;

Taylor, 1989). In health care, choice has been found to be associated with improvement in patient outcomes, satisfaction, adherence to medical recommendations, and patient health status (Ogden, Daniells, & Barnett, 2009). Choice is suggested to improve autonomous motivation and promotes flexibility, creativity, and increased capacity for complexity (Amabile, 1983).

Unlimited choice has been shown to result in perceptions of autonomy, persistence (Deci & Ryan, 1987; Ryan & Deci, 2006), goal congruence, and a high state of well-being (Sheldon & Elliot, 1998; Sheldon, 2001). From a learning perspective, freedom of choice is additionally associated with curiosity and the acquisition of diverse adaptive strategies and competencies (Piaget, 1971). Heckhausen (1995) has even gone so far as to propose that diversity provides the "raw material" upon which unprecedented developmental advancements and adaptations are made. Not surprisingly, having little or no choice is related to lower perceptions of personal control (Burger, 1989), increased levels of depression (Seligman, 1975), having negative adjustment to old age (Langer & Rodin, 1976), coping poorly with terminal illness (Taylor, 1983), and feeling reductions in motivation and achievement (Deci & Ryan, 1985).

More recent evidence, however, suggests that although having many choices is often desirable, more options might not always be better, especially in a decision-making context. Relevant to the issue of number, studies show that decision-making related to choice, in and of itself, can produce many challenges, including confusion over options (cf. Ariely, 2000; Thompson, Hamilton, & Rust, 2005), regret following uncertainty in

decision-making (Bell, 1981; Loomes & Sugden, 1982), preemptive emotions such as anticipated regret and self-blame for making the wrong selection (Beattie, Baron, Hershey, & Spranca, 1994), decreased self-esteem, higher anxiety and hostility (Burger, Brown, & Allen, 1983), anticipatory counterfactuals or "prefactuals" (Anderson, 2003), and a heightened sense of accountability to make the right choice with one's diverse array of options (Schwartz, 2000).

Testing the Number of Options

The availability of choices can also influence the likelihood of choosing. In a series of field, class, and laboratory experiments, Iyengar and Lepper (2000) found that despite being more attracted to contexts containing extensive choices, people are much more likely to commit to making a selection with limited versus extensive options. They also found evidence that the quality of performance was greater with limited options; people experienced less regret, and felt greater satisfaction with their selected choice when they had fewer initial options. Thus, although people report having lots of choices as desirable, too many choices can have significant detrimental consequences on motivation—an effect known as the *choice overload hypothesis*.

Chernev (2003) reported results consistent with this view; participants who were exposed to a large set of options had more difficulty making a decision and felt less confident about their decisions than those exposed to a relatively small set. Although it is obvious that there are some downsides to making decisions involving a large number of choices, it is also clear that people find decision contexts having many choices more

attractive than those having just a few (e.g, Iyengar & Lepper, 2000; Schwartz, 2000, 2004). Perhaps this is because a large selection-set is especially likely to contain a desirable solution, allows variety-seeking, engenders perceptions of freedom and control, and is more likely to represent the total number of possible options available (e.g., Chernev, 2003).

The idea of an 'information overload' is not new. Processing too many choices provides too much information at a given time, and thus, leads to poorer decisions and dysfunctional performance (Malhotra, 1982). Limited processing capacity has been explored by different models of memory (Atkinson & Shiffrin, 1968; Craik & Lockart, 1972; Collins & Loftus, 1975; Bettman, 1979). Furthermore, a preference for smaller chunks of information comes from the notion of limited capacity for short-term memory (Broadbent, 1975; Miller, 1956; Simon, 1974). These memory models serve as convergent models for choice. Information overload, suboptimal decision-making, and maladaptive feelings can also result when people are exposed to too many choices (Fasolo, McClelland, & Todd, 2007; Jacoby, Speller, & Kohn, 1974; Malhotra, 1982). The magic number of choices remains elusive, however. Although having no choice seem to subordinate freedom and autonomy, abundance of choices can be overwhelming and stifle adaptive decision-making. Haynes (2009) has suggested that the intermediate number of choices—3 to 10—seems to have the widest appeal, inhibiting frustration and regret from large set-sizes, while promoting satisfaction. While this may oversimplify choosing, clearly there are costs associated with very small and very large set-sizes. This

is consistent with Ariely's (2000) finding that people prefer limited options to consider when purchasing an unknown, complex consumer product.

Satisfaction with Choice

Satisfaction—when applied to choices—typically suggests how pleasant or enjoyable the options appear to the decision-maker (e.g., Botti & Iyengar, 2006; Iyengar & Lepper, 2000). Many theoretical models of satisfaction have traditionally seen it as a construct of interest related to performance and achievement (e.g., Hertzberg, Mausner, & Snyderman, 1959; Locke & Latham, 1990). The straightforward prediction has typically been the greater the success experienced, the greater satisfaction experienced. From the perspective of choice, satisfaction is likely an inverted U-shape function based on the number of alternatives—that is, satisfaction increases with choice as the set sizes increases up to a point, and then it begins to diminish as more choices are added. Reutskaja and Hogarth (2009), for example, found that both outcome and process satisfaction is highest with 10 options when participants were offered between 5 and 30 options for a gift.

Determining the satisfaction with one's choices involves comparisons and an appraisal of the advantages or disadvantages that the options will yield (Brenner, Rottenstreich, & Sood, 1999). Contrary to classical theories, the subjective value of options is not just a function of that option; rather it is a determination of the relevance of that option in relation to others and the self. In the absence of a referent group, it is conceivable that the referent becomes a hypothetical scenario of "what-ifs"—*what if I get*

better parking? What if I miss out on better parking? And what if someone has better parking than I do?

Because performance and achievement are closely tied to competition, it makes intuitive sense that an appraisal of satisfaction comes from comparing to another referent group. As Michalos (1980) suggests, it isn't just having more income, it is having more income than someone else that makes one happy. This means that part of how we determine how satisfied we are with what we have is a function of the perceived difference between one's own status and that of a reference person or group. Yet, little is known about how our perceptions of satisfaction are influenced by choices that are forthcoming in the future.

Alternative Worlds

Concerns for our future often pervade our thoughts; people have strong hopes and fears about what our options will look like in the future (Markus & Nurius, 1986). People evaluate their current reality, in part, by engaging in mental simulations of an alternative future world (e.g., Aspinwall, 1997; Markman & McMullen, 2003; Oettingen, 1996; Oettingen, Pak, & Schnetter, 2001; Sanna, 2000; Taylor, Pham, Rivkin, & Armor, 1998; Taylor & Schneider, 1989; Tversky & Kahneman, 1974), a process that involves imagining how things should turn out in the future. This might involve imagining the results of diet and exercise or wearing a cap and gown at graduation.

Mental simulations serve as guides for many purposes including problem-solving and emotion regulation—anticipating how we feel and managing our emotions (Taylor,

Pham, Rivkin, & Armor, 1998). Visualizing a desired outcome and having positive expectations is related to improvements in weight loss, recovery from illness and trauma, and having romantic professional success (Oettingen, 1996). We also engage in mental imagery and imagine potential outcomes when we are concerned about problems (Aspinwall, 1997; Oettingen, Pak, & Schnetter, 2001). Taylor and Schneider (1989) suggest that simulation enables us to prepare for changes in the future, interpret events that have already occurred, reinterpret emotional states and muster the energy to do what needs to get done; thus mental simulation acts as a segue between thought and action. Fantasy realization can assist in understanding desired outcomes and preventing negative aspects in people's "problem spaces." The negative reality that might be confronting us could stand in the way of obtaining a desirable future. The extent to which the problem appears solvable and a solution attainable will determine how the fantasy makes us feel about the situation.

These prefactual thoughts—thoughts about how things "might be"—have direct affective implications (Sanna, 1998). These thoughts and feelings are prefactual in that they are mentally simulated alternatives that occur prior to the actual outcome, therefore occurring before the actual "act" happens. Sanna (2000) suggests that upward counterfactuals simulate better realities (e.g., "If I had studied harder and made better grades, I would have had a better chance of getting into grad school"); whereas downward counterfactuals simulate worse realities (e.g., "At least I wasn't speeding even more, or that ticket I got would've been even worse"). Although unsupported by prior

tests, Sanna proposes that it is just as likely that prefactuals engage the same type of affective processes as counterfactuals.

The affective evaluation of one's current state can be assimilated or contrasted to an alternative future world. On the one hand, if it is assimilated, the attractiveness of the current state will be positively related to the attractiveness of the alternative world. The more positive the alternative world appears, the more positive the current state. Assimilation typically occurs when individuals expect to attain outcomes that are more positive than those they are currently receiving (e.g., Markman & McMullen, 2003; Mussweiler & Strack, 2000; Sanna, 2000). Assimilations and contrasts, furthermore, are more likely to occur in contexts when decisions are personally relevant and meaningful. The number of options available interacts with the relevance of the topic being considered. For future choices that are closer temporally, the relevance of the topic becomes more meaningful and impactful. The number of options is important to determining the effect on current satisfaction. Number serves as a comparison referent. Diverse over limited choices should therefore stimulate mental simulations of an alternative world with the number of options to solve a problem. In turn, this simulation of an improved alternative reality elicits a positive feeling and this is assimilated with one's current state thus improving current satisfaction.

The extent to which the future choices are personally meaningful and relevant will determine the valence of the future choices. Relevance can be determined from a meaningful choice and also from one in which the choices will be personally impactful

and forthcoming (e.g., positive and attainable). If the future choices are attainable and personally relevant, diverse over limited options should be positively perceived. Diverse choices allow for a variety of options to enhance preference options and a greater likelihood of other future selections. In contrast, when future choices are meaningful yet are not personally attainable and therefore not directly relevant, negative perceptions will follow (e.g., positive and unattainable). In this study, relevance will be manipulated by a topic for that invokes a sense of urgency and meaningfulness—campus parking. College campuses are often compressed for space and parking is usually an issue of high personal concern and relevance. So, for example, if a group of individuals drive their cars to school but parking is very limited, their current parking situation is not desirable. This problem would be less negative if one could imagine a quick and attainable solution resulting in ample parking spaces. In this situation, one's alternative and current worlds are positively correlated; the more positively they perceive their alternative worlds (ample parking), the less negatively they perceive their current one.

On the other hand, when individuals cannot attain the outcomes of a superior performance or better outcomes there are two possible outcomes; either people contrast their unattained outcomes with their current state and feel badly or they feel indifference (e.g., Markman & McMullen, 2003; Mussweiler & Strack, 2000; Sanna, 2000). Using campus parking, for example, might cause contrasts to occur when a solution will not impact the individual's current problem; a better world is too far off to positively influence one's own state of affairs. In this situation, their alternative is more positive

than their current state—but it is not attainable. Thus, the more positive their alternative world, the less positive (or more negative) is the perception of their current circumstance. Alternatively, indifference occurs when options are nonrelevant (e.g., too far off). Individuals may not care about the number of choices that others have. It is possible that perceptual contrasts would not occur because of the lack of salience with the issue being considered. Instead of negative affect from having been left out of an impactful choice, the reaction is more indifference. If indifference does occur, people who do not benefit from a future choice will not feel badly and therefore their current state of satisfaction remains unchanged.

Choice and Alternative Worlds

The number of choices available in a decision context may also serve as an alternative world. The more choices, the more attractive the decision context, and subsequently the more attractive the alternative world becomes. If choice serves this function, then a current problem may appear more positive when the decision context involves many versus a few options and whether these options as long as the options are personally relevant. Specifically, when the decision context provides solutions that will benefit the individuals currently experiencing a problem (e.g., parking, traffic congestion), assimilation should occur and the current problem will appear better (less negative) when there are many choices or solutions versus a few.

With knowledge that a current problem involves choices and that one will personally benefit in the near future, assimilation should occur. Information about the self

becomes highly accessible and the judgment in question is pulled toward a comparison standard. Assimilating choices occurs when the options have direct relevance and will personally benefit the self. In this instance, more choices are better, and an imagined future seems tenable and close at-hand. The options for a better imagined-future-state will be perceptually assimilated with our current standing and pull up perceptions of satisfaction with what one has now. High relevance and diverse options would seem highly beneficial and would be assimilated with what we currently have, thus leading to enhanced accessibility of positive standard-consistent cognitions (e.g., *I am lucky they are addressing the parking problem immediately; I should benefit from the solution*). When the decision context, however, provides solutions that are not self-relevant—is not attainable and thus will not have personal benefit to individuals who are currently experiencing the problem—contrast will occur and the current situation should appear worse (more negative) when there are many solutions versus just a few. Alternatively, participants will not show an effect for the number of choices because of the lack of personal relevance.

The Present Research

Satisfaction with our current standing is enhanced by perceptions of gain relative to others when options are salient. The extent to which we perceive our options to exceed the desirability of others' options leads us to the highest level of satisfaction. This implicitly suggests that satisfaction involves a social process of comparing others' outcomes to one's own outcomes. Salience of others' options, from which one will not

personally benefit, will induce an imagined future that could have been different. This is known as an upward counterfactual; it should produce negative affect and a perceptual contrast that leads to a lower level of satisfaction with one's current standing to the extent that people compare and feel a sense of loss. When the decision is likely to be personally relevant, one should desire to have many available options, whereas if the decision does not offer personal reward, the inverse is likely true.

The goal of Experiment 1 was to show that the number of choices impact our current satisfaction; more specifically, when an option bears direct personal relevance, having many options is more desirable than having just a few. Thus, we should be more satisfied with our current state when we have many versus just a few choices. This should hold true unless the outcome has no relevance to us. When no personal benefit will be afforded by the options, then the effect of having many choices will either appear less positive as a result of the current state being contrasted to a future alternative state, or no difference will be found because the issue has no personal impact. Experiment 2 explores how this effect might occur. More specifically, measures probe the extent to which participants care about the number of options offered, the extent to which they imagine a future alternative world while considering choices, whether the policy would impact their current situation, the extent to which the future impacted their current feelings, and finally, their concern about parking for themselves, their friends, and people they do not know.

CHAPTER II

EXPERIMENT 1: METHOD

Participants. A total of 82 students—67 women, 15 men—enrolled in General Psychology at the University of North Carolina at Greensboro participated and received credit toward a research option.

Materials. A booklet of survey materials was provided explaining a campus parking problem, potential solutions, and measures of satisfaction. This scenario asked students to give university campus officials feedback on how to handle a campus parking shortage. In one scenario, the university suggested that the solution to the parking problem would be implemented at the end of this academic year (relevant condition); in the other condition, the solution to the parking problem would not be implemented for ten academic years (nonrelevant condition). Additionally, participants were given either two options from which to choose a solution (limited choices condition) or ten options (diverse choices condition) from which to choose a solution. Experiment 1 used a 2 x 2 design (relevant or nonrelevant x limited or diverse choices) whereby participants were randomly assigned to a condition.

Design and Procedure. Participants were run in groups of up to 10 in a laboratory with individual desks. Following the informed consent, instructions were

given by the experimenter to carefully read the survey booklet presenting a university problem, and to select an option that seemed most viable for addressing the concern. In each session, participants were randomly assigned to one of the four conditions.

Solutions to Parking. Following an overview of the historical parking shortage on campus along with information on increasing enrollment, participants were provided with either two (limited choices condition) or ten (diverse choices condition) options to solve the problem. They were asked to evaluate each of the choices and to select the best solution by circling the option that appeared the most desirable. A yoked-design was employed whereby participants in the limited (2) choices condition received one of five different versions of the questions used in the diverse (10) choices condition to prevent preferences to any particular set of questions. To control for the difference in time required to scrutinize the options in the two versus ten option conditions, participants in the limited (2) choices conditions were provided ten anagrams to solve at the end of the stimuli. The anagrams contained five-letter words that were pre-tested and found to be both frequent in the English language as well as easy to solve (Martin & Manning, 1995), thus merely acting as a time filler.

Measures of Attitudes Toward Parking. Consistent with prior findings on previous constructs, a single-item measure of satisfaction is just as effective as multi-item measures of satisfaction (Wanous, Reichers, & Hudy, 1997). A measure of satisfaction, therefore, was asked using an 11-point scale. Participants were asked to respond to how

satisfied they were with the current parking situation (*not at all satisfied* to *neutral* to *very satisfied).*

CHAPTER III

EXPERIMENT 1: RESULTS

An analysis of variance was conducted to evaluate the relationship between satisfaction with the current standing and the relevance and number of options presented. The independent variables—relevance and number—contained two-levels each. The solutions that were presented were to be implemented the following academic year (relevant) or in ten years (nonrelevant). The solutions that were presented either contained limited (two) or diverse (ten) options. The dependent variable was a self-report of satisfaction with one's current parking as it stands now.

The results for the ANOVA indicated a nonsignificant effect for options, $F(1, 78) = .13$, $p < .72$, as well as a nonsignificant effect for relevance, $F(1, 78) = .208$, $p < .65$. Figure 1 shows, however, a significant interaction between options and relevance, $F(1, 78) = 5.26$, $p < .025$. As may be seen from Table 1, participants' ratings of current satisfaction within the relevant conditions were higher when they had 10 versus 2 options, $F(1, 78) = 3.52$, $p < .06$. In contrast, an opposite but nonsignificant pattern of results was obtained within the nonrelevant conditions: the ratings of current satisfaction of these participants were less positive when they had diverse versus limited options, $F(1, 78) = 1.87$, $p < .18$. Although neither of the specific contrasts within relevance and non-

relevance conditions proved to be statistically significant, the specific pattern of the statistically significant option x relevance interaction supports the view that people are more satisfied with many versus just a few options when they could benefit from the available options, but they were somewhat less satisfied with many versus a few when the options would not provide them personal benefit. [1]

CHAPTER IV

EXPERIMENT 1: DISCUSSION

Experiment 1 suggests that satisfaction with one's current standing is influenced by the number of choices offered to solve a future problem and whether or not the solutions bear personal relevance. When options were personally relevant, the current situation was assimilated with an imagined-future-state and current satisfaction had a positive relationship with diverse choices; there was a marginally significant difference between diverse and limited options. Participants, therefore, felt the best about what they had currently when an issue of personal relevance had diverse options for change in the near future. However, when participants were asked to make decisions about choices that carried no direct relevance, there was no evidence found for perceptual contrast. It was expected that the ratings of current satisfaction would transverse and people would rate their current satisfaction higher with limited relative to diverse options; but because the effect was left unsupported, it is unclear if there was insufficient power to support the contrasts or if people remained relatively unaffected because the issue did not affect them personally.

CHAPTER V

EXPERIMENT 2: INTRODUCTION

Experiment 2 was designed to replicate and extend the findings of Experiment 1. This study serves three goals: (1) to replicate the relevance x options interactions; (2) to explore whether mental simulations are driving this effect; and finally, (3) to explore individual differences that might potentially amplify or attenuate this effect when considering how our future choices impact our current situation.

The first goal of Experiment 2 was to increase the sample size in an effort to strengthen the pattern of findings obtained in Experiment 1. In this experiment, results supported assimilation of options in the relevance condition, but there was insufficient support of contrast in the non-relevant condition. In order to determine the appropriate sample size, a power analysis was conducted using Gpower 2.0. Based on the difference between the means in the nonrelevant condition in Experiment 1, in order to have an 80% chance of detecting a difference of a 1.1 or greater with a one-tailed analysis at the $\alpha = .05$ level , a sample of 174 participants would need to be collected.

Participants were presented with the same stimuli as in Experiment 1, with a few additions. Once again, participants were given a booklet that contained information about

a campus parking problem. The design was randomly assigned to condition in a 2 choices (limited vs. diverse) x 2 relevance (relevant vs. nonrelevant) between-subjects design. In addition to considering how participants perceived the problem relative to its timing and the number of options they have to solve the problem, three questions addressed how participants perceived their situation relative to others'. Participants were asked the extent to which they cared about the parking for their friends, how much they cared about improved parking for themselves, and how much they cared about the parking situation for students they do not know. These questions explored the extent to which the needs of others might be factored in to their overall perception of parking needs relative to their own.

Although most people strive for rewards that exceed comparison targets, it is quite plausible that people high in collectivism (Hofstede, 1980; Triandis, 1989) —a high preference for the benefit of the group over the individual—can also appreciate ingroup members benefiting when they personally receive little or no benefit. Individualists are more likely to demonstrate personal goals over ingroup goals; by contrast, collectivists are much more likely to define themselves based on ingroup terms and regulate their behavior based on ingroup norms (Triandis, McCusker, & Hui, 1990). Collectivists, by nature, are more likely to seek interdependence and ingroup harmony. Therefore, choices available to ingroup members should invoke different feelings for someone with collectivist tendencies versus someone who is individualistic in nature; more specifically, people who are individualistic in nature should prefer better parking for themselves

relative to others. And although people who are collectivistic in nature may also want better parking, it is conceivable that they would feel less negative affect as a result of ingroup members (e.g., future UNCG students) receiving better parking relative to themselves. It is possible that the predicted contrasts that did not receive sufficient support in the non-relevant condition might be found for participants who are high in a given trait such as collectivism. Collectivistic people might compare their current situation to a greater extent, and therefore display greater differences in current satisfaction, relative to those who are low in collectivism.

This heightened desire for benefits to the ingroup (e.g., future UNCG students) would thus attenuate the disappointment and dissatisfaction of the gains of others from which one will not personally benefit. High collectives might envision a future where ingroup members are benefiting when they themselves are not and consequently feel less disappointment or loss; therefore, the contrasts should have less effect on current satisfaction. Conversely, low collectives (high individualists) should perceive a loss relative to others when the better parking is available to those in the future; contrasts should therefore have a stronger effect on current satisfaction.

One alternative possibility, however, is that high collectivists relative to low collectivists will behave differently than expected when presented with options for others. This elevated concern for parking for others, a characteristic inherent to collectivists, may also lead them to be more aware of what others have (or will receive) relative to themselves. It is, therefore, also possible that collectivists will be negatively impacted

when they won't receive benefits that other receive because they are even more aware of what is happening in the future for others. Thus, in the nonrelevant condition, high collectives may be especially dissatisfied when they have diverse versus limited options.

One additional goal of Experiment 2 is to test whether participants engaged in mental imagery and how they perceived the problem and the potential solutions provided. Following presentation of the stimuli, participants were asked to respond to questions designed to measure satisfaction and the determinants of their decision. The questions explore how people think about choices that are relevant or nonrelevant and how that impacts perceptions of what they currently have. More specifically, they were asked how they perceived the number of solutions presented, the extent to which they engaged in mental imagery, the extent to which the future policy would impact their current parking, the extent to which the policy would have a personal impact, and finally, whether or not focusing on how the future might change influences what they felt about what they have now.

In addition to a conceptual replication of the interaction in Experiment 1, there is evidence that individual differences exist in the amount of effortful thinking we like to engage in. Therefore, even though the task does not involve much cognitive effort, it is possible that those who are less apt to engage in effortful thinking—low need for cognition or NFC—may not be especially likely to be influenced by mental simulations and personal relevance (Cacioppo, Petty, Feinstein, & Jarvis, 1996). Those higher in need for cognition (NFC)—those thinking more carefully about their options—may be much

more likely to have their current appraisals of satisfaction influenced by what will occur because of considering the implications of the options carefully.

It is possible, therefore, that when engaging in prefactuals related to future options, individuals who score high in NFC will be more likely to carefully consider the implications of problems and their solutions. It is possible that people high in NFC therefore assimilate (in the relevant condition) or contrast (in the nonrelevant condition) choices to a greater extent relative to participants low in NFC because they think more in depth about the decision determinants and their implications. This might help account for the unattained transversal in the nonrelevant choices in Experiment 1.

CHAPTER VI

EXPERIMENT 2: METHOD

Participants. A total of 200 students—155 women, 45 men—enrolled in General Psychology and Developmental Psychology at the University of North Carolina at Greensboro participated and received credit toward a research option.

Materials. A booklet of survey materials proposed evaluating a campus parking problem as it appeared in Experiment 1. After reading about the issue, participants were once again presented with the same options as the participants in Experiment 1. The participants were randomly assigned to either limited (2) or diverse (10) choices and at the end of this academic year (relevant) or in ten academic years (nonrelevant) conditions. After selecting the best possible solution to alleviate the parking problem, participants completed measures of satisfaction with their current situation, appraisals associated with their decision of satisfaction, and measures of individual differences.

Design and Procedure. Participants were run in groups of up to 10 at a time in a laboratory with individual desks. Following the informed consent, instructions were given by the experimenter to carefully read the survey booklet presenting a university problem and to provide their opinion about the best potential solution. In each session, participants were randomly assigned to one of the four conditions.

Solutions to Parking. Following an overview of the historical parking shortage on campus along with increasing enrollment, participants were provided with either two (limited choices condition) or ten (diverse choices condition) options with which the problem can be solved. To control for the difference in time required to scrutinize the options, participants in the limited (2) choices conditions were given ten anagrams at the end of the stimuli to solve. The anagrams contained five-letter words pre-tested and found to be both frequent in the English language as well as easy to solve (Martin & Manning, 1995). Participants in the limited (2) choices condition received one of five combinations from the diverse (10) choices condition to control for preferences to any particular set of solutions.

Measures of Attitudes Toward Parking. A measure of current satisfaction was asked using an 11-point Likert scale. Participants were asked to respond to how satisfied they were with the current parking situation (*not at all satisfied* to *neutral* to *very satisfied)*. To rule out potential measurement error from using one question to tap satisfaction, an additional set of questions were posed using a semantic differential. Semantic differential is a widely used measurement of attitudes using bipolar adjective pairs. Five pairs were constructed and have been proven to yield highly reliable findings which tend to correlate highly with the construct of interest (Osgood, Suci, & Tannenbaum, 1957). Participants were asked to rate the current parking situation by circling a number that most closely resembled how they felt about parking now. Questions that were designed to further explore satisfaction were asked on a 7-point

bipolar semantic differential (*good* to *bad; pleasant* to *unpleasant; acceptable* to *unacceptable; fair* to *unfair; excellent* to *poor*).

Measures of Satisfaction Determinants. In order to explore the appraisals associated with current satisfaction, the participants were asked questions regarding their decision-making. Each of the questions was posed using an 11-point scale. The following questions were asked as follows:

Number of Options. "You were presented with a number of solutions for parking. Based on the number of options presented to you, how good do you think the policy will be?" (1 = *not at all good* to 6 = *neutral* to 11 = *very good*).

Future Simulations. "When you were thinking about the parking issue, did you imagine how the parking might look in the future at UNCG?" (1 = *not at all* to 6 = *neutral* to 11 = *a lot*).

Current Impact. "You were given information about when the parking solution is going to be implemented by the university. Will the change in the parking policy impact your ability to park now?" (1 = *no impact at all* to 6 = *neutral* to 11 = *big impact*).

Ability. "When you thought about the change in the parking policy, did you think about whether the parking policy would or wouldn't impact your ability to park?" (1 = *did not think at all about the impact* to 6 = *neutral* to 11 = *thought a lot about the impact*).

Future Impact on Current Standing. "Sometimes, our view of things in the present is affected by our knowledge that things will be different in the future. To what

extent are your current feelings about parking affected by your ideas about what parking may be like in the future?" (1 = *not at all affected* to 6 = *neutral* to 11 = *very affected*). An additional set of questions were posed to tap feelings of parking relative to self versus others. Each of these questions were asked on an 11-point scale (from 1 = *don't care at all* to 6 = *neutral* to 11 = *care a lot*).

Friends. "How much do you care about how the parking situation affects your friends?"

Self. "How much do you care about getting better parking?*"*

Unknown Others. "How much do you care about how the parking situation affects UNCG students you don't know?"

Measure of Collectivism. The Collective Self-Esteem Scale (CSES) was administered (Luhtanen & Crocker, 1992).

Measure of Thinking. The Need for Cognition Scale was administered (Cacioppo, Petty, & Kao, 1984).

Analysis Strategy. The questions regarding simulations were coded and scored to explore the decision-making determinants. As with Experiment 1, satisfaction with the current standing was compared using a traditional 2 relevance (relevant or nonrelevant) x 2 choices (limited or diverse) ANOVA. The personality measure of need for cognition, collectivism, and the self-report measures of collectivism were aggregated and analyzed as predictors along with options and relevance. Current satisfaction was the criterion variable of interest.

CHAPTER VII

EXPERIMENT 2: RESULTS AND DISCUSSION

Measures of Satisfaction. To determine the relationship between the two different types of measures of satisfaction, correlation coefficients were computed among the single scale measure of satisfaction and the aggregated five-item semantic differential (*good* to *bad*; *pleasant* to *unpleasant; acceptable* to *unacceptable; fair* to *unfair*; *excellent* to *poor*). The correlation between the single item and the aggregated semantic differential was significant, $r(171) = .81$, $p = .01$. To verify the stability of the five-item semantic differential, a maximum likelihood factor analysis was conducted. Two criteria were used to determine the number of factors: the a priori hypothesis that the measure was unidimensional and the interpretability of the factor solution. A principle components analysis yielded one factor that accounted for 81% of the variance. The second factor had an eigenvalue below one, and therefore, the results were considered a one-factor solution. To determine the reliability and consistency of the five items, a Chronbach's alpha showed that the five items had high internal consistency, $r = .942$, $p < .0001$.

First, an analysis of variance was conducted to evaluate the relationship between the aggregated score of satisfaction (an average of the five bipolar ratings) with current

standing from the semantic differential along with relevance and number of options presented. The independent variables—relevance and number—contained two-levels each (relevance versus nonrelevance; limited versus diverse choices). The dependent variable was an aggregated score of self-reported satisfaction with one's current standing using the semantic differential.

The results for the ANOVA indicated a nonsignificant effect for options, $F(1, 167) = .474$, $p = .492$. There was a nonsignificant effect for relevance, $F(1, 167) = 1.656$, $p < .20$. Finally, there was also a nonsignificant interaction between options and relevance, $F(1, 167) = .056$, $p = .813$. It is possible that despite the high correlation between the aggregated semantic differential and the single item question related to satisfaction that they tapped somewhat different but overlapping conceptual ideas. So, for example, although good, pleasant, and acceptable might have strong conceptual similarities to satisfaction, the questions asking about excellent and fair might tap other non-satisfaction related positive attributes. It is also possible that these attributes concentrate more on how participants are feeling at the moment, and therefore, are less of a global overall measure of satisfaction. The remaining analyses will concentrate on the single item measure of satisfaction, and therefore, explore a conceptual replication of Experiment 1.

An analysis of variance was conducted to evaluate the relationship between satisfaction with the current standing (single item measure) and the relevance and number of options presented. The independent variables—relevance and number—contained

two-levels each (relevant versus nonrelevant; diverse versus limited choices). The dependent variable was a self-report of satisfaction with one's current standing. The results for the ANOVA indicated a nonsignificant effect for options, $F(1, 196) = .05$, $p = .824$ (See table 2 for means). There was, however, a marginally significant effect for relevance, $F(1, 196) = 3.79$, $p < .053$ whereby participants had a higher current rating of satisfaction for relevant over nonrelevant solutions. There was a nonsignificant interaction between options and relevance, $F(1, 196) = .195$, $p = .659$. Closer inspection of the data, however, revealed that some participants failed to observe the relevance manipulation. It is possible that despite random assignment to relevant or nonrelevant conditions, participants may have perceived the conditions differently in terms of their own personal relevance.

This possibility is supported by the manipulation check that was embedded within the self-report measures of decision-determinants, revealing whether participants carefully read whether the solution to parking was to be implemented at the end of the academic year (relevant) or in 10 academic years (nonrelevant). Specifically the question measured the extent to which participants considered if the parking policy would or would not impact their ability to park. Some participants in the nonrelevant condition reported that there would be an impact on their ability to park, despite the fact that the policy would not be instituted for another 10 years. Likewise, some participants in the relevant condition reported that they had not thought at all about the impact on their ability to park.

Because some participants reported the impact of the policy discordantly from their assigned relevance, it is conceivable that these participants either misunderstood the timing of the policy or perceived their personal relevance different from their assigned condition; they were, therefore, dropped from the analysis. The cut-off criterion for dropping the participants was based on the neutral score of the scale. If participants who were assigned to the relevant condition rated the policy's impact 5 or lower (no impact at all) and if participants who were assigned to the nonrelevant condition rated the policy as having an impact 7 or greater (big impact), they were dropped from the analysis. Thirty-eight participants who rated the impact a five or lower on the 11-point scale (*No impact at all*) were dropped from the analysis. Thirteen participants, additionally, who rated the impact at a 7 or higher on the 11-point scale (*Big impact*) were dropped from the analysis.

By dropping participants who misreported their personal relevance in the manipulation check discrepantly from their assignment of relevance should allow for an analysis that will more closely mimic the naturally occurring situation. For some participants, despite being informed when the policy would be put into effect (e.g., at the end of this year or in ten years), may have perceptually considered their own personal relevance differently. It is also possible that participants misread or misunderstood the timing of the implementation of the policy. If this were the case, they would misinterpret the personal relevance of the parking policy as timing was manipulated to make the

parking policy change either relevant (implemented this academic year) or nonrelevant (implemented in ten years).

A 2 x 2 analysis of variance was conducted to evaluate the relationship between satisfaction with the current standing, the assigned relevance and the number of options presented to solve the campus parking problem. The independent variables—relevance and number—contained two-levels each. The solutions that were presented were to be implemented the following academic year (relevant) or in ten years (nonrelevant). The solutions that were presented either contained limited (two) or diverse (ten) options. The dependent variable was a self-report of satisfaction with one's current standing.

The results for the ANOVA indicated a nonsignificant effect for options, $F(1, 145) = .331$, $p = .556$, and relevance, $F(1, 145) = 2.073$, $p < 1.963$. There was, additionally, a nonsignificant interaction between options, relevance, and campus parking, $F(1, 145) = .27$, $p < .604$. Table 3 displays the tables of means. The results showed only a modest tendency for higher current satisfaction in the relevant condition, however the effect was nonsignificant. The anticipated higher current satisfaction anticipated for diverse options in the relevant condition and the higher current satisfaction resulting from limited options in the nonrelevant condition were unsupported.

I tested the specific interaction prediction that participants would be more satisfied with diverse (ten) versus limited (two) options in the relevant condition, but less satisfied with diverse (ten) versus limited (two) options in the nonrelevant condition. This analysis compares the differences in the mean rating participants having diverse (M =

5.47) versus limited (M = 5.04) options in the relevant condition to the difference in the mean rating of participants having diverse (M = 4.71) versus limited (M = 4.69) options in the nonrelevant condition. This difference was nonsignificant, $F(1, 145) = .567$, $p = .4527$. As may be seen from Table 3, there was only a hint of higher current ratings in relevant conditions. There was, however, not the anticipated higher rating of current satisfaction in parking when there were diverse versus limited solutions to the parking problem when they were relevant (e.g., instituted at the end of the year), $F(1, 145) = .51$, $p = .47$. Additionally, there not the predicted higher rating for limited compared to diverse solutions to the parking problem when they were nonrelevant (e.g., instituted in ten years), $F(1, 145) = .002$, $p < .96$.

In addition to self-reported relevance, participants were asked if they parked a car on campus. People who park on campus should theoretically have more of a vested interest in the campus parking policies relative to students who never park on campus. It is therefore conceivable that the participants who report parking on campus have the highest degree of personal relevance, and are therefore much more likely to care about the policies to improve parking. Because of the possibility that some participants might have a higher level of personal relevance, the following analysis concentrates on testing the options x relevance interaction solely for people who park on campus. Campus parking, therefore, was added as a predictor along with options (diverse vs. limited) and relevance (relevant vs. nonrelevant) and current satisfaction with parking as the outcome measure.

The results for the ANOVA indicated a nonsignificant effect for options, $F(1, 70) = .86$, $p = .357$, and relevance, $F(1, 70) = 2.722$, $p < .103$. There was, additionally, a nonsignificant interaction between options, relevance, $F(1, 70) = .27$, $p < .276$. Table 4 displays the tables of means. The results showed only a modest tendency for higher current satisfaction in the relevant condition, however the effect was nonsignificant, $F(1, 70) = 1.81$, $p = .1825$. There was also a very modest anticipated higher current satisfaction in the limited over diverse options in the nonrelevant condition, although the difference was not statistically significant, $F(1, 70) = .017$, $p = .8967$.

These results are, therefore, inconsistent with those obtained in Experiment 1. The results suggest that there are virtually no differences between diverse (ten) and limited (two) options in either the relevant and nonrelevant conditions. Experiments 1 showed modest support for assimilation of the future imagined state to choices that have personal relevance and will involve upcoming positive changes. In Experiment 2, however, there was not a conceptual replication of the interaction from Experiment 1, even for those people who park on campus. Neither experiment found sufficient evidence, additionally, to support contrasts in the nonrelevant conditions when the policy change would not be enacted in the foreseeable future, despite the larger sample size. There was, therefore, no support for a transversal effect of choice on satisfaction and participants in the nonrelevant condition did not show preferences for limited over diverse options when they would not personally benefit from campus parking policy changes.

There are a number of potential reasons why this paradigm failed to capture the anticipated options x relevance interaction as a result of contrast and assimilation of future options to the current state. It is possible that assimilation of relevant choices did not occur in the second study because the data was collected for the first study in the fall and for the second study in the spring. The timing, therefore, could affect the personal urgency of the policy. It is possible that parking had been resolved by the participants in the spring. Parking was chosen as a topic for this study because of its relevance to the student sample; unfortunately, some participants did not park on campus and therefore the topic of parking was not relevant to all participants. It was anticipated with a secondary analysis in Experiment 2 that for participants who do park on campus there would be the anticipated options x relevance interaction; this was not supported, however. One potential limitation of replicating the results comes from the sample characteristics—in Experiment 1, over 51% of participants parked on campus while only 44% of participants reported parking on campus in Experiment 2.

It is possible that some people perceive nonrelevant future options differently. Thus, collectivism and need for cognition were explored in the relevant and nonrelevant conditions to see if people might have a different perception of the options. In general, there was no support for the expected exchange of preferences from diverse to limited when the campus parking policy change would not go into effect until ten years from now. Perhaps there are some people who think and perceive future choices differently and would support the anticipated transversal of choice on satisfaction. [2]

Individual Differences in Satisfaction from Choice

Collectivism. Part of the a priori predictions for this experiment surrounds the notion of collectivism—showing deference to others relative to the self. Participants' ratings of cultural identity were taken from two sources—a self-report measure of collectivism (Luhtanen & Crocker, 1992) as well as several questions asked to determine participants' ratings of caring about campus parking for oneself, friends, and for unknown students. These questions were intended to provide a convergent method to help explore the implications of how people perceive others benefiting versus the self, and in turn, the effect on how one perceives personal satisfaction with what one has. Questions pertaining to caring about parking for the self, friends, and unknown others were asked along an 11-point scale (from 1 = *don't care at all* to 6 = *neutral* to 11 = *care a lot*).

Analysis Strategy. First, Luhtanen and Crocker's (1992) 16-item Collective Self-Esteem (CSES) scale was entered and aggregated into four subscales. The CSES 4 sub-scales are: 1) *Membership Esteem* which assesses an individual's judgments of how worthy they are as members of their social groups; 2) *Private Collective Self Esteem* that measures personal judgments of how good one's social groups are; 3) *Public Collective Self Esteem* that assesses one's perceptions of how positively other people evaluate one's social groups; and 4) *Importance to Identity* that assesses the importance of one's social groups memberships to one's self-concept. The subscale that most closely reflected the construct of a collectivistic tendency toward caring about future students' parking was

Importance to Identity. The higher a participant would report one's social membership as part of their self-concept, the greater the participant would take into consideration the needs of other students.

To show effects of collectivism on current satisfaction, scores of *Importance to Identity* were aggregated. A regression analysis was conducted to evaluate how well collectivism predicted current satisfaction with parking. Because results from Experiment 2 suggest that some of the participants reported their relevance discordantly from their assigned condition, these participants were omitted from the analysis. The predictors were collectivism, the number of options (dummy coded as limited and diverse), as well as relevance (dummy coded as relevant and nonrelevant). The criterion variable was satisfaction with one's current parking. There was a no effect for collectivism on satisfaction, $\beta = -.74$, $t(140) = -.884$, $p < .378$; additionally, there was a nonsignificant effect for options, $\beta = .07$, $t(140) = .833$, $p = .406$, and relevance, $\beta = .106$, $t(140) = 1.263$, $p < .209$. The relationship between collectivism as measured by the Luhtanen and Crocker's (1992) *Importance to Identity* subscale and current satisfaction with parking, therefore, did not prove to be a significant.

Secondly, the self-report measures of collectivism were used as a convergent way to determine how people report their feelings toward others. It is conceivable that collectivistic participants report caring about others differently from those who are low in collectivistic tendencies. In order to determine differences in self-reported collectivism and its relationship to current satisfaction, the question asking about parking for the self

(a measure for individualism) was analyzed separately from the measures asking participants about how much they cared for friends and unknown others (a measure of collectivism).

To demonstrate that the questions were related, a reliability test was performed. The two self-report questions that were hypothesized to measure collectivism both yielded correlations of at least .59: "How much do you care about how the parking situation affects your friends?" and, "How much do you care about how the parking situation affects UNCG students you don't know?" Not surprisingly, the weakest correlations between the items of collectivism and individualism were found ("How much do you care about getting better parking?"). The two measures of collectivism were, therefore, deemed conceptually similar and aggregated into a single measure of collectivism.

A regression analysis was conducted to evaluate how well collectivism—as measured by the two questions related to caring—predicted current satisfaction with parking. Once again, the subset of participants who park on campus were used for analyses. The predictors were collectivism, the number of options (dummy coded as limited and diverse), as well as relevance (dummy coded as relevant and nonrelevant). The criterion variable was satisfaction with one current parking. Collectivism was a nonsignificant predictor of satisfaction, $\beta = -.041$, $t(140) = -.484$, $p = .629$. The number of options were not a significant predictor of satisfaction, $\beta = .068$, $t(140) = .804$ $p = .423$, nor was relevance, $\beta = .108$, $t(140) = 1.264$, $p < .208$. The relationship between

collectivism as measured by the questions of caring for friends and unknown others, therefore, did not prove to be significant predictors of current satisfaction with parking. [3]

One potential reason the a priori prediction that collectivism would have a differential effect in the relevant and nonrelevant conditions was not supported is that participants may not have perceived questions related to parking endemic to ingroup favoritism, and therefore, the collectivism measures would not capture the true relationship of feelings of deference for ingroup members. The university population is heterogeneous and large, therefore future students may serve as a poor proxy for an ingroup bias. In addition, the sample was collected from a culture where individualism is predominant, and therefore, would poorly reflect the way true collectivists might perceive the future relevant and nonrelevant options.

Need for Cognition. Need for cognition refers to people who enjoy and engage in effortful thinking. Research suggests that need for cognition, or *NFC,* involves a tendency to seek, acquire, think about, and reflect back on information in order to make sense of stimuli, relationships, and events (Cacioppo, Petty, Feinstein, & Jarvis, 1996). For participants who are high in NFC, it would be conceivable that choices involve more careful or detailed consideration about the implications about the options one must consider. In following this line of reasoning, it is also possible that for people who think carefully about options, imagining a future alternative world might have a larger impact on their perceptions of satisfaction relative to those who are low in NFC. Thus, the

effects of relevance and choice would have a stronger effect for those high versus low in need for cognition.

A regression analysis was conducted to evaluate how well need for cognition predicted current satisfaction with parking. Again, the subset of people who concordantly responded to the manipulation check with their assigned relevance were used for analyses. The predictors were need for cognition, the number of options (dummy coded as limited and diverse), as well as relevance (dummy coded as relevant and nonrelevant). The criterion variable was satisfaction with one's current parking. Need for cognition was a nonsignificant predictor of satisfaction, $\beta = -.073$, $t(140) = -.857$, $p = .393$. The number of options were not a significant predictor of satisfaction, $\beta = .057$, $t(140) = .673$, $p = .502$, nor was relevance, $\beta = .093$, $t(140) = 1.099$, $p < .274$. The relationship between need for cognition and current satisfaction with parking, therefore, did not prove to be a significant.

The relationship between need for cognition and current satisfaction did not show the predicted pattern. This might have happened for a number of reasons. Future imagery, without being prompted intentionally, might happen at a subconscious level in some circumstances (Sanna, 2000; Taylor & Schneider, 1989). If so, the processes that discern the thoughtful consideration personified by those high in need for cognition might not be captured without the participants being prompted to think (or willfully thinking) carefully about the determinants and consequences. Additionally, because the paradigm itself might involve a decision that does not require a large amount of thought, all individuals

who were willing to spend the necessary cognitive resources to understand the issue before them may not have needed to employ them.

Both collectivism and need for cognition were proposed to explore individual differences that might account for the transversal of satisfaction. Although the data were unsupportive of differences for participants high in collectivism and need for cognition, it is plausible that other individual differences might lead participants to have stronger affective reactions to nonrelevant, diverse options whereby they demonstrate perceptual contrasts and preferences for limited over diverse options. Social comparison orientation, for example, might demonstrate that those who engage actively in social comparisons are affected differentially by the knowledge that future choices are intended for others in the nonrelevant condition or for themselves in the relevant condition.

Summary of Satisfaction Results. The results from Experiment 2 failed to support assimilation for relevant choices in the upcoming future, even for people who park on campus. When choices for future policy changes are upcoming, participants did not show the anticipated higher satisfaction with their current situation when they had diverse versus limited options. Additionally, there was no support for differences between diverse and limited options in the nonrelevant condition. I expected differences when the individual difference variables of collectivism and need for cognition were taken into consideration. This, however, was not the case. This is perhaps due to a lack of relationship between these personality traits and decisions about future relevant and nonrelevant decisions. Alternatively, because the analyses only involved people who

responded concordantly with the relevance manipulation, there was less statistical power because of a slightly smaller sample size.

To determine why people show tendencies to prefer diverse over limited options in relevant future decisions and tendencies for preferences to limited over diverse options in nonrelevant future decisions, measures were added to determine how people arrived at their decisions about future choices and satisfaction. More specifically, people were asked how they perceived the number of solutions presented, the extent to which they engaged in mental imagery, the extent to which the future policy would impact their current parking, the extent to which the policy will have a personal impact, and finally, whether or not focusing on how the future might change influences what participants feel about what they have now.

Decision-determinants of Future Choices. Why do people show tendencies toward changing perceptions of satisfaction with their current standing when presented with new potential future options that are upcoming versus far away? And how do some circumstances positively influence ratings of satisfaction more so than others? Satisfaction with one's current standing is not immune to future changes. To test how this effect occurs, questions related to the decision determinants were posed to participants (following the parking scenario and the questions related to satisfaction).

Number of Options. The first decision-determinant question explored how the number of options offered to solve the parking problem affected perceptions of the policy. An 11-point scale was used to determine if there were between condition

differences in ratings of how good the policy is based on the number of options. A univariate analysis of variance was conducted on the mean rating of choices. Participants offered diverse (10) choices to solve the parking dilemma rated the number of choices to solve the parking dilemma (M = 6.87) higher than participants in the limited (2) options conditions (M = 5.78), $F(1, 196) = 15.145$, $p < .0001$. [4] This suggests that people who were offered diverse options feel that the policy is better relative to the participants offered limited options. This is consistent with prior tests evaluating satisfaction based on the set sizes of choices offered to people (Haynes, 2009; Reutskaja & Hogarth, 2009). Overall, this is also consistent with the notion that relative to little or no choice, people generally want a moderate number of options when making choices.

Future Simulations. Participants were then asked the extent to which they thought about what the future might look when considering the parking dilemma on an 11-point scale. The test value was set at 6, since this number reflected the average, or neutral score. If the mean fell below this number, this would indicate that imagining the future was not part of the decision, and conversely if the mean represented a number higher than the average, this would reflect people imaging the future while considering parking. To determine if visualizing the future was indeed part of the decision, a one-sample t test was conducted. The sample mean of 8.04 was significantly different from 6, $t(199) = 12.67$, $p < .0001$. Consistent with the literature on mental imagery of problem solving and emotional coping (e.g., Sanna, 2000; Taylor, Pham, Rivkins, & Armor, 1998; Taylor & Schneider, 1989), participants who park on campus visualized or simulated

what the improvements to the parking situation might look like while making a determination about the appropriate option as well as to determine how they felt about the choices.

Future simulations are suggested to be a core part of determining how one feels about future changes. It is possible, therefore, that when options will not bring personal benefit, people simulate to a lesser extent; if this is the case, the simulations might be insufficient to drive the affective outcomes predicted with nonrelevant decisions. To test this idea, a univariate analysis of variance was conducted. The extent to which future simulations impact current feelings was used as the dependent measure. The independent measure was relevance (relevant versus nonrelevant) of future parking policy changes. Participants offered relevant (policy will be enacted at the end of the year) choices to solve the parking dilemma rated the extent to which future simulations impacted current feelings higher (M = 7.67) than participants in the nonrelevant (policy will not be enacted until the end of ten academic years) condition (M = 6.69), $F(1, 198) = 11.40$, $p < .001$. Thus, people who were exposed to nonrelevant choices engaged in less simulation about how the future makes them feel about their current circumstances. A weaker future simulation, therefore, might be responsible for the fact that nonrelevant choices failed to show the predicted contrasts and reach significance.

Current Impact. Participants were asked if the proposed policy would affect their ability to park now. This served the purpose of a manipulation check to see if participants were more influenced by the proposed policy when it would be implemented

at the end of this academic year (relevant) as opposed to in ten academic years (nonrelevant). An analysis of variance was conducted using relevance and whether participants parked or did not park on campus as the independent variables and current impact now as the dependent measure. Furthermore whether participants did or did not park on campus might have an impact in the relevant but not in the nonrelevant condition.

The ANOVA showed a main effect for relevance, $F(1, 191) = 37.28$, $p < .0001$, whereby participants who were assigned to the relevant conditions rated the policy having a much larger impact on their parking relative to participants in the nonrelevant conditions. There was a marginally significant effect for campus parking, $F(1, 191) = 3.851$, $p = .051$, suggesting that people who park on campus rated the policy having a greater impact relative to those who do not park on campus. There was, however, a significant interaction for relevance and campus parking, $F(1, 191) = 9.83$, $p < .002$. This effect was due to the fact that there was a significant difference between parkers ($M = 9.51$) and non parkers ($M = 7.45$) in the relevant condition, $F(1, 195) = 120$, $p < .0001$, but not in the nonrelevant condition, $F < 1$ (M for parkers = 5.71; M for non parkers = 6.22).

Ability. Participants were asked to rate if, when they thought about the change in the parking policy, they also thought about whether the parking policy would or would not impact their ability to park. Whereas the current impact question was used as a manipulation check for relevance, this question was posed to determine the extent to which the participant perceived the policy might impact their parking. An analysis of

variance was conducted using relevance and whether participants parked or did not park on campus as the independent variables and when they thought of the policy if they also thought about whether it would or wouldn't impact their ability to park as the dependent measure. Furthermore whether participants did or did not park on campus might have an impact in the relevant but not in the nonrelevant condition.

The ANOVA showed a main effect for relevance, $F(1, 195) = 21.239$, $p < .0001$ whereby participants who were assigned to the relevant conditions rated thinking more about whether the policy would or would not impact their ability to park relative to participants in the nonrelevant conditions. There was a nonsignificant effect for campus parking, $F(1, 195) = 1.017$, $p = .314$. There was, however, a significant interaction between relevance and campus parking, $F(1, 195) = 8.941$, $p < .003$. This effect was due to the fact that there was a significant difference between parkers ($M = 6.27$) and non parkers ($M = 4.42$) in the relevant condition, $F(1, 195) = 9.46$, $p = .0024$, but not in the nonrelevant condition, $F = 1$ (M for parkers = 2.75; M for non parkers = 3.67).

Future Impact on Current Standing. Participants were instructed that sometimes our view of things in the present is affected by our knowledge that things will be different in the future. They were then asked to rate to what extent their current feelings about parking are affected by their ideas about what parking may be like in the future on an 11-point scale. The test value was set at 6, since this number reflected the average, or neutral score. If the mean fell below this number, this would indicate that their current feelings were not based on imagining the future, and conversely if the mean

was higher than the average, this would reflect people's feelings being impacted by imaging the future while considering parking. To determine if the future was responsible for impacting current feelings, a one-sample *t*-test was conducted on the ratings of all participants.

The sample mean of 7.25 was significantly different from 6, $t(199) = 8.58$, $p < .0001$. To determine if there was a difference between people who park on campus and those who do not, an analysis of variance was conducted with the dichotomous response of parking and relevance as the between-subjects factors; ratings of feelings based on the future was used as the outcome measure. The ANOVA showed a main effect for relevance, $F(1, 195) = 12.11$, $p < .001$ whereby participants who were assigned to the relevant conditions rated thinking more about how future parking would have an impact on current feelings of parking relative to participants in the nonrelevant conditions. There was a significant effect for campus parking, $F(1, 195) = 6.39$, $p = .012$. There was, however, a nonsignificant interaction between relevance and campus parking, $F(1, 195) = .068$, $p < .795$.

This was a critical test for the assumption that imagining an alternative future has an impact on our problem solving and emotion regulation as suggested by Taylor and Schneider (1989). What was less clear, however, was whether imagining an alternative future had an impact with participants' current standing on a given issue. On average, participants responded that a future alternative state had an impact on their feelings about their current state. Additionally, for those who did park on campus, and for whom the

parking dilemma had a purportedly even higher personal relevance, rated that the alternative future world had an even greater impact on their current feelings relative to those who do not park on campus.

CHAPTER VII

GENERAL DISCUSSION

Choice is an experiential state that involves the evaluation of two or more alternatives (Steiner, 1979). One way choices distinguish themselves is by the number of options that are available in any given selection-set. Do we always enjoy choice? The present research aimed to address part of the discrepancy between two conceptual viewpoints: one has traditionally extolled the virtues of choice (e.g., Deci & Ryan, 1985; Langer & Rodin, 1976; Ogden, Daniells, & Barnett, 2009; Ryan & Deci, 2006; Sheldon & Elliot, 1998), and a divergent group that carries a less exuberant portrayal of choice (e.g., Ariely, 2000; Burger, 1989; Iyengar & Lepper, 2000; Mick, Broniarczyk, & Haidt, 2004; Schwartz 2000, 2001, 2004). While these two studies do not account for the discrepancy between these two viewpoints, per se, they propose that certain contexts might perceptually change the desirability of options on one's current state—more specifically, sometimes we might want diverse choices and sometimes we show a tendency to prefer limited options or have no preference at all.

Two experiments explored the effect of choice on satisfaction. In Experiment 1, participants read about a campus parking problem and were provided potential solutions to resolve the issue. Personal relevance was manipulated in two ways. First of all, parking

was chosen as a topic because of its purported high relevance to the sample—undergraduate students. University campuses often face parking dilemmas, and because personal relevance was a key element of the manipulation, it was anticipated that people would feel a sense of personal urgency to the topic at hand. Participants were asked to consider how to handle the growing problem with parking due to increased enrollment. They were either provided limited or diverse options from which to choose to solve the parking problem. The second way that personal relevance was manipulated was the timing of the implementation of the policy—participants were told that the plan being described would be implemented at the end of the academic year or in ten academic years. Because students are no longer on campus in a ten year period, typically, this served as an implicit sign that the policy would not be personally applicable because it would be implemented after the participant graduated; conversely, for those who continue enrollment, the policy would be relevant to the extent that it would be implemented at the end of the academic year.

The Results of Experiment 1 showed that when the solution to the parking problem was forthcoming, and therefore personally relevant, participants rated their current satisfaction higher with diverse over limited options. Moderately more options seem enticing because people can visualize an alternative reality with parking solutions solving their current dilemma. This alternative reality elicits positive affect that is assimilated with our perceptions with what we have now. To the extent that the situation is relevant and rewarding, people will assimilate diverse options with their current

standing and ratings of satisfaction are higher relative to when choice is limited. Thus, when we benefit from choices in the short-term future, people prefer diverse over limited choices.

Conversely, when the parking solution was further in the horizon and would not be implemented for another ten years—thus not personally relevant to the decision-maker—participants' rating of current satisfaction hinted at a preference for limited over diverse options. More options for parking would appear to be less appealing because it does not solve one's own parking dilemma; however, this effect was not significant. It is possible that participants were unmoved by options because they were not relevant to them at all.

Understanding what we feel about what we have now, therefore, is represented by our current satisfaction. These studies lend suggestive evidence that when we think about choices for the future, we actively engage in mental imagery that allows us to visualize what an alternative reality would look like with the choices implemented. Our choices serve as a referent point; when choices are relevant to us, people tend to engage in more imagery, and that imagery affects how we feel about our current state related to the choices under consideration. The referent point—represented by the number of options we are presented—might lead us to assimilate these options with our current state. Experiment 1 suggests that to the extent that positive choices are relevant and meaningful, a moderate amount of choices (ten) lead us to have a higher current satisfaction relative to a limited number of choices (two).

What distinguishes the impact of relevant and nonrelevant future choices from one another other than the temporal implication? Relevance appears to carry both psychological and objective impact; there are concrete outcomes that are forthcoming and that immediacy seems to entice emotional and psychological impact. Nonrelevant choices lack the objective impact and carry a more nuanced emotional or psychological impact. It is possible that people prefer not to engage mental processes when an issue does not pertain to the self. Experiment 2 failed to replicate the options x relevance interaction. Furthermore, the difference between options in the relevant condition that were suggested in Experiment 1 were not found in Experiment 2.

The failure to replicate the preference for diverse options in relevant decisions might be explained by a number of reasons. It could be that campus parking was not personally meaningful to enough participants to show the anticipated differences. It is also possible that because Experiment 2 was conducted during the spring semester, participants had already solved their parking dilemmas and the urgency of the policy was not as salient in the spring semester.

It remains unclear if there are contexts whereby limited options seem preferable over diverse options and people rate a higher current satisfaction when presented nonrelevant options for the future. It is possible that the meaningfulness of the paradigm was such that did not allow for this distinction to be shown. Likewise, it is also possible that people simply do not think carefully about the implications of future choices when they are not personally beneficial. Participants rated that they engaged in less mental

imagery and that the imagined alternative state had less of an impact on the current state. It is therefore possible that people are unwilling to engage in the effortful thinking required to demonstrate a contrast of diverse options to one's current reality when they are not relevant. It was also anticipated that individual differences might support the preference for diverse over limited options in relevant decisions and limited over diverse options in nonrelevant decisions, however this remained unsupported.

In Experiment 2, it was proposed that people demonstrate individual differences in how they perceive choice from decision-making styles and cultural upbringing. Theoretically speaking, collectivists have a greater concern for considering the needs of people in their ingroup relative to individualists. The implication for future choices involves comparisons to what others might or might not receive relative to the self. There are two potential implications of collectivism and ingroup favoritism: (1) Collectivists should feel less negative affect for not receiving improvements from diverse future choices to the extent that they perceive the recipients of the improvements to be part of the ingroup; Or, (2) collectivists could, despite their ingroup preferences, perceive a greater sense of loss because of their heightened likelihood to compare to what others receive. In this case, limited options should be preferable to diverse.

The second individual difference explored in Experiment 2 was need for cognition. Those who are high in need for cognition, and enjoy thinking carefully about topics, should be more thoughtful about how the future might look relative to those low in cognition. The results, however, did not support this difference. A number of reasons

might account for the lack of support. It is possible that participants engaged in subconscious imagery, and therefore, did not carefully scrutinize the options as was expected for those high in cognition. It is also possible that the parking paradigm did not illicit the necessary importance or levity to encourage more thoughtful processing. Unfortunately, neither of these potential outcomes was supported. First, there was no direct support for collectivism as measured by the Importance to Identity subscale. The second way that collectivism was measured was asking people how much they cared about parking for their friends and unknown students. This approximated the extent to which they felt collectivistic feelings toward other people who were in the context to potentially benefit from improved parking. There was insufficient support for the questions related to caring about parking for friends and unknown others.

Experiment 2 explored the decision-determinants associated with the interaction between relevance and choice on satisfaction found in Experiment 1. It was predicted that when people consider changes in the future, they simulate an alternative reality and compare that with their current situation. The underlying assumption was that the movement in satisfaction with one's current standing came from imagining how something might be different in the future from how it appears currently. Mental imagery of a future world in which the problem is better is a common part of problem solving (Taylor, Pham, Rivkin, & Armor, 1998; Taylor & Schneider, 1989) and making plans (Oettingen, Pak, & Schnetter, 2001).

If mental simulations of a potential alternative future outcome influence participants' ratings of current satisfaction, they should respond positively to making appraisals of a future alternative world with a new ending (e.g., happy to have improved parking or disappointed to not profit from the changes in the future). These results support the idea that people do mentally simulate how the number of choices will change their fate, and in doing so, these simulations affect their perceptions of what they have now.

Mental simulations have been proposed to be a normal part of decision-making, planning for the future, and managing our emotions while preparing ourselves for action. They have an additional affective implication to the decision-maker because the simulation should provide a referent to the current standing. Visualizing an improvement in parking or understanding that an improvement that can be visualized will not happen any time soon has emotional implications for the person faced with giving input to solve a problem. People faced with making choices, but who will not receive the benefit from the choices, report engaging in mental simulations to a lesser extent than people who will benefit. This might be due to indifference or reserving cognitive resources for more meaningful decisions. It is likely that because people were unwilling to engage in simulations as much in nonrelevant contexts that the expected strong preference toward limited over diverse options did not occur.

The literature diverges on how many choices one should optimally have. Overall, participants report wanting diverse relative to limited options in the relevant condition.

Participants responded that the solutions were better when there were diverse options versus limited. This effect is clearly supported in many prior studies (Chernev, 2003; Iyengar & Lepper, 2000; Haynes, 2009; Reutskaja & Hogarth, 2009). These experiments, however, add to our knowledge of how positively perceived choice truly is; diverse choices are only positive to the extent that they will be personally beneficial.

It is perhaps not as straight forward as Haynes (2009) would have one think in terms of the perfect number of options. Choices are probably more contextually bound. It is conceivable that expertise might bump the magic number '10' up; when we possess a certain level of sophistication and experience about our choices, "more might be better". Conceivably, other decisions that have profound implications, such as field of study at a university or a potential mate may feel less rewarding when confined to just a handful of choices. Conversely, highly difficult or aversive choices, such as going to war, might feel less aversive with fewer options; likewise, cumbersome and mundane consumer decisions, such as weighing the attributes while purchasing a new consumer product, might feel less taxing with a manageable number of options.

One limitation of this research is the reliance on self-reports which implies that we are consciously aware of our thoughts and how we even come to make decisions regarding future choices. While in some circumstances this might be true, it is conceivable as well that we are unaware of how we develop our thoughts and feelings about a particular choice. Because not all participants parked on campus, future research should strive for conceptual replications that are meaningful to all participants. Future

research, additionally, should also attempt to create novel, convergent ways of discovering how we determine how we feel about future choices and what impact that has on what we have now. Novel methods such as in-vivo verbal reports, open-ended questions, brain imaging, and studies with behavioral measures might help to disentangle the decision-making process and reveal the specific decision-determinants related to choice.

The parking policy paradigm naturally excluded some of the participants for either not having a car or opting not to park on campus. It is conceivable, therefore, that the problem might have less of an effect for those who do not park on campus. This does not necessarily mean that students who do not park on campus have no interest in policy changes about parking; however, the strength of interest may have been attenuated and the effect more subtle for many of these participants. Future studies should focus on topics that have strong relevance to all participants—such as policy changes in curriculum decisions, tuition changes, or graduation requirements. With topics of greater personal relevance, it is possible that the elusive contrast effect may occur.

Evidence suggests that we are aware of what others have or are doing relative to ourselves; people tend to engage in self-serving biases (Babcock, Wang, & Lowenstein, 1996; Hastorf & Cantril, 1954). People are thus constantly searching for a better reality, visualizing a changed world, forecasting the personal implications, making plans, and deciding how they feel about the implications. We reflect back on the past to make sense of it, and we look to the future to prepare for action.

Research is just beginning to attempt to integrate the divergent theoretical viewpoints of choice. Future studies should continue to probe the types of choices we are confronted with, the optimal number of options, appropriately meaningful choices, individual differences, and the affective implications of choosing. This research suggests that one helpful way of determining how to feel about our current circumstances is simply to contemplate our future options.

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FOOTNOTES

[1] A subsequent analysis was conducted to explore how parking on campus would affect the options x relevance manipulation because conceivably the parkers would have the highest personal relevance to the proposed parking changes. The analysis weakened the overall interaction, but the means were still in the intended direction.

[2] The subset of participants who parked on campus demonstrated the predicted contrast and assimilation when an outlier was removed.

[3] The self-report question asking participants how much they care about parking for themselves was conceptually different from caring about friends' and unknown others' parking; the latter questions were more representative of collectivism. The relationship between caring for one's own parking had the weakest relationship with caring for friends' and unknown others' parking, and therefore, the analyses were not included.

[4] The decision determinants had conceptually and statistically similar results if the entire sample or if just the participants who park on campus were used.

Table 1

Mean Satisfaction with Current Standing For the Limited and Diverse Choices Conditions by Relevance and Nonrelevance of Experiment 1

	Relevance			
Choices	Relevant†	*SE*	Nonrelevant‡	*SE*
Limited	4.15	.47	5.20	.62
Diverse	5.67	.50	4.10	.67

† The difference between limited and diverse relevant options was moderately significant, $p < .06$.

‡ The difference between limited and diverse nonrelevant options was nonsignificant, $p < .18$.

Table 2

Mean Satisfaction with Current Standing For the Limited and Diverse Choices Conditions by Relevance and Nonrelevance of Experiment 2

	Relevance			
Choices	Relevant†	*SE*	Nonrelevant‡	*SE*
Limited	5.17	.33	4.68	.31
Diverse	5.38	.33	4.61	.31

† The difference between limited and diverse relevant options was nonsignificant, $p < .64$.

‡ The difference between limited and diverse nonrelevant options was nonsignificant, $p < .87$.

Table 3

Mean Satisfaction with Current Standing For the Limited and Diverse Choices Conditions by Assigned Relevance and Nonrelevance With Misreporters Omitted from Experiment 2

	Relevance			
Choices	Relevant†	*SE*	Nonrelevant‡	*SE*
Limited	5.04	.49	4.69	.35
Diverse	5.47	.40	4.71	.34

† The difference between limited and diverse relevant options was nonsignificant, $p < .47$.

‡ The difference between limited and diverse nonrelevant options was nonsignificant, $p < .96$.

Table 4

Mean Satisfaction with Current Standing for People who Park on Campus in the Limited and Diverse Choices Conditions by Assigned Relevance and Nonrelevance with Misreporters Omitted From Experiment 2

	Relevance			
Choices	Relevant†	*SE*	Nonrelevant‡	*SE*
Limited	5.12	.67	4.75	.64
Diverse	6.47	.73	4.64	.62

† The difference between limited and diverse relevant options was moderately significant, $p < .18$.

‡ The difference between limited and diverse nonrelevant options was nonsignificant, $p < .89$.

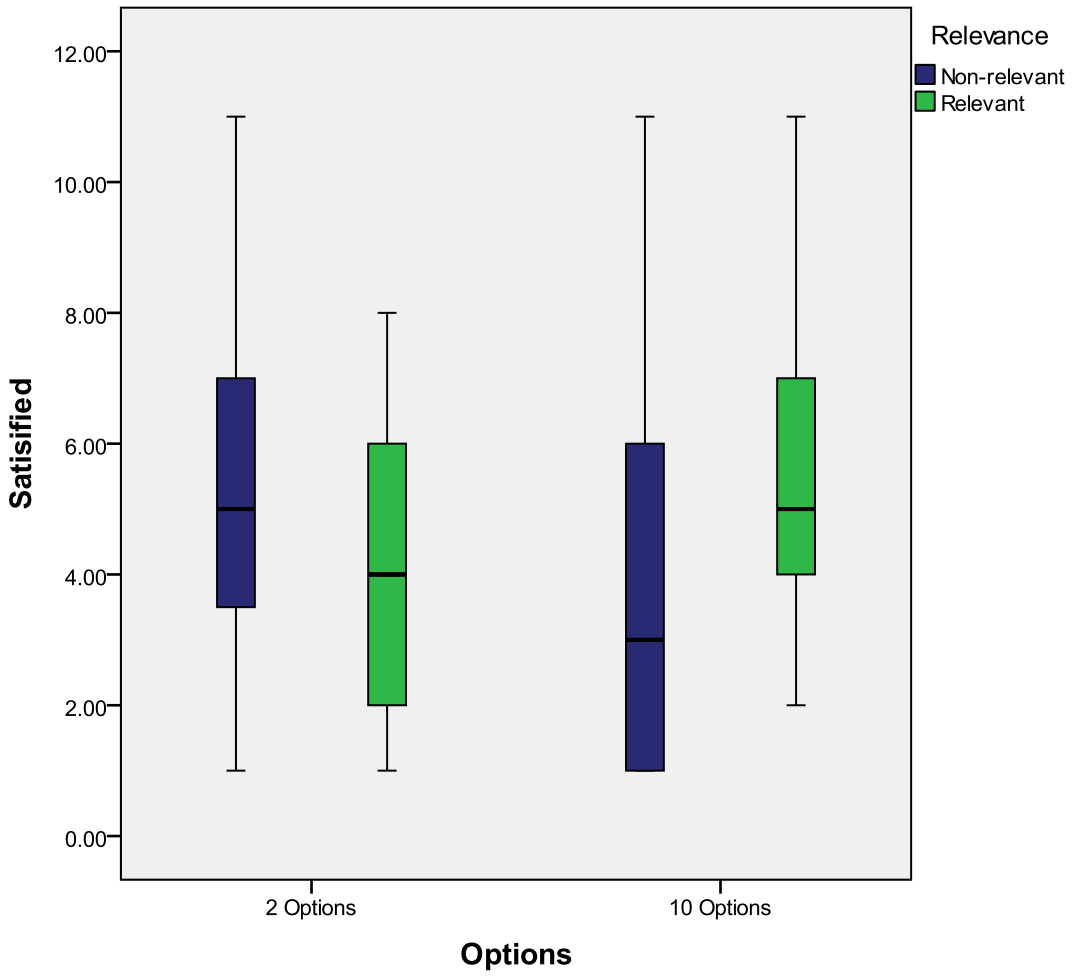

Figure 1. Mean satisfaction with current standing as a function of number of solutions and relevance (Experiment 1)

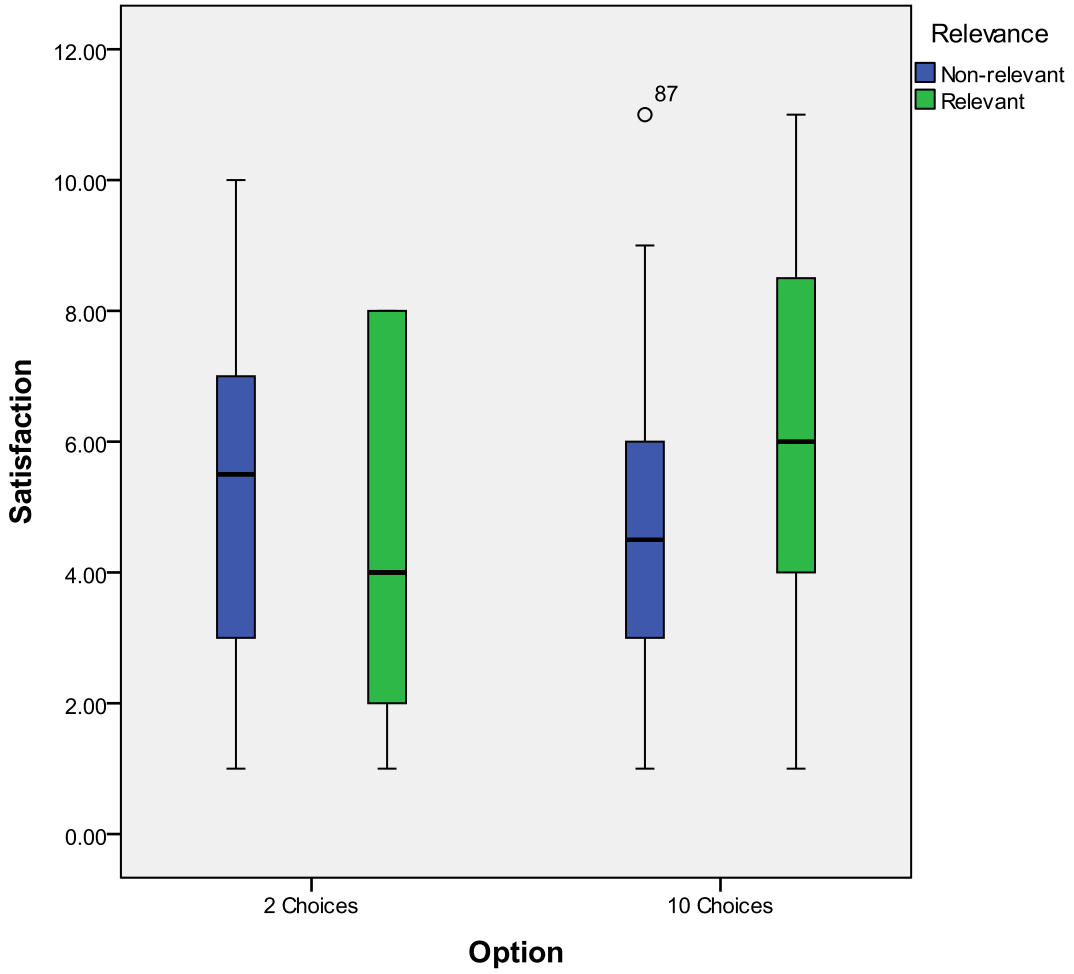

Figure 2. Mean satisfaction with current standing as a function of number of solutions and relevance for participants who park on campus (Experiment 2)